CHIP REPORT NO. 10

Child Health and Poverty

Mickey Chopra and David Sanders

CHIP

Childhood Poverty Research and Policy Centre

Child Health and Poverty

Mickey Chopra and David Sanders

Contents

Preface iii

Acknowledgements iv

Executive Summary 1

1. Introduction 4

2. The relationship between poverty and child health 5
   - *Untreated morbidity* 6
   - *Reduced access to care* 6
   - *Long-term impoverishment* 7

3. Burden of childhood disease and increasing inequalities in child health 9

4. What are children dying of? 12

5. What is the role of more distal determinants? 16

6. To what extent can primary healthcare interventions improve child health and reduce inequalities? 19

7. Examples of successful large-scale child health programmes 23
   - *Policies and context* 28
   - *Technical features* 31
   - *Coverage, targeting, resources and intensity* 35
   - *Selective primary healthcare* 37
   - *Structural adjustment programmes* 38
   - *Health sector reform* 41
   - *HIV/AIDS* 42

8. Equity and efficiency 44

9. Present status of health systems 46
   - *Decreasing levels of aid* 46
   - *Crisis of human resources* 48

10. Conclusions 49

References 52

Preface

This paper is one of a series of working papers, reports and policy briefings on different aspects of childhood poverty published by the Childhood Poverty Research and Policy Centre (CHIP). CHIP is a collaborative research and policy initiative involving academic institutions and Save the Children in China, India, Kyrgyzstan, Mongolia and the UK. It aims to:

- deepen understanding of the main causes of childhood poverty and poverty cycles, and increase knowledge of effective strategies to tackle it in different contexts
- inform effective policy to end childhood poverty, ensuring that research findings are widely communicated to policy-makers, practitioners and advocates
- raise the profile of childhood poverty issues and increase the urgency of tackling them through anti-poverty policy and action
- work globally to tackle chronic and childhood poverty in developing and transition countries.

Financial support from the Chronic Poverty Research Centre (CPRC), the UK Department for International Development (DfID) (grant no. R8005), Save the Children UK and the International Save the Children Alliance has made this publication possible and is gratefully acknowledged.

For further information and to download all our publications, visit www.childhoodpoverty.org.

Acknowledgements

The authors would like to thank Dr Smruti Patel for accessing references and Ms Lynette Martin for her editorial assistance. Rachel Marcus and Regina Keith commented on earlier versions of the paper, which was edited by Ingrid Lewis.

The authors can be contacted c/o School of Public Health, University of the Western Cape, Bellville 7535 Western Cape, South Africa

Email: mchopra@uwc.ac.za or dsanders@uwc.ac.za

Executive Summary

Poor child health and nutrition impose significant and long-term economic and human development costs – especially on the poorest countries and communities, further entrenching their status. Improving child health and nutrition is not only a moral imperative, but a rational long-term investment. The greatest burden of childhood death and disease is concentrated among the poor. A decrease in the rate of improvement in child health in the past two decades has lead to widening inequalities in survival and quality of life between richer and poorer groups. Over ten million children under five still die every year, 99 per cent of them in non-OECD countries, and the poorest children are up to three times more likely to die than the richest children.

Main causes of child mortality and morbidity. The dominant causes of mortality and morbidity remain nutritional deficiencies and infectious diseases, with HIV/AIDS contributing significantly in eastern and southern African countries. The above 'proximal' causes of childhood illness and death are underpinned by such 'distal' factors as low and declining real incomes, poor female education, unhealthy environments (housing, water, sanitation) and inadequate access to quality health services.

Successes in child health have largely taken a comprehensive, equity-oriented primary healthcare approach, combining pro-poor social policies with efficacious public health interventions and participatory approaches. Despite a widening gap between rich and poor, in terms of health outcomes and access to services, there are some examples of successful large scale child health and nutrition programmes. Most of these examples demonstrate the successful implementation of a comprehensive primary healthcare approach where interventions have addressed simultaneously both the immediate (proximal) and the underlying (distal) factors impacting on child survival and health. The past few decades have seen impressive advances in our understanding and technical ability to prevent, treat and mitigate the effects of many childhood illnesses (eg oral rehydration therapy for diarrhoea, vitamin A supplementation, salt iodisation). The challenge, increasingly, is to implement successfully these efficacious interventions, especially among the poorest, and to adopt social and economic policies that improve equity in child health.

In a few low-income, countries broad-based approaches have resulted in significant and often sustained improvements in child and maternal health. In all of these examples – as well as in the past experience of now-industrialised rich countries – such improvements have been secured through a combination of pro-poor social policies and efficacious public health interventions. In all cases, a favourable political context facilitated such comprehensive and equity-oriented approaches. Such contextual factors are crucial not only in ensuring investment in social services

but also in providing an infrastructure and community mobilisation within which effective technologies and interventions may be most successfully and widely promoted. Participatory programme design and implementation seem to be fundamental features of many successful programmes which, in addition, need to attend to such key factors as coverage, targeting, intensity and resource mobilisation.

Conservative macro-economic policies and a narrowing of the primary healthcare approach largely account for the lack of recent successes in child health improvements. The dearth of examples of large-scale successful comprehensive child health programmes can be largely attributed to the dominance over the past two decades of conservative macro-economic policies and an accompanying narrowing of the primary healthcare approach, whereby some technical interventions have been preserved and promoted, while interventions to address broader social determinants (as well as participatory processes) have been denigrated or abandoned. Such 'selective', technicist approaches have been vigorously promoted as 'packages of care', which are sometimes unthinkingly abstracted from the systems and processes needed to implement and sustain them.

Importance of strengthening public health systems, by addressing financing gaps, preventing health worker brain drain, avoiding vertical approaches, and invigorating district and community level provision. Public health systems, especially in poor countries, have been considerably weakened in the past decades by a combination of conservative macro-economic policies – such as structural adjustment – and health policies that constitute 'health sector reform'. Chronic underfunding of health (and social) services has led to a serious weakening of the 'delivery' infrastructure, and especially of the human resource component. Health personnel capacity has been severely undermined in many poor countries as a result of the abovementioned underfunding and the impact of HIV/AIDS. In addition, active recruitment of personnel by those rich countries experiencing a health workforce shortage has further depleted this resource and seriously aggravated the dysfunctionality of poor countries' health systems. This personnel crisis may also be aggravated by the current HIV/AIDS epidemic and the new initiatives launched to address it, by diverting attention and resources away from the other – more common – health problems, and from their more fundamental, social determinants. There is also a strong possibility that new 'vertical' programmes and structures will be created, further delaying the long-term imperative of creating strong and sustainable 'horizontal' health systems.

The time is long overdue for energetically translating policies into actions. The main actions should centre around the development of well-managed and comprehensive programmes

involving the health sector, other sectors and communities. The process needs to be structured into well-functioning district systems which require, in most countries, to be considerably strengthened, particularly at the household, community and primary levels. Comprehensive health centres and their personnel should be a focus of effort, and investment in and the reinstatement of community health worker schemes should be seriously considered.

1. Introduction

Poor child health and nutrition impose significant and long-term economic and human development costs – especially on the poorest countries and communities, further entrenching their status. Improving child health and nutrition is not only a moral imperative, but a rational long-term investment. However, while there have been notable achievements in the state of child health globally there remain large numbers of children whose prospects for a healthy and productive life are bleak.

Macro- and micro-economic studies have documented the impact of poverty on child development. However, this does not illuminate the precise mechanisms through which childhood deprivation leads to worse health and development outcomes for affected children. For example, a child living on less than a dollar a day can have very different health and development outcomes depending upon which country or region he or she lives in (Wagstaff, 2003).

This paper aims to distil the lessons we have learned in optimising child health outcomes through public health actions. The paper will first briefly summarise the evidence concerning the relationship between population and child health and poverty, and will then outline the epidemiology of child health problems with particular reference to the growing inequalities between rich and poor countries and within countries. After a brief outline of the known proximal (immediate) and distal (underlying) risk factors for child mortality among the poor, the evidence of the impact of primary health care and public health interventions is explored. This then leads to an examination of the lessons of successful, comprehensive, large-scale child health programmes. It is argued that these lessons have broader implications in terms of policy choices aimed at alleviating poor child health and the concomitant poverty. The paper ends with an examination of the threats to further expansion of such comprehensive programmes.

2. The relationship between poverty and child health

Poor child health and nutritional status are stark reflections of and contributors to acute and chronic poverty and to the continuing cycle of poverty. This cycle is driven directly by the cost of seeking medical care and treating sick children, and indirectly by the debilitating effects of poor child health and nutrition on individual development.

The Commission for Macroeconomics and Health (2001) summarised the results of a range of studies examining the role of population health and economic growth:

> *'The difference in annual growth, therefore, accounted for by LEB (life expectancy at birth) between a typical high income country (LEB=77 years) and typical least developed country (LEB=49 years) is about 1.6 percentage points per year, which cumulates to enormous effects over time. In short, health status seems to explain an important part of the difference in economic growth rates, even after controlling for standard macroeconomic variables.' (ibid:24)*

Much of the difference in the impact of life expectancy at birth on economic development is due to childhood nutrition and health outcomes. Box 1 is taken from *The 5th Global Nutrition Report* (ACC/SCN, 2004) and details two studies, among many, that illustrate the long-term impacts of both positive and negative nutritional interventions on individual development. Iron deficiency in the 6–14 month age group impairs the intellectual development of 40–60 per cent of the developing world's children (Grantham-McGregor and Ani, 2001). Iodine deficiency in pregnancy causes as many as 20 million babies a year to be born intellectually impaired. It is estimated that this lowers the average IQ of those born in iodine-deficient areas by 10–15 IQ points (Caulfield *et al,* 1998).

There is now a plethora of rigorous studies documenting the critical role of macro- and micronutrients on brain and cognitive development (Black, 2003a; Mendez and Adair, 1999). Economists have started to translate this into actual losses at a macro-economic level. For example, Horton and Ross, using a tight econometric model, estimate that just three types of malnutrition – protein-energy malnutrition, iron deficiency, and iodine deficiency – are responsible for three to four per cent of GDP loss in Pakistan in any given year and two to three per cent of GDP loss in Vietnam (Horton and Ross, 2003). Even if we take a conservative estimate of one per cent of GDP, then the annual cost for countries of South Asia is US$5.9 billion, and for countries in Africa US$9.2 billion.[1] The Nobel Laureate economist Robert Fogel has even suggested that approximately half of the economic growth achieved by the UK and a number of western European countries by 1980 could be attributed to better nutrition and improved health and sanitation conditions – social investments made as much as a century earlier (Fogel, 1994).

1 Using estimates of GDP from World Bank (2000).

Importantly, unlike short-term economic shocks, early insults to the growth and development of children are partially irreversible even with intensive interventions later in life. In many cases, the damage is done even before the child is born. Being born with a low birth weight (below 2.5kg) increases the risk of becoming underweight and of suffering the subsequent negative consequences (Gillespie *et al*, 2003). Undernourishment among mothers is a major reason why babies are born with a low birth weight. One estimate is that about 50 per cent of all growth retardation during gestation in rural developing countries is attributable to small maternal size at conception and low gestational weight gain (or inadequate food and energy intake during pregnancy) (Kramer, 1987). Malnutrition among infant girls is therefore one of the main routes for the inter-generational transmission of poverty.

Finally, there are the direct costs to households of seeking care and treating sick children. For many of the poorest populations, living in the poorest countries, the rise in user fees and out-of-pocket expenses as a result of recent health service reform has significantly increased the direct costs of ill health (McPake, 1993). Whitehead *et al* (2001; also Barros *et al*, 2001) outline the different ways in which illness can lead to what they call the medical poverty trap:

Untreated morbidity

In Uganda, 72 per cent of parents were unable to complete the referral of their sick children from the clinic to hospital; 90 per cent stated that lack of money was the main reason, as each completed referral cost an average of $11.50 (Peterson *et al*, 2004). This is not only occurring in the poorest countries. In household surveys in rural China, 35–40 per cent of people who reported that they had experienced an illness did not seek healthcare, with financial difficulties cited by poor people as the main reason. Additionally, 60 per cent of those referred to hospital by a doctor never contacted the hospital because they knew they would not be able to afford the high user charges (Fu, 1999). The cost to individuals and society from untreated morbidity is potentially devastating.

Reduced access to care

One review of experience across Africa (Gilson, 1997) came to the conclusion that the introduction of user fees had increased revenues only slightly, while significantly reducing the access of low-income people to basic social services. The negative effects of user fees are therefore two-fold: poorer health and increased medical expenditure. High user fees are thus inefficient and inequitable. Attempts to waive fees for poorer patients have been largely unsuccessful, not least because health workers in many programmes depend on user fees to top up their salaries, and therefore they are more likely to prioritise clients who pay (McPake, 1993). Even child

health services that are nominally free can suffer from the distortions of external funding – eg in many countries health workers focus upon immunisations and micronutrient supplementation only during 'campaigns', when their salaries are topped up by per diems, while evaluations show that routine provision of these services is neglected (Hall and Cutts, 1993).

Long-term impoverishment

Payment for medical emergencies cannot be avoided and is often unexpected. This can be the case even when there are no user fees and the service is 'free'. For example, so-called free maternity services in Dhaka, Bangladesh have hidden and unofficial payments (for medication, X-rays, blood tests, food etc) which mean that more than one-fifth of families spend the equivalent of 50–100 per cent of their monthly income on maternity care (Nahar and Costello, 1998). In this sense, the cost of illness is often catastrophic, resulting in heavy indebtedness at best, and the selling of vital assets required for future productivity at worst. One form of the latter is the withdrawal of children from school to save on school fees and engage them in income generating activities. Thus the cost of illness is not only leading to immediate impoverishment but also compromising the ability of households to recover from such setbacks.

Box 1: Impact of early nutrition on development (source: ACC/SCN, 2004)

Zimbabwe

A study in rural Zimbabwe isolated the impacts, in 2000, of exposure to the 1982–84 drought on 665 children. The drought resulted in an average deficit in height of 2.3cm and 0.4 grades of schooling. Had the median pre-school child in this sample had the height of a median child in a developed country, by adolescence, he/she would have been 4.6cm taller, would have completed an additional 0.7 grades of schooling and would have started school seven months earlier. The authors estimate that this height deficit and related loss of schooling and potential work experience results in a loss of lifetime earnings of 7–12 per cent, and note that this is likely to be an underestimate of the true losses.

(Source: Alderman, Hoddinott, and Kinsey 2002)

Guatemala

This study considers the impact of a 1970s community-level experimental nutritional intervention in rural Guatemala on several different education measures over the life cycle. These measures are used to estimate the functional benefits of a nutritional intervention (a high protein-energy drink, *atole*) during the critical period when individuals were six months (roughly when complementary feeding was introduced) through to 24 months of age. The preliminary results indicate significantly positive and fairly substantial effects of the *atole* nutritional intervention on many educational and cognitive outcomes:

- probability of attending school and of passing the first grade
- grade attained by age 13 (through a combination of increasing the probability of ever enrolling and reducing the age of enrolling)
- grade completion rate per year in schooling
- highest grade completed
- adult Raven's TM test scores
- adult cognitive achievement scores.

Thus, there are important education-related effects that appear to persist well into adulthood. These education effects will result in lifetime income losses, the magnitude of which depends on how the Guatemalan and migrant labour markets reward these attributes.

(Source: Behrman et al 2003)

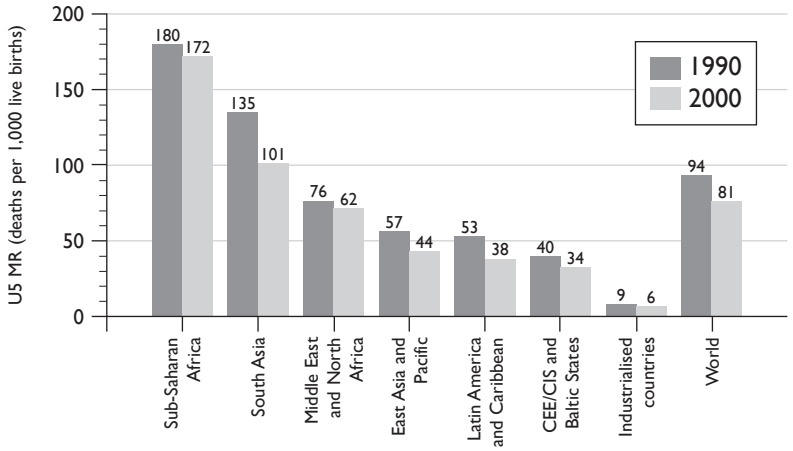
3. Burden of childhood disease and increasing inequalities in child health

According to the World Bank, we are in an era of unparalleled improvements in health and wellbeing. Increases in life expectancy and the decrease in fertility throughout the world have been greater in the past 40 years than during the previous 4,000 years (World Bank, 1997). Indeed, there have been substantial reductions in child mortality in the last few decades: the proportion of children dying before they reach the age of five has halved since 1960 and childhood malnutrition has fallen by 30 per cent. In the last decade more than 60 countries have managed to reduce childhood mortality by at least a third *(see Figure 1)*.

Figure 1: Changes in childhood mortality 1990–2000

Trend	14% reduction with 3 million fewer child deaths
1990 U5MR	94 per 1,000 live births
2000 U5MR	81 per 1,000 live births
2010 goal	Further 33% reduction
Comments	63 countries achieved the goal of a 33% reduction and in over 100 countries deaths in children under 5 were cut by 20%.

U5MR change over period 1990-2000

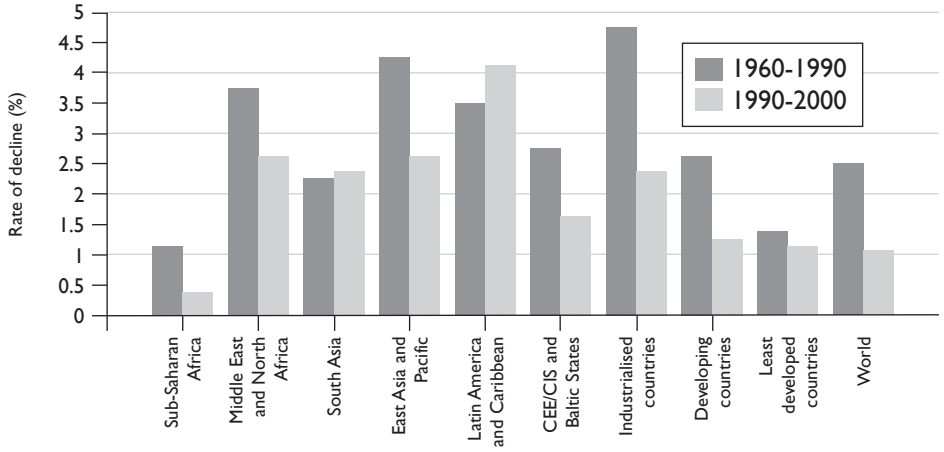


Source: UNICEF (2002)

However, more than ten million children still die every year and the rate of decline in childhood mortality has slowed considerably, from 2.5 per cent per year during the period 1960–90 to 1.1 per cent in the last decade *(see Figure 2)* (UNICEF, 2002). This might be expected in settings where low rates of mortality have already been achieved, but this deceleration has also occurred

in regions such as sub-Saharan Africa which had the highest rates of childhood mortality in the mid-1970s. The World Summit for Children in 1990 called for a worldwide reduction in childhood mortality of at least one-third by 2000, by increasing access to essential interventions, such as immunisation, and by improving other factors such as access to education, water and sanitation. Box 2 illustrates the failure to achieve nearly all these goals ten years later.

Figure 2: Reductions in the annual rate of decline on under-five child mortality, 1960–90/1990–2000 (adapted from UNICEF 2002)



Furthermore, these numbers mask the widening inequalities in childhood mortality both between and within countries. Ninety-nine per cent of childhood deaths arise in non-OECD countries, and the gap between rich and poor countries has increased, with under-five mortality falling by more than 71 per cent in high-income countries in the last 30 years, but by only 40 per cent in less developed countries over the same period (Black *et al*, 2003). Quite often differences in child mortality rates within the same country are greater than those between countries. Figure 3 provides examples from four countries of the wide disparities in mortality between the rich and poor. Unfortunately, in nearly all parts of the world these differences are widening, with mortality rates increasing among poor children in sub-Saharan Africa, yet decreasing for richer children. We return to examine this in more detail later.

Box 2: Achievements in child welfare since 1990

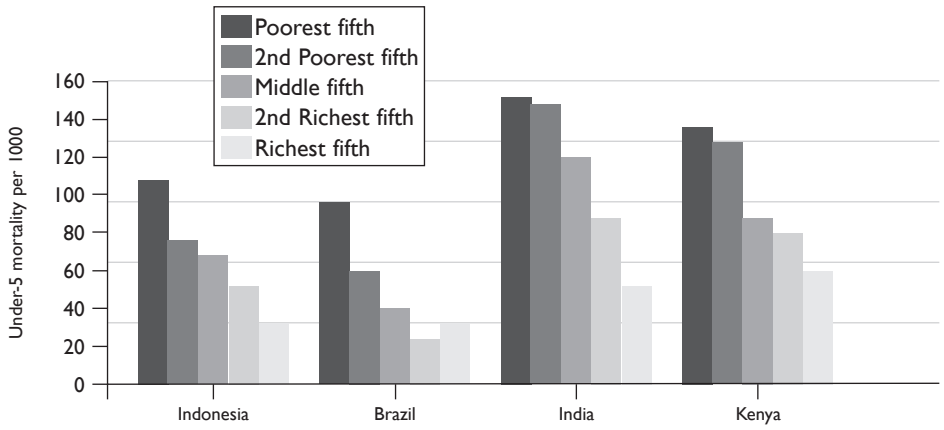
Taking a representative sample of 100 children born in 1990, 55 would have been born in Asia, including 19 in India and 18 in China. Sixteen would have been born in sub-Saharan Africa and eight in industrialised countries. The births of 33 of these children went unregistered: as a result they have no official existence, no recognition of nationality. Some of them have no access to health facilities or school without this official proof of their age and identity. Around 32 of the children would have suffered from malnutrition before the age of five and 27 were not immunised against any diseases. Nine died before the age of five. Of the remaining 91 children, 18 do not attend school, of whom 11 are girls. Eighteen of the children have no access to safe drinking water and 39 live without sanitation.

During the 1990s in sub-Saharan Africa only 47 per cent of children were immunised against diphtheria, whooping cough and tetanus. In Asia, where more than two-thirds of the world's malnourished children live, the drop in child malnutrition rates was relatively small, from 36 per cent to 29 per cent, while in sub-Saharan Africa the prevalence rate and absolute number of malnourished children has actually increased.

There have been small increases in the proportion of people with access to safe water and sanitation – from 79 per cent to 82 per cent for water, and 55 per cent to 60 per cent for sanitation. But this still leaves around 1.1 billion people living without safe water and 2.4 billion people without adequate sanitation, the vast majority of the latter group being in Asia.

(Adapted from UNICEF, 2002)

Figure 3: Under-five mortality rates by socio-economic quintile of the household for selected countries



Source: Jones et al. (2003), based on World Bank data.

4. What are children dying of?

In order to make meaningful recommendations concerning interventions to reduce childhood mortality, information is needed on the causes of death, and the geographical and social distribution of such causes. This in turn can lead to the identification of risk factors and an examination of appropriate policy and programme interventions.

Figure 4 shows the proportions of the different causes of death according to World Health Organization (WHO) regions. Overall, the WHO estimates that 13 per cent of deaths are due to diarrhoea, 19 per cent to pneumonia, nine per cent to malaria, five per cent to measles, three per cent to HIV/AIDS and 42 per cent to neonatal causes (severe infections, birth asphyxia and complications of prematurity).

HIV/AIDS deserves particular mention, as it has been highlighted for specific funding and attention. According to UNAIDS and the WHO, since the beginning of the HIV/AIDS epidemic, approximately 2.7 million children have been infected with HIV and current estimates suggest that more than 800,000 children are newly infected annually. Nearly all of these infections are occurring in sub-Saharan Africa where HIV/AIDS is responsible for eight per cent of all childhood deaths, rising to over 20 per cent in the high HIV prevalence countries of southern and eastern Africa (UNAIDS/WHO, 2003). HIV/AIDS is a major catastrophe but it should not overshadow the fact that, even in the most highly infected regions, other causes – such as diarrhoea, pneumonia and malaria in the absence of HIV co-infection – remain significant killers of children.

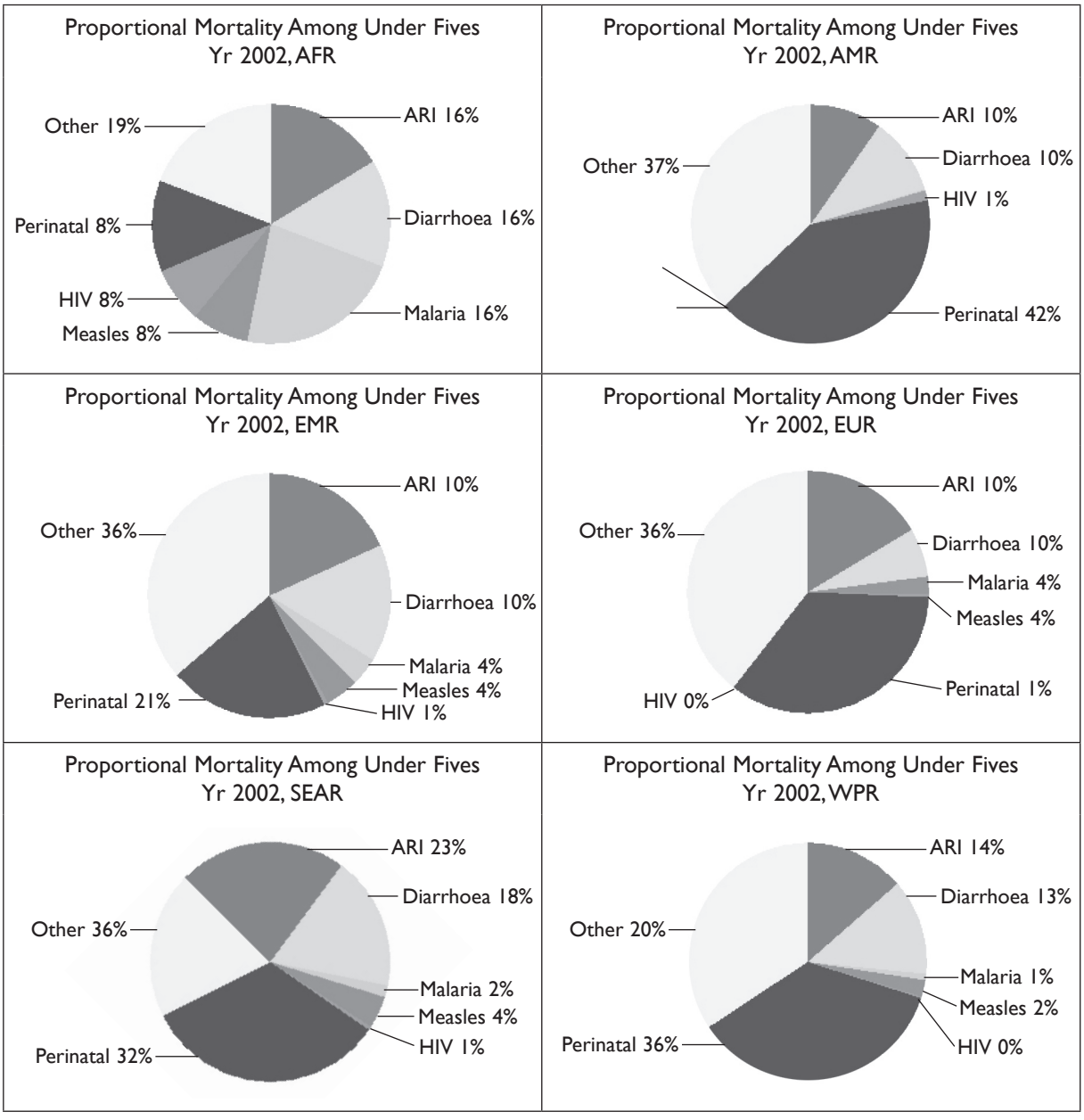
It is useful to classify causes of death into those that are immediate (such as infectious diseases) and those that are underlying (such as malnutrition or co-infection). For example, there is increasing evidence that underweight and micronutrient deficiencies significantly increase the risk of death in children. Pooled analysis of community cohort studies estimates that underweight is the underlying condition responsible for about 53 per cent of all childhood deaths (Pelletier *et al*, 1995). About 35 per cent of all childhood deaths are due to the effects of underweight on diarrhoea, pneumonia, measles and malaria. Similarly, intervention studies have established that children over six months of age with vitamin A deficiency have a 23 per cent increased risk of dying in childhood (Ross *et al*, 1995; Ross, 1998) and those with zinc deficiency a 15 per cent increased risk (Black, 2003b). A recent systematic review of risk factors for premature mortality quantified the total loss due to under-nutrition and other underlying risk factors:

> *'Despite disaggregation into underweight and micronutrient deficiency (which are not additive) and methodological changes, under-nutrition has remained the single leading global cause of health loss, with comparable contributions in 1990 (220 million DALY [disability adjusted life years]; 16% for malnutrition) and 2000 (140 million DALY; 9·5% for underweight; 2·4%, 1·8%, and 1·9% for iron, vitamin A, and zinc deficiency, respectively; 0·1% for iodine-deficiency disorders).*
>
> *Leading causes of burden of disease in all high-mortality, developing regions were childhood and maternal under-nutrition – including underweight (14·9%), micronutrient deficiencies (3·1% for iron deficiency, 3·0% for vitamin A deficiency, and 3·2% for zinc deficiency), unsafe sex (10·2%), poor water, sanitation, and hygiene (5·5%), and indoor smoke from solid fuels (3·6%).' (Ezzati et al, 2002:1355)*

Illuminating the pathways that result in poor or worsening outcomes for poor children can start to give us some insights into the mechanisms through which poverty is interacting with child health. The epidemiological picture painted above draws attention to the immediate factors contributing to childhood deaths, such as infections and malnutrition. All these factors are far more prevalent among the poor. In all aspects of nutrition, apart from one, the poor are worse off. They are more likely to be born with low birth weight (Gillespie *et al*, 2003) to mothers who are undernourished (Kramer, 1987), and are less likely to receive energy-rich complementary food (Brown *et al*, 1998) or iodised salt (UNICEF, 1998). The only advantage they have, and this is only in poorer countries, is that they are more likely to be breastfed, and for longer, than their richer counterparts (Butz *et al*, 1984) (although HIV is now eroding this in some regions). Poorer children also live in environments that predispose them to illness and death (Esrey, 1996). They are less likely to live in households with safe water or sanitation (Huttly *et al*, 1997) and more likely to be exposed to indoor air pollution – a result of the greater reliance on burning coal and biomass fuel (wood, animal dung) for cooking and heating, coupled with inadequate ventilation (Bruce *et al*, 2000).

These factors in turn are linked to issues such as education. Education leads to better health outcomes, even after controlling for the higher household income that usually goes hand-in-hand with higher levels of education. For example, education (especially that of women) is strongly associated with the level of health service use (Wong *et al*, 1987), the type of provider (Gilson, 1997), the choice of private versus public provider (Schwartz *et al*, 1988), dietary and child-feeding practices (Lavy *et al*, 1996), and sanitary practices. Overall, this can have a significant impact on child health. In Sri Lanka, for example, McNay (2003) shows that the under-five mortality rate is over 30 per 1,000 live births among mothers with no education or only primary

Figure 4: Causes of death, by World Health Organization regions (WHO, 2002)



Key
AFR= Africa; AMR=Americas; EMR=Eastern Mediterranean; EUR=European; SEAR= South East Asian; WPR=Western Pacific.

schooling, but is less than 20 per 1,000 among mothers with above primary schooling. McNay goes on to suggest that this relationship exists because educated women are better able to deal with their children's illness episodes; they are more likely to take them to modern health facilities for treatment, follow health providers' instructions carefully, and take their children back if medication does not seem to be working.

It is not just general education, but also health-specific knowledge that matters. A recent study in Morocco (Glewwe, 1999) suggests that, by themselves, general numeracy and literacy levels do not – at least in Morocco – lead to better child nutrition. What enables educated women to achieve higher levels of nutrition for their children is the fact that they are able to use their general knowledge and skills to acquire health-specific knowledge.

Closely related to female education is women's power. Women who have relatively little control over household resources are less likely to receive antenatal care, especially in the first trimester of pregnancy (Beegle *et al*, 2001).

5. What is the role of more distal determinants?

There has been a spate of recent cross-national studies of health status suggesting that socio-economic characteristics explain nearly all of the variation in mortality rates across countries. For example, Filmer and Pritchett (1999) find that virtually all the cross-national variations in child mortality can be explained by six variables: average GDP per capita; a measure of the distribution of income; the level of female education; a variable for predominantly Muslim countries; an index of ethno-linguistic diversity; and a set of five variables for regions.

There is little doubt that income plays an important role in determining risk factors for child health. Wagstaff *et al* (2004:728) summarise the data well:

> *'Measures of child health improve with income, at both the country level and at the child level. Most proximate determinants tend to improve with higher income including adult energy intake, the likelihood of a pregnant woman receiving antenatal care, the timing of antenatal consultations, the likelihood of a delivery taking place away from home, the likelihood of the child being immunized, sleeping under a bednet or being given ORT [oral rehydration therapy].'*

This has led some to claim that total public spending on health services has had much less impact on average health status than one might have expected, and certainly less than one could have hoped for. Although the lack of data on public spending has, until recently, limited direct examination of the issue, Musgrove (1996:44) summarises studies of the effect of public spending on health as follows:

> *'Multivariate estimates of the determinants of child mortality give much the same answer: income is always significant, but the health share in GDP, the public share in health spending, and the share of public spending on health in GDP never are.'*

But this broad point needs to be refined, as the figures of aggregate spending usually do not adequately measure the effectiveness or availability of services (Ratzan *et al*, 2000). The results of these econometric analyses have also been questioned by Hanmer *et al* (2003), who tested the robustness of determinants of infant and child mortality by estimating over 420,000 equations. They show that, while income per capita is a robust determinant of infant and child mortality, so are indicators of health service expenditure, education and gender inequality. Some health spending, such as immunisation, is thus shown to be a cost-effective way of saving lives. Hanmer *et al* conclude:

'Our results are consistent with the view that much health spending in developing countries may be poorly targeted or otherwise ineffective, but do not support the position that public health strategies should not be given too great a role in pursuing improvements in human welfare'. (2003:116)

This supports the seminal study from Preston (2003), first published in 1979, who also concluded, using multi-country data from the 1970s, that public health interventions have an important role to play in reducing mortality.

The evidence is clear that there are significant differences between countries in the rates of change in child health and nutritional status. An example is a comparison between Sri Lanka, Indonesia, the Philippines, and Thailand. As is common, prevalence of underweight children is the indicator used, and this is likely to reflect broader conditions of health and survival (Mason, 2001). Sri Lanka and Thailand showed the now well-known rapid improvement in the 1980s to 1990s. Indonesia showed slower but consistent improvement, and the Philippines little progress.

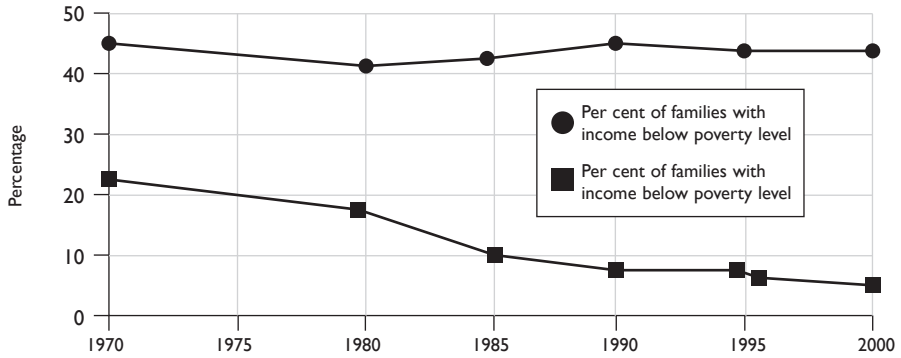
The impact on child survival of widespread female education in Sri Lanka has already been mentioned (77 per cent of ever married women in Sri Lanka now have above primary schooling). Drèze and Sen (1989) also highlight the establishment of social safety nets, especially the free or heavily subsidised distribution of rice, providing a minimum consumption floor for the poor, as important reasons for the impressive performance of Sri Lanka. In a more recent review, McNay (2003) emphasises the provision of a universal, equitable and efficient public health system as an important reason for the low levels of maternal and child mortality in this country.

An interesting feature of the success in Thailand was the incorporation of nutrition as an important part of the National Economic and Social Development Plan (NESDP). This led to the establishment of an extensive community-based network of village health communicators and volunteers with existing village committees and leaders. The focus of these groups was the fulfilment of basic needs such as optimal nutrition (as measured by community-based growth monitoring and promotion), education, etc (Tontisirin and Winichagoon, 1997).

At a regional level, malnutrition in Latin America decreased from an estimated 21 per cent in 1970 to 7.2 per cent in 1997, while the rate of poverty (measured by income level) decreased only slightly over the last three decades, from 45 per cent in 1970 to 44 per cent in 1997. These trends show that the reduction of malnutrition is not solely dependent on increases in income. In Latin America, the gains in reducing malnutrition are attributed, at the underlying level, to good care practices (such as improved complementary feeding) and access to basic

health services, including family planning, and water/sanitation services; and, at the basic level, to women's empowerment in terms of their education and the cash resources they control (UNICEF, 1998).

Figure 5: Changes in malnutrition and poverty in Latin America 1970–2000



Source: UNICEF (1998)

A crucial issue is how many of the improvements were caused by interventions that could be replicated – and within this, how much is context and how much programmatic, and with what interactions. This is discussed in the next section.

6. To what extent can primary healthcare interventions improve child health and reduce inequalities?

In addition to the increasing body of knowledge of the disease burden and its pattern and distribution, there is an increasing evidence base of the efficacy of primary health care interventions.

Jones *et al* (2003) conducted a systematic review of health-focused interventions which reduced exposures that lead to disease, as well as preventive and treatment approaches that reduced the likelihood of the disease or condition leading to death. They also stipulated that these interventions had to be able to be implemented at a large scale in low-income countries. Their results are presented in Table 1, alongside the actual coverage of these interventions in low-income countries. Based on results from intervention trials, the authors estimate that achieving full coverage of all these basic interventions would prevent more than six million deaths per year (63 per cent of total mortality in low-income countries). They conclude:

> *'More than ever before, we have effective interventions and increasing experience in integrated approaches and ways to adapt them to local conditions. Amid the plethora of new and newly validated interventions, there are signs that the child survival effort has lost its focus. For example, levels of attention and effort directed at preventing the small proportion of child deaths due to AIDS with a new, complex, and expensive*

intervention seem (although no investment data are available) to be outstripping the efforts to save millions of children every year with a few cents' worth of ITMs (insecticide treated materials), oral rehydration therapy, or efforts to promote breastfeeding. This must change.' (Jones *et al*, 2003: 69)

The challenge is not primarily one of a lack of science or knowledge about interventions, but a lack of implementation of known efficacious interventions, especially among the poorest.

As outlined in Table 1, there are a number of proven preventive interventions – antenatal care, immunisation, birth spacing, etc – that could substantially reduce exposure to risks. Once again there is a gradient – disadvantaging the poor – of availability and access to these preventive interventions, whether comparing poorer countries with richer ones or households within the same country (Wagstaff, 2002). Recent evidence also highlights inequalities in accessing healthcare once children become sick. Using a relatively simple measure of wealth, Schellenberg *et al* (2003) were able to tabulate the findings on health status and service use by socio-economic quintile in Tanzania. They show that even in an apparently homogeneously poor rural area there

Table 1: Coverage estimates for child survival interventions for the 42 countries with 90 per cent of worldwide child deaths in 2000

	Mean estimated coverage of target population / range among countries	
Preventive interventions		
Breastfeeding (6–11 months)	90%	(42–100)
Measles vaccine	68%	(39–99)
Vitamin A	55%	(11–99)
Clean delivery (skilled attendant at birth)	54%	(6–89)
Tetanus toxoid	49%	(13–90)
Water, sanitation, hygiene	47%	(8–98)
Exclusive breastfeeding (up to 6 months)	39%	(1–84)
Newborn temperature management	20%	
Antibiotics for premature rupture of membranes	10%	
Antenatal steroids	5%	
Nevirapine and replacement feeding	5%	
Insecticide-treated materials	2%	(0–16)
Hib vaccine	1%	
Anti-malarial intermittent preventive treatment in pregnancy	1%	
Zinc	0%	
Treatment interventions		
Vitamin A	55%	(11–99)
Antibiotics for pneumonia	40%	
Antibiotics for dysentery	30%	
Antimalarials	29%	(3–66)
Oral rehydration therapy	20%	(4–50)
Antibiotics for sepsis	10%	
Newborn resuscitation	3%	
Zinc	0%	

Taken from Jones et al (2003)

are socio-economic differences in health status, and that the main difference between the more and less poor in health is not in the likelihood of being ill but in access to adequate treatment when ill.

This is in keeping with other studies in Africa that have found access to health services to be a key difference between socio-economic groups (Gwatkin *et al*, 2000; Filmer, 2002). Once again the 'inverse care law', first described by Tudor Hart (2000) in the UK, is at work, with those of higher socio-economic and health status accessing greater public healthcare resources. Victora *et al* (2000) has recently taken this further in Brazil and suggested that new medical technologies provided by the public sector are also preferentially taken up by higher socio-economic status households. A study of over 40 countries reports that even those interventions generally thought to be especially 'pro-poor', such as oral rehydration therapy and immunisation, tend to attain better coverage among better-off groups than among disadvantaged ones (Gwatkin, 2001). The failure of health services to reach the poor in developing countries, despite their higher disease burden, is not just a matter of the better-off using their higher incomes to purchase care from the private sector. Poor people also benefit less from government subsidies to the health sector. For example, in Indonesia in 1990 only 12 per cent of government health expenditure was used by the poorest 20 per cent, while the richest 20 per cent consumed 29 per cent of government subsidy in the health sector (Yaqub, 1999). Gwatkin expands on these findings:

> *'This is a notable missing element in the work recently undertaken by epidemiologists and other researchers increasingly concerned with health equity and the health of the poor. The work to date has produced significant increases in knowledge about the magnitude and nature of health inequalities, and has resulted in valuable conceptual frameworks for approaching these issues. But it has not yet reached the heart of the matter: the identification of measures that can effectively deal with the inequalities that have been uncovered.' (Gwatkin, 2001: 722).*

It is not just a matter of poorer people having less income. As Wagstaff *et al* (2004) provocatively pose it: Why are children in the richest quintile in India three times more likely to receive immunisation against measles even when this service is universally available and free? Victora *et al* (2003) suggest that the poor face a number of obstacles:

- less knowledge
- greater distances to services
- greater out-of-pocket costs due to lack of insurance
- more disorganised and poorer quality services with shortages of drugs and supplies.

They then go on to outline a number of possible interventions that could specifically improve the health of poor children *(see Table 2)*. They cover a range of options from education and knowledge to water and sanitation. Each of these is important and has some evidence base, but as the authors admit:

'…several approaches have been proposed for improvement of health conditions in poor people. Yet few, if any, of these approaches have been implemented on a large scale. Effective large-scale implementation is the next challenge.' (ibid: 237).

Table 2: Review of potential approaches for improving equity in child health

Approach	Examples
Improve knowledge and change behaviour in poor mothers	• Improvements in female education in general • Nutrition counselling (Brazil) • Social marketing of soap (Central America) • Community-based growth promotion (Indonesia, Tanzania)
Improve access to water and sanitation for poor people	• Social investment in water and sanitation (Sri Lanka) • Social investment funds (Bolivia)
Empower poor women	• Microcredit (Bangladesh, Ghana)
Make health care affordable to poor households	• Cash transfers to poor families linked to use of preventive services (Mexico, Honduras, Nicaragua) • Subsidised health care for reaching the poorest populations (Sri Lanka, Costa Rica, Malaysia) • Bias to poor people in specific child health interventions (Bangladesh, India) • School health insurance programme (Egypt)
Make health facilities more accessible to poor households	• Road improvements to facilitate access (Vietnam) • Use of outreach facilities (Benin, Guinea) • Deployment of health teams in poor municipalities (Brazil) • Extend services through community health workers and non-governmental organisations (Bangladesh, Thailand) • Partnership with, and some subsidisation of, non-governmental organisations in under-served areas (Bolivia, Uganda)
Enhance human and other resources in facilities serving poor people	• Use of community organisations and volunteer health workers (Thailand) • Building housing for rural staff and providing other incentives to practise in rural areas (Uganda)
Improve the user-friendliness of providers and facilities serving the poor	• Use of providers who speak the language of poor indigenous groups and understand their culture and customs
Make budget allocations more relevant to the burden of disease experienced by the poor	• Allocation of resources at district level according to burden of disease (Tanzania) • Simple interventions against major causes of child mortality a priority (Brazil)

Adapted from Victora et al (2003)

7. Examples of successful large-scale child health programmes

There is now a fair body of evidence illustrating the impact – sometimes sustained and sometimes ephemeral – of large-scale health interventions in improving child health and nutrition outcomes. Public health programmes that are planned, implemented and assessed well, tackling a few diseases, can make a difference. For example, data from Brazil (Victora *et al*, 1996), Egypt (National Control of Diarrhoeal Diseases Project, 1998), and the Philippines (Baltazar *et al*, 2002) show that implementation of diarrhoea-control programmes and promotion of oral rehydration therapy were accompanied by mortality reductions that could not be accounted for by changes in external factors. Another example is the success of large-scale nutrition programmes in reducing levels of childhood under-nutrition in both Africa and Asia. Box 3 describes some examples of successful large-scale interventions for child health and nutrition.

In all these successful interventions, the dominant paradigm for child health interventions has been the primary healthcare approach and there is substantial evidence that these programmes have succeeded in implementing this strategy. Sanders (2001) has outlined how primary healthcare can assist us in framing the various components of success.[2] The primary healthcare approach is based on the understanding that health improvements result from a reduction in both the *effects* of disease (morbidity and mortality) and its *incidence*, as well as from a general increase in *social wellbeing*. The effects of disease may be modified by successful treatment and rehabilitation, and its incidence may be reduced by preventive measures. Wellbeing may be promoted by improved social environments created by harnessing popular and political will and effective intersectoral action. Of particular relevance to the development of comprehensive health systems is the clause in the Alma Ata Declaration[3] stating that primary healthcare 'addresses the main health problems in the community, providing promotive, preventive, curative and rehabilitative services accordingly' (UNICEF/WHO, 1978).

The project's major achievements were the reduction in diseases such as leprosy, tuberculosis, and malaria and a marked decline in infant mortality to less than 40 per 1,000 live births (compared with a state average of 110). The project also improved the position of women in society, removed certain boundaries within the caste system, and helped in the establishment and organisation of village-based institutions, pointing the villagers to a future of self-reliance and prosperity (Hossain *et al*, 2004).

2 This sub-section draws heavily on Sanders (2001)

3 The Alma Ata Declaration was adopted by the 1978 International Conference on Primary Health Care held in Alma Ata, Kazakhstan)

Box 3: Examples of successful large-scale interventions for child health and nutrition

Jamkhed

The Comprehensive Rural Health Project was established in Jamkhed in 1971 by an Indian couple with a background in surgery, and still continues to operate successfully. Their main objective was to provide health services and facilities to the poorest rural villages. Activities revolved around health and family planning and development procedures through:

- offering curative services
- mobilisation of the community by the community health volunteers
- breaking down stereotypes between in the different castes.

There was an instant response from the community, which eventually led to the establishment of a Farmers' Club and a women's organisation called the Mahila Mandal. While the community health volunteers were providing both preventive and curative services, the Farmers' Club and Mahila Mandal began to disseminate health messages as soon as they had the confidence of community. They also advocated smaller families, good hygiene, and less superstition in order to augment health development in the community.

The project's major achievements were the reduction in diseases such as leprosy, tuberculosis, and malaria and a marked decline in infant mortality to less than 40 per 1,000 live births (compared with a state average of 110). The project also improved the position of women in society, removed certain boundaries within the caste system, and helped in the establishment and organisation of village-based institutions, pointing the villagers to a future of self-reliance and prosperity (Hossain et al, 2004).

Ceará

The state of Ceará is in the poor north-eastern area of Brazil. Early in the 1980s the infant mortality rate was more than 100 per 1,000 and malnutrition was very common. In 1986 the new state government requested UNICEF support to help improve child health, and a statewide survey of child health and nutrition was commissioned. Based on the results of this survey, new health policies were implemented, including the GOBI strategy of growth monitoring, oral rehydration, breastfeeding promotion, immunisation, and vitamin-A supplementation.

Since lack of access to healthcare facilities was a major problem, a large new programme for community health workers was established and another programme for traditional birth attendants was expanded. Responsibility for health services was decentralised to rural municipalities – the ones with the worst health indicators. A social mobilisation campaign for child health was implemented, which included the use of the media and small radio stations to broadcast educational messages. Similar surveys were repeated in 1990 and 1994, and after each one the results were incorporated into health policy. This process was sustained by four consecutive state governors who all give high priority to improving child health.

All these public health interventions resulted in considerable advances in the population coverage of child health interventions. By 1994 the use of oral rehydration solution had increased to more than 50

per cent in children with diarrhoea; nearly all children had a growth chart and half had been weighed within the previous three months; immunisation coverage was 90 per cent or higher; and median breastfeeding duration – a difficult indicator to improve – had apparently increased from 4.0 to 6.9 months.

Disease frequency and mortality outcome indicators for the whole population also showed considerable improvement between 1987 and 1994. The prevalence of low weight-for-age (below -2 z scores of the National Center for Health Statistics) fell from 12.7 per cent to 9.2 per cent; low height-for-age from 27.4 per cent to 17.7 per cent; and reported episodes of diarrhoea in children in the previous two weeks from 26.1 per cent to 13.6 per cent. Infant mortality rates improved from 63 per 1,000 live births in 1987 to 39 per 1,000 in 1994 – a 37 per cent reduction.

The proportion of child deaths due to diarrhoea – a priority for the health programme – fell from 48 per cent to 29 per cent; whereas perinatal causes of infant deaths increased from 7 per cent to 21 per cent and respiratory infections from 10 per cent to 25 per cent. Deaths due to other causes, including infections other than diarrhoea and respiratory infections, fell from 35 per cent to 25 per cent (Victora *et al,* 2000).

Pelotas

The experience of the Brazilian city of Pelotas, a city with a population of about 450,000, provides further evidence of the impact of investment in primary healthcare. From 1982 to 1993, government primary healthcare facilities increased from about ten to more than 50. In addition, three neonatal intensive-care units were installed, although such facilities did not serve all the newborn babies in need. There was also an important expansion of government public health and curative programmes. Public health policies implemented in Pelotas during this period were typical of those commonly adopted in such middle-income countries, with health interventions being made generally available, rather than targeted at the poorest people. These measures had a substantial effect on inequalities in terms of programme coverage. For instance, for both antenatal-care attendance and the take-up of immunisations, the coverage ratio between rich and poor was reduced as the levels among the poor were raised closer to the high levels already achieved by the rich. Similar improvements in equity, as measured by coverage, were also found for other variables, such as growth monitoring and use of oral rehydration fluids.

There was also a large fall in the prevalence of low weight-for-age among the poorest, from 14 per cent to nine per cent. The infant mortality rate fell in Pelotas city from 36 to 21 per 1,000 live births between 1982 and 1993 (Victora *et al,* 2000).

BRAC

The initial health project of the Bangladesh Rural Advancement Committee (BRAC) was initiated in 1972, as a component of a 'community development programme' at Sulla Thana. It is now internationally recognised for its large programmes in education, health and social development.

It is interesting to note the evolution of BRAC's child health programme. Following a review of their experiences of delivering a largely curative service, and their recognition '…that most such services [curative] do not reach those most in need – the poorer sections' and that '…such curative services need a constant supply line, which an NGO like BRAC cannot ensure in the long run', the BRAC programme reversed its emphasis and '…evolved into an educational programme' that attempted to '…empower the people to manage their own health, either by themselves or with help from the government' (Chowdhury, 1990: 117).

In discussing the lessons learned by BRAC over two decades, Lovell and Abed (1993: 225) suggest that: 'BRAC continues to search for the right combination of health interventions that can move both villages and the government health system toward higher levels of prevention and care on a sustained basis… By developing strong, better-educated and empowered village groups, capable of utilizing and making demands on government health services, a higher quality of preventative health measures will be practised in the community.'

MacDonald (1993) suggests that the more recent involvement of BRAC in the formation of village health committees and mothers' clubs is an indication that the programme has returned to an educational approach that is more aligned to the principles of comprehensive primary healthcare, and is reflective of the participatory research aspects of BRAC's initial work which involved '…a collective building-up of understanding and confidence, aiming, in the vocabulary of Hope and Timmel, at social transformation' (Hope and Timmel 1984, quoted in MacDonald, 1993: 151).

Recent evaluations suggest that BRAC is having a significant impact on child health and survival. Severe malnutrition (defined as mid-upper arm circumference less than 12.5cm) fell from 23.2 per cent to 12.1 per cent in poor households participating in the BRAC programme, compared to 21.2 per cent in non-BRAC households. Survival rates are also significantly better in poor households that are BRAC members compared to non-members, and are in fact equivalent to non-poor households in the same area (Bhuiya *et al*, 2001; Bhuiya and Chowdhury, 2002).

Comprehensive health systems include, therefore, *curative* and *rehabilitative* components to address the effects of health problems, a *preventive* component to address the immediate and underlying causative factors which operate at the level of the individual, and a *promotive* component which addresses the more basic causes which usually operate at the level of society. Experience suggests that there is a great deal of synergy between these different levels and that they have a multiplier effect. So, for example, in situations where a promotive environment has been created, preventive actions are far more successful. This is explored in more depth later (in the policies and context section).

Using some common child health problems, Table 3 illustrates the complementary role of different components in holistically tackling them. Such a matrix, which starts from a disease

focus, is useful for providing health professionals with an understanding of the broader, developmental interventions required to comprehensively address the diseases.

Table 3: Comprehensive primary healthcare for some common diseases: a summary framework of priority interventions

Disease	Intervention			
	Rehabilitative	Curative	Preventive	Promotive
Diarrhoea	Nutrition rehabilitation	Oral rehydration Nutrition support	Education for personal and food hygiene Breastfeeding Measles immunisation	Water Sanitation Household food security Improved childcare
Pneumonia	Nutrition rehabilitation	Chemotherapy	Immunisation	Nutrition Housing Clean air
Measles	Nutrition rehabilitation	Chemotherapy Nutrition support	Immunisation	Nutrition Housing
Tuberculosis	Nutrition rehabilitation	Chemotherapy Nutrition support	Immunisation Contacts (tracing)	Nutrition Housing Ventilation
HIV/AIDS	Nutrition support Home-based care and palliation Social support for people living with HIV/AIDS and for orphans	Antiretroviral treatment Counselling Treatment of opportunistic infections Nutrition support	Provide condoms Treat sexually transmitted infections Voluntary counselling and testing Prevention of mother-to-child transmission	Life-skills education Empowerment of women Resolve conflicts and prevent war

While this schematically outlines the various actions needed for a comprehensive approach, the exact processes and contexts required need to be explicated. One way of conceptualising the processes is to divide them into: (a) those that are concerned with the broader context and policies which facilitate comprehensive primary healthcare approaches; and (b) the more specific programme or intervention processes that successful programmes share.

Policies and context

Insight into the role and contribution of political context and public policies may be gleaned from a consideration of the dramatic and sustained decline in childhood mortality in industrialising Europe in the nineteenth century.

Thomas McKeown famously downplayed the role of specific public health and medical interventions in explaining the declines in childhood mortality and subsequent rises in life expectancy (Szreter, 2002). He viewed the changes as being due to the rising levels of income and the concomitant improvements in food supply, diet and nutrition. For McKeown the impact of public health interventions in reducing water-borne illness (such as cholera) was minimal, as it was only responsible for a minority of deaths. Public health had little impact on the airborne diseases (such as tuberculosis) which made up the majority. McKeown's thesis has been vigorously contested on a number of grounds – from his vague definitions of interventions through to the actual data upon which he based his estimates. The Cambridge historian Simon Szreter re-analysed McKeown's data and showed that he had significantly misclassified deaths from pneumonia and bronchitis as tuberculosis. In Szreter's reinterpretation, public health actions – such as clean water, sewage systems and provision of fresh milk – played a far greater role, while some of the effects of increasing economic activity were in fact detrimental, resulting in, for example, rapid urbanisation and overcrowding (Szreter, 2003).

A number of social historians have now provided detailed descriptions of how a mixture of popular agitation and pressure by an expanding enfranchised working class resulted in a dramatic change in the role of the state (especially at a local level), with it taking a far more active role in the provision of public services (Guha, 1994). In a later publication, Szreter emphasises that it was the ability of certain sections of the elite and the municipal bureaucracy – such as the Mayor of Birmingham, Joseph Chamberlain – to make links with sections of the working class and forge an alliance that campaigned for municipal improvements and overcame the resistance towards local government investing in public health infrastructure that played a critical role. This collectivity was harnessed by common rhetoric and values (in Victorian England this was commonly through a religious and moral interpretation of the social and economic hierarchy) and through a knowledge of the capacity of science to improve health (Szreter, 2004).

Further evidence of the importance of factors other than simply increasing levels of income in determining health status comes from the more recent study of countries that have achieved low levels of child mortality in low-income settings: Kerala in India; Sri Lanka; China; and Costa Rica. In 1985 the Rockefeller Foundation sponsored a study entitled *Good Health at Low Cost*

(Halstead *et al*, 1985). Its purpose was to explore 'the reasons why certain poor countries have achieved acceptable health statistics in spite of very low national incomes' (ibid:2).

On completing the study, its authors concluded that 'the four states did achieve good health at low cost' (ibid:256). Specifically, the states had dramatically reduced their infant and child mortality rates, and as a result increased their life expectancies to near-First World levels. The reductions in mortality attained by the four states were substantially greater than those registered by other developing countries that pursued conventional child survival strategies. Moreover, these reductions were accompanied by declines in malnutrition and, in some cases, the incidence of disease.

The authors of the study attributed these remarkable improvements in the health of entire populations to four key factors:

- political and social commitment to equity (ie to meeting all people's basic needs)
- education for all with emphasis on the primary level
- equitable distribution, throughout the urban and rural populations, of public health measures and primary healthcare
- assurance of adequate calorific intake (enough food) at all levels of society in a manner that does not inhibit indigenous agricultural activity.

The importance of a strong 'political and social commitment to equity' – although pursued in different ways – cannot be over-emphasised. Henry Mosley, former director of Johns Hopkins University's International Institute of Health and Population, points to the social and political factors underlying the improvements in health achieved in these four states:

> *'[To] guarantee access [to services] there must be an aggressive effort to break down the social and economic barriers that can exist between the disadvantaged subgroup and the medical services. This may be approached with a top-down strategy as illustrated by Costa Rica, or it may be gained through a bottom-up strategy where demand is generated by the organized poor as in Kerala… A passive approach of only making services available will not succeed in most situations unless the population has a heightened consciousness of their political rights.' (ibid. 242)*

Mosley further notes that:

> *'The fundamental underpinnings of any mortality reduction effort involve the political commitment to equity as well as policies and strategies to provide essential services to all. Judging by the historical experiences of the case studies, this stage may be reached through a long history of egalitarian principles and democracy (Costa Rica), through agitation by disadvantaged political groups (Kerala), or through social revolution (China).' (ibid:243)*

Despite changes in government and some changes in macro policy, the health and development gains made by Kerala have been sustained. Dreze and Sen (2002) suggest that Kerala's success is the result of public action that promoted extensive social opportunities and the widespread, equitable provision of schooling, health and other basic services. They contrast the success of Kerala with the failure of another Indian state, Uttar Pradesh, and draw out the following key differences:

- *The early promotion of primary education and female literacy* in Kerala was very important for social achievements later on. In Uttar Pradesh, educational backwardness has imposed high penalties, including a delayed demographic transition and burgeoning population growth.
- *Gender equity and the agency of women* appear to play a major role in Kerala's success. Uttar Pradesh has a long, well-documented tradition of oppressive gender relations, and gender inequalities are extraordinarily sharp, not just in literacy, but also in women's participation in society. More than 70 per cent of primary school teachers in Kerala are women, compared to 25 per cent in Uttar Pradesh.
- *Basic universal services* in schooling, healthcare, child immunisation, public food distribution, and social security seem to differ sharply in scope, access, quality and equitable distribution. In Uttar Pradesh, these services appear to have been comprehensively neglected, with no particular efforts to ensure results. There is little accountability, particularly in schools.
- *A more literate and better-informed public in Kerala* played an active role in politics and public affairs in a way that did not appear to have happened in Uttar Pradesh.
- *Informed citizen action and political activism in Kerala,* building partly on mass literacy and the emphasis placed on universal services by early Communist governments, seems to have played a crucial role in organising poor people. In Uttar Pradesh, traditional caste

and power divisions, particularly in rural areas, have not only persisted through more than 50 years of electoral politics but, indeed, such divisions have come to form the core of political discourse.

In summary, these cases illustrate that even very poor countries can achieve profound improvements in the health of their populations. Improvements were achieved by following development strategies that gave top priority to ensuring that the basic needs of all people were met. None of the countries – at least during the period of greatest improvements – followed the prevailing growth-at-all-costs development model which promotes unbridled expansion of private large-scale industry, in the hope that some of the aggregate wealth will trickle down to the poor. Rather, they followed a basic needs approach to development that focused on equitable forms of service and/or production aimed at involving as large a sector of the population as possible. Depending on the country, property ownership ranged from private (Costa Rica) to communal (China). But in all four countries a co-operative, community approach to resolving problems and meeting mutual needs was encouraged. A spirit of sharing and working together for the common good was an underlying motif. In their own ways, these four countries offer strong arguments for a comprehensive, equity-oriented approach to meeting national health needs (Werner and Sanders, 1997).

Technical features

While the *Good Health at Low Cost* study provides national (or large state-level) examples of social policies implemented and sustained over long periods, there are also more short-lived or ephemeral examples of countries that have achieved substantial advances in child health over relatively short periods. Below are summaries of achievements at a national level (Nicaragua) (Garfield, 1993) and in a particular programme area (Zimbabwe) (Sanders, 2001). These examples illustrate the interaction between contextual (political) and technical (programme) factors which have combined to produce policies and processes that have supported and facilitated programme design and implementation.

The ephemeral success of Nicaragua just after the Sandinista Revolution (see Box 4) provides an example of the importance of linking popular mobilisation with promotive health policies and decentralised health systems.

Box 4: Lessons from the Sandinista health revolution

Like socialist revolutions in other countries, the Sandinistas in Nicaragua developed health services in two stages. The first was a rapid expansion of curative medical care in response to pre-revolutionary goals and plans. The second was a re-formulation of health plans to fit the revolutionary economic, political and social environment. Some countries did this amidst conditions of extreme scarcity, such as the USSR during the New Economic Policy in the 1920s. Others, such as Cuba – which began its community medicine programme in 1976 – did it in relative affluence. Nicaragua re-formulated its health system between 1983 and 1986 in response to scarcity and war, without nationalisation or affluence. The main successes of this re-orientation provide important lessons for other countries attempting to do more for health with less money.

Decentralisation of budgeting and priority-setting
This led to more community involvement, improved ability to mobilise local volunteers and finance, and better responses to the perceived needs of residents. User fees, even at a low $0.05, gave local committees the means to take action in response to local needs. Even international finance often went directly to small towns through independent fundraising, sister-city arrangements and peoples' solidarity movements. Local resources made participation of the poor meaningful.

The modification of developed-country technologies to developing-country conditions
Appropriate technologies included oral rehydration centres, a midwifery training programme and herbal medicine development. All of these used modern information and research methods to guide the development or implementation of simplified, inexpensive interventions useful both in poor urban and rural communities.

Encouragement and co-ordination of volunteer efforts
These included one-day health campaigns, mothers' clubs, brigadistas and the involvement of mass organisations in health promotion. The ability to sustain large-scale mobilisation throughout the Sandinistas' decade in power reflects the ability of these programmes to motivate the population. Although it was assumed that mobilisation was equivalent to empowerment it is not possible to quantify the impact of health education and popular campaigns during the 1980s. There is no doubt that the mass campaigns against malaria and vaccine-preventable diseases gave a huge boost to efforts to control these serious health threats. They also succeeded in involving large numbers of people in health activities. Local areas used the approach for specific problems – such as tuberculosis case-finding in the north, recruitment of village workers along the Atlantic coast, and occupational health and protection from pesticides in the Pacific agricultural areas.

Careful use of both large-scale and small-scale international support for personnel, training and treatment
Relatively large funds were available but charges of waste, corruption and inefficiency were seldom heard. Decentralised funding led to both participation and accountability.

Co-ordination of public and private health services
Initially seen as hostile, the government accommodated the private sector and, in its later years, co-ordinated with the private sector via decentralisation of the health system.

Source: Garfield (1993)

Box 5: A comprehensive approach to under-nutrition in Zimbabwe: The Children's Supplementary Feeding Programme

Following Zimbabwe's independence in early 1980, a consortium of national and international non-governmental organisations, together with newly-formed government departments, launched a national children's supplementary feeding programme to address the problem of severe under-nutrition among young children, particularly in rural areas. The existing community-based popular infrastructure that had developed during the war against minority white rule in the 1970s permitted a more rapid and better-organised implementation of the nutrition programme than would otherwise have been possible. Mothers evaluated the children's nutritional status by measuring and recording their upper-arm circumferences. Those older than one and under five years of age with mid-upper-arm circumferences less than 13cm were included in the programme. The reasons for this cut-off point were explained to all parents, both those of children admitted to the programme and those considered not at risk. The mothers then established locations for supplementary feeding (which the mothers preferred to be located close to their homes and fields), cooked the food themselves and fed the underweight children.

The design of the programme was informed, on the one hand, by an understanding of the most important factors underlying rural child under-nutrition in Zimbabwe, and on the other by knowledge of rational dietary measures and identification of locally-used and cultivable food sources. By deliberately selecting for use in the programme foods which were highly nutritious, traditionally used in weaning and commonly cultivated – and by reinforcing their value with a very specific message in the form of a widely distributed poster asserting the importance of groundnuts and beans in addition to the staple (maize) – it was possible to shift the focus of the intervention from supplementary feeding towards small-scale agricultural production. This was aimed at resuscitating the cultivation of groundnuts – culturally a 'women's crop' – which had been largely displaced as a food crop in Zimbabwe by the commercialisation of maize.

The provision by local and national government of communal land, agricultural inputs and agricultural extension workers, together with the policy of collective production on these groundnut plots, contributed to improving poor households' food security. The joint involvement of the Ministries of Health and Agriculture in this project led to the development of intersectoral Food and Nutrition Committees at ward (sub-district), district and provincial levels.

The programme design therefore allowed the linking of a rehabilitative measure (supplementary feeding) to preventive and promotive interventions (nutrition education and food production respectively), thereby displaying the features of a comprehensive primary healthcare programme. This comprehensive approach to child under-nutrition, widely displayed through the Children's Supplementary Feeding Programme's operation, greatly influenced the management of this problem within the health sector. It resulted in a changed approach within health facilities to the dietary management of the sick child and to nutritional rehabilitation. It also created a community-level infrastructure of feeding points and (later) food production plots/childcare centres to which recuperating undernourished children could be discharged. Thus the sequenced addressing of immediate (dietary) and underlying causes (household food insecurity, inadequate young child care and inaccessible health services) by the feeding and the communal plots and pre-school centres respectively, was made possible by both careful design (based on a prior analysis) and by the presence of a well-organised and motivated population. Intersectoral action and structures for nutrition and food security developed around the project, from the bottom up, and were supported at higher levels of government.

Source: Sanders (2001)

It is possible to draw out a common set of sequenced activities that lie at the heart of the most successful programmes. This cycle of activities is sometimes termed the 'Triple-A' approach. After the priority health problems in an area have been identified, the first step in programme development is to conduct a situation assessment and analysis. This should identify: the prevalence and distribution of the problem; its causes and the potential resources, including community capacities and strengths, which can be mobilised; and actions which can be undertaken to address the problem.

The more effective programmes have taken the above approach, involving health workers, workers from other sectors, and the community in the three phases: *assessment* of the nature and extent of the problem; *analysis* of its multilevel causation; and *action* to address the linked causes. In the case of nutrition, UNICEF has developed a conceptual framework *(see Figure 6)* depicting the linked multilevel (proximal and distal) causes of under-nutrition (Jonsson *et al*, 1998). Programming consists, therefore, of undertaking a 'Triple-A' process, using the conceptual framework as a guide.

Clearly, the specific combination of actions making up a comprehensive programme will vary from situation to situation. However, there are certain principles which should inform programme design, one of which is the deliberate linking of actions to address causative factors operating at different levels. So, for example, in a nutrition programme any intervention around dietary inadequacy (immediate level of causation) should also address household food insecurity (underlying level of causation). Thus the choice of food supplement should be based both on its nutrient value but also on its availability, cost and cultivability and/or purchasability. The careful choice of an appropriate food supplement should be reinforced as an educational action to influence positively food habits and feeding practices. This principle of linking curative or rehabilitative (feeding), preventive (nutrition education), and promotive actions (to achieve improved household food security) could, and should, be applied to health programmes other than nutrition (Sanders and Chopra, 2001).

In addition, a nutrition programme will include a minimum of core health service activities (mostly facility-based) including: effective growth monitoring and promotion; the integrated management of childhood illness; the promotion of breastfeeding; and the promotion of energy- and nutrient-dense weaning diets based on commonly available local foods. Similar minimum or core service components can also be identified for other health programmes – eg directly observed treatment for TB (DOTS), technical guidelines for the management of common non-communicable diseases, etc. There is an advantage in standardising and replicating these core activities in health facilities at different levels, thus reinforcing their practice throughout the health system.

Based upon multiple reviews (Sanders 1997; Gillespie *et al*, 1996; Jonsson, 1997),we are also in a position to identify a number of key programmatic factors for success.

Coverage, targeting, resources and intensity

Even effective programmes only improve the health and nutrition of those they reach. Therefore, achieving as complete a coverage as possible of those at risk is a major determinant of the impact. Programmes tend to target specific areas and biological groups – generally women and children – but mainly do not give priority to poorer or less healthy communities. Indeed, the policy is often to aim for complete coverage within the participating areas, and to add new sites until the entire country, region or selected areas are included. Relatively untargeted expansion to universal coverage may be at the expense of establishing adequate resources and quality in the areas initially covered. In at least one case (Thailand), having achieved broad coverage and reduced malnutrition, the programme was then became specifically targeted at areas where progress was lagging.

Targeting refers to interventions that try to reach only a certain segment of the population (eg poor children). The other approach achieves universal coverage with programmes or interventions that address conditions of particular importance for disadvantaged groups. Victora *et al* (2003) outline when a targeted or a universal coverage approach might be more appropriate *(see Table 4)*.

Table 4: Targeted versus universal approaches

Targeting (individual or geographic)	Universal coverage
Children in need are easy to identify	High-risk groups are hard to identify
Disease or situation has a patchy distribution in the population – eg disease is due to confined risk behaviours	Every child needs the intervention – eg attended delivery, micronutrient deficiency, vaccinations
Intervention only protects those who receive it	Intervention has a spill-over effect – eg vaccines, mosquito nets
Public sector has wide amount of control over intervention – eg vitamin A capsules	Intervention is widely available in private sector – eg antibiotics, mosquito nets
Spontaneous demand for the intervention – eg vaccines at least in some populations	Spontaneous demand is high, intervention is low – eg antenatal care
Administration system must be well developed to target effectively	Administration system must be able to reach the whole population
Government health services are widely accessible	Government health services are unable to cover the whole population

Source:Victora et al, 2003

Regardless of the approach taken, it is clear from the literature that to achieve sufficient coverage the addition of significant numbers of personnel is required. In nearly all cases, this has only been achieved through partnerships with non-governmental/non-profit organisations.

Once sufficient coverage has been achieved there must be sufficient contact between the beneficiaries and trained local workers (with supervision, supplies, etc). Thus the intensity measure of community-based workers per mother–child, and supervision ratios, are very relevant. The suggested norms, originating from the Thailand experience with community-based communicators and facilitators focusing upon nutrition, are about 1:100 for both these (depending upon the complexity of the intervention).

Finally, we can make some estimates of the basic minimal costs required for effective programmes. In the case studies cited by Gillespie *et al* (1996), a figure of $5–10 per child per year was needed for effective nutrition programmes.

> *'... there seems to some convergence on around $5-10 per head (beneficiary) per year being a workable, common level of expenditure in nutrition programmes, though not generally including supplementary food costs... effective programmes, with these levels of expenditure, seem to be associated with reducing underweight prevalences by around 1–2 percentage points per year.' (ibid:69–70)*

A further important consideration is that the effect is likely to be related non-linearly to the expenditure, with a minimum threshold before there is an effect. Thus, the first expenditures produce little effect on the outcome, and one needs to get to a minimum input level of resource use before a worthwhile response is achieved (John Mason, personal communication). If this is the case, then the implication is important: applying too few resources does not only solve the problem more slowly, it does not solve it at all, and is wasteful. This relates to the earlier point that 'programme intensity' (resources/persons) is an important measure for effectiveness.

In summary, strategies for comprehensively tackling health problems can be grouped essentially under two complementary headings: promoting healthy policies and plans; and implementing comprehensive and decentralised health systems. The success of these strategies depends on the creation of a facilitatory environment through such actions as advocacy, community mobilisation, capacity building, organisational change, financing and legislation.

Selective primary healthcare

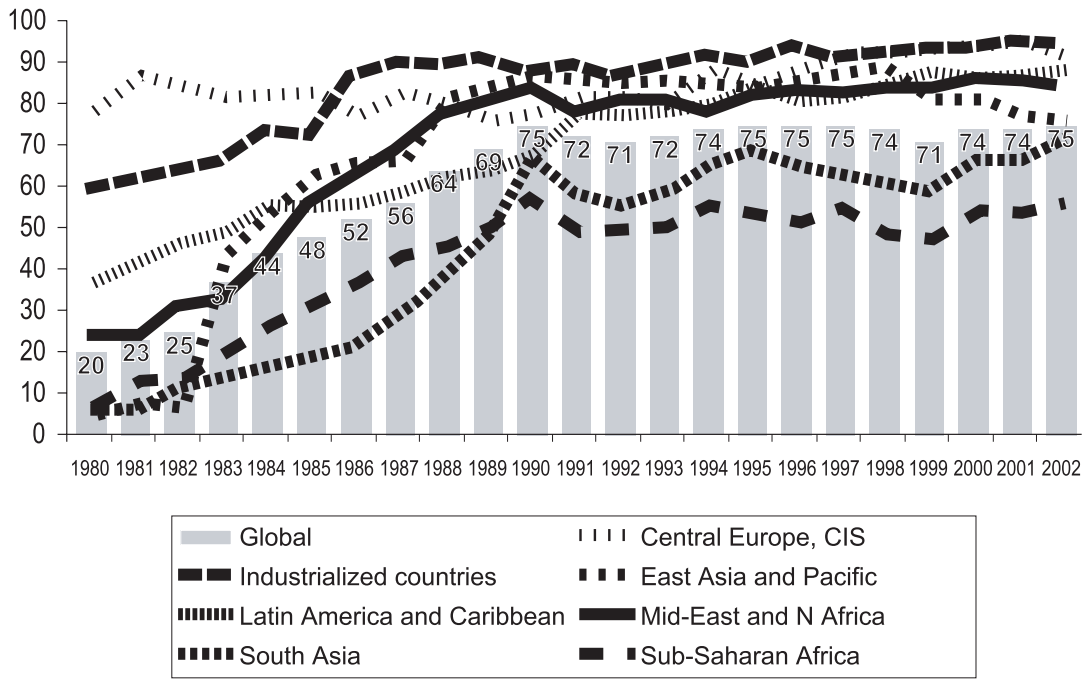
While progress in implementing primary healthcare strategies in developing countries has been greatest in its more medically-related elements, the narrow and technicist focus characterising what has been termed the selective primary healthcare approach has dominated (Walsh and Warren, 1979; Warren, 1982). The selective primary healthcare approach sought to focus on certain interventions – such as growth monitoring, oral rehydration therapy, breastfeeding and immunisation (GOBI) – for a variety of childhood diseases. The alternative would have involved tackling a few priority diseases through combining the rehabilitative, curative, preventive and promotive components that address both proximal and distal causative factors and incorporating the above effective interventions in such a comprehensive approach.

The selective approach has at best delayed, and at worst undermined, the implementation of the comprehensive strategy codified at Alma Ata. The adoption in developing countries of these selected interventions constituted the centrepiece of UNICEF's Child Survival Revolution. This, it was argued, would be the 'leading edge' of primary healthcare, with a more comprehensive approach being ushered in at a later stage. The relative neglect of the other primary healthcare programme components – and the shift of the emphasis away from equitable social and economic development, intersectoral collaboration, community participation and the need to set up sustainable district-level structures – suited the conservative tendencies of the 1980s (Rifkin and Walt, 1986). It gave donors and governments a way of avoiding the fuzzier and more radical challenges of tackling inequalities and the causes of ill-health. The result was the enthusiastic initiation of selective interventions – often delivered through vertical, centrally organised programmes – that received generous funds to the detriment of more comprehensive approaches.

Child survival, especially immunisation and diarrhoea case management, was substantially supported by various donors, notably USAID, especially in the 1980s and early 1990s. Falling and stagnating levels of immunisation coverage globally since about 1990 offer perhaps the most vivid example of both the reduction in funding and the weakening of health systems capable of delivering even these selective interventions *(see Figure 6).*

Understanding the fundamental shortcomings of this paradigm, which has become dominant in child health, requires an examination of the macro-economic and ideological contexts within which child health survival programmes have been functioning – in particular structural adjustment programmes and the health sector reform process that accompanied them.

Figure 6: Falling and stagnating rates of immunisation globally 1980–2002



Source: WHO/UNICEF estimates, 2003 (personal communication)

Structural adjustment programmes

One of the most important early interventions which has had the effect of integrating developing countries into the global economy (primarily through the imposition of stringent debt repayments and the liberalisation of trade), has been the structural adjustment programmes promoted by the International Monetary Fund and the World Bank. Structural adjustment programmes have also resulted in significant macro-economic policy changes and public sector restructuring and social provisioning. Any analysis of the impact of globalisation on child health and the provision of comprehensive primary healthcare in developing countries necessitates an examination of the experience of structural adjustment programmes. Box 6 summarises the experience of Zimbabwe. This is not a unique case, as pointed out in a recent comprehensive review of structural adjustment programmes and health carried out by the WHO Commission on Macroeconomics and Health (one of the co-authors was an officer at the World Bank):

'The majority of studies in Africa, whether theoretical or empirical, are negative towards structural adjustment and its effects on health outcomes.' (Breman and Shelton, 2001:15)

There is evidence that the above effects of structural adjustment programmes, particularly in Africa, continue to adversely affect the performance of health systems as a result of chronic underfunding of infrastructure and transport, and in particular because of reductions in both numbers and quality of functioning of health personnel (Bassett *et al*, 1997; Simms, Rowson and Peattie, 2001). Given that over half, and sometimes three-quarters, of recurrent health expenditure is on personnel, there has inevitably been a widespread and serious decline in the working conditions and earnings of public sector health personnel, especially in 1990s. This has been an important factor contributing to the brain drain – the exodus of health workers from the public to the private sector and from poorer to richer countries *(see Section 9)*.

Box 6: Case study of structural adjustment programmes and Zimbabwe

Zimbabwe's performance in health in the first decade following independence in 1980 is generally acknowledged to have been impressive. Infant mortality (children under one year of age) declined from pre-independence levels of 120–150 per 1,000 live births, to 61 by 1990. Child mortality (children aged one to four years) declined from 40 per 1,000 in 1980, to 22 in 1990 (UNICEF, 1994). These gains can be attributed to the energetic implementation of new policies based on primary healthcare. In particular, maternal and child health services were vigorously promoted, with a massive expansion in primary care facilities and certain programmes (eg immunisation, oral rehydration therapy and community-based healthcare through village health workers and midwives) (Sanders and Davies, 1988).

In late 1990, although the economy was not in crisis, the government formally introduced the Economic Structural Adjustment Programme. The structural adjustment package contained the standard features of International Monetary Fund/World Bank economic reform strategies: a reduction of the budget deficit through a combination of cuts in public enterprise deficits and rationalisation of public sector employment; trade liberalisation, including price decontrol and deregulation of foreign trade, investment, and production; phased removal of subsidies; devaluation of the local currency; enforcement of cost recovery in the health sector; and introduction of cost recovery for education.

A longitudinal study between 1993 and 1998 was conducted in one urban and one rural area. Chitungwiza is a large working-class suburb, and Murehwa is a rural area that supplies much migrant labour to Harare. The study aimed to measure the changes occurring in health and health services during the implementation of the structural adjustment programme, through monitoring selected indicators of household economic performance, and the use and functioning of health services. The combination of devalued local currency and removal of consumer subsidies on maize meal and bread – prescribed by the Economic Structural Adjustment Programme – resulted in a dramatic rise in food prices and the consumer price index. The government estimated that price rises were 25 per cent higher for low-income families.

Between 1995 and 1998 most households in both Murehwa and Chitungwiza reported that their income either stayed the same or declined, but the richest minority actually reported increases in income. By the mid-1990s the government of Zimbabwe was spending eight times as much servicing its external debt as it was spending on healthcare (which suffered a 40 per cent decline per capita).

In June 1993 the government reintroduced user fees at rural government health facilities, and in January 1994 new fee schedules posted huge increases (on average, two-and-a-half times). This led directly to sharp falls in attendance for maternity and antenatal care. The proportion of home deliveries increased steadily from an estimated 18 per cent in the period 1988–91, to a statistically significant 38 per cent in 1995 in one of the sites. Child health suffered similarly. For example, measles vaccination coverage across the country fell from 90 per cent in 1991 to 78 per cent in 1993 and has continued to remain well below 1991 levels.

Summarised from Bijlmakers et al (1995); Bassett et al (2000)

Health sector reform

Partly in response to criticism of its structural adjustment programmes, the World Bank proposed its own version of health sector reform in its *World Development Report 1993* (World Bank, 1993). This influential policy document had a number of positive aspects. It recognised that poverty and ill-health are causally related and that improved health is likely to result from economic improvement and changes in sectors other than health. It also discouraged further investment in specialised tertiary care. The document recommended that governments should adopt a three-pronged policy approach to health reform. They should: foster an enabling environment for households to improve health; improve government spending in health; and facilitate involvement by the private sector.

The centrepiece of its policy for improving the effectiveness of spending on health was a proposal for a package of public health interventions and a package of essential clinical services. This approach is, in effect, a more elaborate version of the selective primary healthcare approach, virtually neglecting intersectoral work and community involvement. The content of these 'packages' is determined by what are regarded as cost-effective interventions. New activities such as de-worming and vitamin A supplementation were added to the list of selected technologies (proposed a decade-and-a-half earlier by Walsh and Warren (1979) in their influential paper 'Selective primary health care') which governments should aim to provide.

Proponents of such packages point to the impressive increases in immunisation coverage, declines in infant mortality in many countries and the successful eradication of polio from the Americas. However, 15 years after the adoption of these packages of care, the health experience of many children has not improved, immunisation coverage rates have stagnated and infant mortality rates have risen in many sub-Saharan countries. In addition, instead of dying young of diarrhoea, for example, survivors are experiencing the effects of under-nutrition (Chen, 1986) and often perishing later in early childhood (Gadomski *et al*, 1990).

Questions have been raised about the sustainability of mass immunisation campaigns (Poore *et al*, 1993), the effectiveness of health facility-based growth monitoring (Chopra and Sanders, 1997), and the appropriateness of oral rehydration therapy when promoted as expensive and often inaccessible sachets or packets and without a corresponding emphasis on nutrition, water and sanitation (Werner and Sanders, 1997). Evaluations at both national and provincial levels have found that it is only when core service activities (such as the above child survival technologies, DOTS, use of management guidelines for common diseases) are embedded in a more comprehensive approach (which includes paying attention to health systems, engaging

health-related sectors and involving local communities) that real and sustainable improvements in the health status of populations are seen (Volmink and Garner, 2003; Gutierrez *et al*, 1996).

HIV/AIDS

Since the beginning of the HIV/AIDS pandemic, approximately 2.7 million children have been infected with HIV and current estimates suggest that more than 800,000 children are newly infected annually (UNAIDS/WHO, 2003); 720,000 (90 per cent) of these children are born in sub-Saharan Africa. Transmission of HIV from mother to child during pregnancy, birth or breastfeeding is the main route of infection. Paediatric HIV infection has become a significant cause of the substantial increase in infant and child mortality rates in east and southern Africa, and these are contributing to an alarming reduction in life expectancy (UNAIDS/WHO, 2003). The pandemic is finally eliciting a significant response through the Global Fund to Fight AIDS, TB and Malaria, the World Bank and bilateral overseas development aid. Private foundations such as the Gates and Clinton Foundations, and non-governmental organisations such as Médecins sans Frontières, are providing additional funds and technical support.

The World Health Organization has further catalysed efforts by announcing its aim to help put three million people in developing countries on antiretrovirals by the end of 2005. It currently estimates that only 100,000 people, out of 4.1 million who need it in Africa, are receiving antiretroviral therapy. Antiretroviral treatment programmes for HIV-positive children have already started in some African countries. However, while supporting the greater attention towards HIV/AIDS, McCoy *et al* (forthcoming) outline at least four important pitfalls that the rush towards treatment may entail:

1. The expansion of access to antiretroviral therapy can come at the expense of other vital healthcare services, such as maternal and child healthcare services, or it can lead to an unintended diversion of attention and resources away from HIV prevention. The current focus on antiretroviral therapy could also over-medicalise the response to HIV/AIDS and divert attention and funds away from the more fundamental political, social and economic determinants of poverty and the AIDS pandemic. While the attraction towards a 'magic bullet', or technological solution, is understandable, the goal of addressing AIDS and improving health in Africa will require a broad, multi-sectoral response to the disease and its underlying social and economic causes.

2. Antiretroviral therapy programmes may take inappropriate short cuts to achieve ambitious coverage targets, and so compromise on the quality and sustainability of care. This could

include insufficient community and patient preparation; lack of sustainable drug supplies; incomplete training of healthcare providers and treatment supporters; and inadequate monitoring systems for viral resistance. As a result, there could be low levels of treatment adherence and an increased threat of drug resistance developing.

3. Arising from the pressure to achieve quick results is the inappropriate use of vertical treatment programmes (ie the establishment of separate and parallel supply and delivery systems for antiretroviral therapy). One manifestation of this is the use of non-governmental actors to deliver treatment because of their ability to set up projects quickly.

4. Antiretroviral therapy programmes could widen the inequitable health outcomes and social and geographic disparities in access to healthcare. Not paying due attention to the opportunity costs of expanding access to antiretroviral therapy could result in unintended inequities within the healthcare system between different patient groups.

8. Equity and efficiency

The dominant discourse of the last two decades has been concerned with improving efficiency, with the assumption that this will then address equity as well. In practice, this has manifested itself through the identification of core interventions such as directly observed therapy for tuberculosis, oral rehydration therapy for diarrhoea, or immunisation services that are perceived as the most cost-effective. Gilson (1998; also McIntyre and Gilson, 2002; McIntyre *et al*, 2002) has argued that this has a number of important consequences. Health status gain is focused around medical interventions as opposed to intersectoral collaboration. This in turn promotes a return to vertical programmes that previously have been assessed as both inefficient and damaging to health systems (as outlined above in section 8). It also promotes an ignorance of the wider benefits of public health provision. For instance, nutrition interventions may be judged according to their ability to reduce morbidity and mortality, but the potential benefits of increased school attendance, improved productivity, etc are ignored). Finally, 'the development of and application of efficiency-driven reforms is dominated by economists and health care managers and takes place in a "black box" of specialist knowledge' (Gilson, 1998:1893). The process of calculating and prioritising cost-effective packages of care is often performed with little or no involvement of other sectors and communities. Assumptions made in such calculations go unchallenged.

In contrast, Gilson outlines a broader vision of policy-making that is the hallmark of an equity-driven approach:

> *'Firstly, it requires consideration of the broader policy action required to promote health equity. Second, the concern for equity also points towards the broader policy goals that might be pursued through health policy. Third, the pursuit of equity forces consideration of decision-making procedures in society, and the extent to which they allow for broad representation and so expand choice.' (ibid:1894)*

This debate is important when considering the relationship between child health and poverty, and may explain why support for child health and nutrition has been eroded in the present efficiency-driven policy climate. If the definition of poverty is understood to include a broader range of capabilities, then health and participation in decision-making processes become important components of any poverty alleviation programme. Successful child health and nutrition programmes have been based on cost-effective health facility interventions linked with broader inter-sectoral interventions with active community involvement (Gillespie *et al*, 1996). Fundamentally, this involves some sort of relationship between local community-based structures and personnel, and external state agents. Evans (1996) outlines two types of mutually reinforcing relationships between state and non-governmental agents: complementarity and embeddedness.

1. Complementarity stresses the role of the state in establishing 'rule of law' to foster environments which allow local organisation to occur (political will). The use made, by civil groups, of the rights established by the South African Constitution to advocate for HIV-positive mothers to receive antiretroviral treatment is an example of the importance of such an environment.

2. Embeddedness emphasises the increased effectiveness of state actors when they are part of, or at least very familiar with, the communities they are trying to serve. A common feature of many community-based health programmes has been the presence of a cadre of workers who are trusted by and have access to households. The building of trust and co-operation is central to successful development, and facilitates the rapid scaling-up of such community development efforts.

Together, complementarity and embeddedness create what Evans calls 'co-production'. Co-production has been defined as the provision of public services (broadly defined, to include regulation) through an institutionalised, long-term relationship between state agencies and organised groups of citizens, where both make substantial resource contributions.

Our review of successful programmes has three more pragmatic reasons why co-production is so important for success:

(i) There is the issue of trying to deal with large numbers of clients. The costs of any interactions are high in relation to the average small household. Informal communications that piggy-back on existing local networks are preferred.

(ii) There is a major issue of diversity of operational situations, which has several dimensions. Individual households and communities may have very different environmental and socio-economic conditions and knowledge that impact on their health. This diversity of operational situations means that it is very difficult for an organisation pursuing formal or office-based procedures to obtain and process the information on client circumstances that is needed for an adequate response.

(iii) Following from the previous two points, formal provider organisations acting alone will, in these kinds of circumstances, tend to lack the resources needed to deliver services effectively. This echoes the point made by Szreter (1999) in his explanation of changes in mortality during the nineteenth century in England. Restoring the collective faith in the state and increasing the capacity of local government, become the critical first steps for increasing social capital and improving health and development outcomes in poor communities.

9. Present status of health systems

Ironically, even the World Bank is beginning to acknowledge the devastating impact that the various assaults on public health systems, as outlined above, have had on the capacity to implement even basic packages of care. Its own *Health, Nutrition and Population Sector Strategy* states:

> *'As shown by broad international experience, the underlying threats to good health, nutrition, and population outcomes are well known, and affordable solutions are frequently available. But, because of weak government implementation capacity and market imperfections in the private sector, potentially effective policies and programs often fail.' (World Bank, 2000a)*

The recognition of weak government implementation capacity (capacity which is also declining as a result of AIDS and increased attrition rates) and the clear acknowledgement of the 'market imperfections' of the private sector, need to be explicitly linked to the inadequate financial resources available for child health and nutrition interventions. A joint UNDP/UNICEF study in more than 30 countries across Africa, Asia and Latin America found that public expenditure on basic social services is, on average, between 12 and 14 per cent of government spending (Mehrotra and Delamonica, 2003). Many countries spend more on servicing external debt than they do on basic services. In many low-income, highly-indebted countries, the low level of spending is explained by both the lack of fiscal space and the low levels of national wealth. For instance, Ethiopia spends 22 per cent of its national budget on health and education, but this amounts to only US$1.50 per capita on health. Even if Ethiopia were to spend its entire budget on healthcare, it would still not meet the WHO target of US$30–40 per capita (Save the Children UK, 2003). Thirty-one African countries had total per capita health expenditures of $20 or less in 2001 (World Health Organization, 2004).

Decreasing levels of aid

The Commission on Macroeconomics and Health (2001) concluded that a major increase in donor financing would be needed to support critical health interventions in developing countries. It estimated an additional $22 billion per year by 2007 and $31 billion per year by 2015, at a minimum, would be required. Despite numerous communiqués stating that donors are committed to increasing overseas development assistance, evidence shows that the level of such aid in many OECD countries has been falling. While wealth per person in the OECD countries more than doubled between 1961 and 2000, the amount of aid given dropped by four times over the same period. Between 1990 and 2001, overseas development aid fell from about 0.33 per cent to 0.22 per cent of donor countries' GNP, the lowest ever level. Furthermore, overseas development aid has declined most in the regions and countries of greatest need. Of

the 49 least developed countries, 31 receive less aid today than in 1990 (German *et al*, 2002). Labonte *et al* (2004:55) summarise the recent performance of the leading OECD countries with respect to aid for healthcare in developing countries:

> *'Only two of the G7 show any progressive increases in health aid since 2000 (France and Canada), both of which now exceed their 1990 levels. Italy and UK showed an increase in 2000 over 1999, but both countries also recorded a surprisingly sharp drop the next year… The precipitous drop in US aid to health in 2000, on the eve of a G8 declaration of the need to increase such assistance, is particularly disturbing… Overall, the portion of ODA [overseas development aid] directed to health remained surprisingly low. Since 1999, 2000 and 2001 figures include multilateral aid as well as bilateral aid, the general downwards trend from earlier years is even more disturbing.'*

The ability of states to co-ordinate these resources more effectively is supposed to be strengthened by the recent advent of sector-wide approaches (SWAps). SWAps present a new approach to the co-ordination of aid from donor countries. They set out to provide a broad framework within which all resources in the public health sector are co-ordinated in a coherent and well-managed way. Most importantly, for the present discussion, donors are being encouraged to move away from selected support for certain programmes towards supporting broader sectoral approaches that have shared goals with the government. This will increase the necessity for governments to develop comprehensive health plans and develop a health vision that prioritises certain programmes. In countries where this process has been initiated, there is some evidence that donors continue to exert enormous influence – and it has even been argued that in some cases this influence has increased as a result of this process (Walt *et al*, 1999).

Giving aid is only half the story. The cost of the heavy debt burdens faced by nearly all the countries with the worst child health makes up the other half. Hanlon (2000) estimates that approximately US$600 billion in debt reduction is required to ensure that debt repayment does not infringe on essential social development funding. Calculations based on the present, much vaunted (but also much criticised) Heavily Indebted Poor Country initiative suggest that even if this commitment to debt relief is achieved it will still leave the poorest countries (the only ones which qualify for this debt relief) with large amounts of debt. This is because they are still accumulating debt (through the interest on existing debt), so the resources freed up will only be minimal.

Crisis of human resources

The most important component of a health system is human resources. This is not just because around 70 per cent of health system expenditure is on human resources, but also because the nature of healthcare places great emphasis on the availability and functionality of human resources. Once again, the picture is grim, especially in sub-Saharan Africa.

In the 1980s, the doctor–population ratio was 1:10,800 in sub-Saharan Africa, compared to 1:1,400 in all developing countries and 1:300 in industrialised countries. Since then, the situation has deteriorated. The ratio of doctors to head of population in Mozambique is 1:30,000, and in Malawi the figure is 1:100,000 (Martineau *et al*, 2002). In South Africa, 29,000 positions in the public health sector are currently unfilled (Kober and Van Damme, 2004).

A significant cause of health personnel shortages is the migration of professionals to wealthier countries. Half of the medical graduates from Pakistan in any year leave for the West, most of them never return (Chanda, 2001); from South Africa it is about one-third. It is estimated that developing countries invest about $500 million on training health professionals who are then recruited by developed countries. This is equivalent to about 25 per cent of the total overseas development aid to these countries for healthcare (Padarath *et al*, 2003).

The widespread migration of skilled health workers to the personnel-starved health systems of developed countries is being compounded by the effects of HIV/AIDS on health workers, which is leaving many health systems, especially in southern and east Africa, hopelessly under-staffed. Simultaneously, the macro-economic discipline of the new forms of structural adjustment programmes, capping the hiring of new public sector workers, means that there are unemployed health workers in countries such as Kenya and Uganda, while their Ministries of Health struggle to spend donor money for programmes such as HIV (there are only so many drugs and test kits that can be bought).

10. Conclusions

- Poor child health and nutrition impose significant and long-term economic and human development costs – especially on the poorest countries and communities, further entrenching their status. Improving child health and nutrition is not only a moral imperative, but a rational long-term investment.
- The greatest burden of childhood death and disease is concentrated among the poor, and the rate of improvement in these groups has slowed significantly in the past two decades. This has led to widening inequalities in survival and quality of life between richer and poorer groups.
- The dominant causes of mortality and morbidity remain nutritional deficiencies and infectious diseases, with HIV/AIDS contributing significantly in eastern and southern African countries.
- The above proximal causes of childhood illness and death are underlain by such distal factors as low and declining real incomes, poor female education, unhealthy environments (housing, water, sanitation) and inadequate access to quality health services. These are manifestations of growing inequalities in the distribution of economic and social resources between rich and poor countries and within countries. Rising external debt, structural adjustment programmes, increasingly unfair terms of trade and declining levels of overseas aid are key macro-economic factors that underpin such inequalities and whose effects are often compounded by poor governance.
- The past few decades have seen impressive advances in our understanding and technical ability to prevent, treat and mitigate the effects of many childhood illnesses. Key examples are immunisation, treatment of diarrhoeal dehydration and prevention of mother-to-child transmission of HIV infection. The challenge, increasingly, is to implement successfully these efficacious interventions, especially among the poorest, and to adopt social policies that improve equity in child health.
- Despite a widening gap between rich and poor, in terms of health outcomes and access to services, there are examples of successful large-scale child health and nutrition programmes. Most of these examples demonstrate the successful implementation of a comprehensive primary healthcare approach where interventions have addressed simultaneously both the immediate (proximal) and the underlying (distal) factors impacting on child survival and health. In a few low-income countries, broad-based approaches have resulted in significant and often sustained improvements in child and maternal health. In all of these examples – as well as in the past experience of now-industrialised rich countries – such

improvements have been secured through a combination of social policies and efficacious public health interventions. In all cases, a favourable political context facilitated such comprehensive and equity-oriented approaches. Such contextual factors are crucial in ensuring not only investment in social services but also in providing an infrastructure and community mobilisation within which effective technologies and interventions may be most successfully and widely promoted.

- Participatory programme design and implementation seem to be fundamental features of many successful programmes which, in addition, need to attend to such key factors as coverage, targeting, intensity and resource mobilisation.
- The dearth of examples of large-scale successful comprehensive child health programmes can be largely attributed to the dominance over the past two decades of conservative macro-economic policies. This situation can also be attributed to an accompanying narrowing of the primary healthcare approach, whereby some technical interventions have been preserved and promoted, while interventions to address broader social determinants (as well as participatory processes) have been denigrated or abandoned. Such 'selective', technical approaches have been vigorously promoted as 'packages of care', which are sometimes unthinkingly abstracted from the systems and processes needed to implement and sustain them.
- Public health systems, especially in poor countries, have been considerably weakened in the past decades by a combination of conservative macro-economic policies – such as structural adjustment – and health policies that constitute 'health sector reform'. Chronic underfunding of health (and social) services has led to a serious weakening of the delivery infrastructure, and especially of the human resource component. Health personnel capacity has been severely undermined in many poor countries as a result of the above fiscal crisis and the impact of HIV/AIDS. In addition, active recruitment of personnel by those rich countries experiencing a health workforce shortage has further depleted this resource and seriously aggravated the dysfunctionality of health systems.
- The current HIV/AIDS pandemic and the new initiatives launched to address it, could potentially aggravate the crisis in child health and healthcare by diverting attention and resources away from the other – more common – health problems, and from their more fundamental, social determinants. There is also a strong possibility that new vertical programmes and structures will be created, further delaying the long-term imperative of creating strong and sustainable horizontal health systems.

- The time is long overdue for energetically translating policies into actions. The main actions should centre around the development of well-managed and comprehensive programmes involving the health sector, other sectors and communities. The process needs to be structured into well-functioning district systems which require, in most countries, to be considerably strengthened, particularly at the household, community and primary levels. Here, comprehensive health centres and their personnel should be a focus of effort and investment in, and the reinstatement of, community health worker schemes should be seriously considered.
- The successful development of decentralised health systems will require targeted investment in infrastructure, personnel and management, and information systems. A key primary step is capacity development of district personnel through training and guided health systems research. Such human resource development must be practice-based and problem-oriented and draw upon, and simultaneously reorientate, educational institutions and professional bodies.
- Clearly, the implementation and sustenance of comprehensive primary healthcare requires inputs and skills that demand resources, expertise and experience not sufficiently present in the health sectors of many countries. Here, partnerships with non-governmental organisations with expertise in various aspects of community development is crucial. The engagement of communities in health development needs to be pursued with much more commitment and focus. The identification of well-functioning organs of civil society, whether or not they presently are active in the health sector, needs to be urgently pursued.

References

ACC/SCN, 2004, *The 5th Global Nutrition Report.* Geneva: ACC/SCN

Baltazar, J.C., Nadera, D. P. and Victora, C. G., 2002, 'Evaluation of the national control of diarrhoeal disease programme in the Philippines, 1980-93', *Bulletin of the World Health Organization* 80 (8):637–43

Barros, F. C., Victora, C. G. and Vaughan, J. P., 2001, 'The epidemiological transition in maternal and child health in a Brazilian city, 1982-93: A comparison of two population-based cohorts', *Paediatric Perinatal Epidemiology* 15 (1):4–11

Bassett, M. T., Bijlmakers, L. and Sanders, D. M., 1997, 'Professionalism, patient satisfaction and quality of health care: Experience during Zimbabwe's structural adjustment programme', *Social Science & Medicine* 45 (12):1845–52.

Bassett, M. T., Bijlmakers, L. and Sanders, D., 2000, 'Experiencing structural adjustment in urban and rural households of Zimbabwe', in Turshen, M. (ed) *African Women's Health,* Africa World Press Inc, 167–191

Beegle, K., Frankenberg, E. and Thomas, D., 2001, 'Bargaining power within couples and use of prenatal and delivery care in Indonesia', *Studies in Family Planning* 32 (2):130–46

Bhuiya, A., Chowdhury, M., Ahmed, F. and Adams, A., 2001, 'Bangladesh: An intervention study of factors underlying increasing equity in child survival', in Evans, T., Whitehead, M., Diderichsen, F., Bhuiya, A. and Wirth, M. (eds) *Challenging Inequities in Health: From Ethics to Action.* Oxford: OUP, 227–39

Bhuiya, A. and Chowdhury, M., 2002 'Beneficial effects of a woman-focused development programme on child survival: Evidence from rural Bangladesh', *Social Science & Medicine* 55 (9):1553–60

Bijlmakers, L., Bassett, M. T. and Sanders, D., 1995, *Structural Adjustment and the Working Poor in Zimbabwe,* Uppsala: Nordiska Afrikainstitutet

Black, R., 2003a, 'Micronutrient deficiency: an underlying cause of morbidity and mortality', *Bulletin of the World Health Organization,* 81 (2):79

Black, R., 2003b, 'Zinc deficiency, infectious disease and mortality in the developing world', *J Nutrition,* 133 (5 Suppl 1):1485S–9S

Black, R. E., Morris, S. S. and Bryce, J., 2003, 'Where and why are 10 million children dying every year?', *The Lancet* 361 (9376):2226–34

Breman, A. and Shelton, C., 2001, *Structural Adjustment and Health: A literature review of the debate, its role players and the presented empirical evidence. Working Paper no. WG6:6.* Geneva: WHO Commission on Macroeconomics and Health

Brown, K., Dewey, K. and Allen, L., 1998, *Complementary Feeding of Young Children in Developing Countries: A review of the literature,* Geneva: World Health Organization

Bruce, N., Perez-Padilla, R. and Albalak, R., 2000, 'Indoor air pollution in developing countries: a major environmental and public health challenge', *Bulletin of the World Health Organization,* 78 (9):1078–92

Butz, W. P., Habicht, J. P. and DaVanzo, J., 1984, 'Environmental factors in the relationship between breastfeeding and infant mortality: The role of sanitation and water in Malaysia' *American Journal of Epidemiology* 119 (4):516–25

Caulfield, L., Zavaleta, N. and Shankar, A. H., 1998, 'Potential contribution of maternal zinc supplementation during pregnancy to maternal and child survival', *American Journal of Clinical Nutrition* 68 (2S):499S–508S

Chanda, R., 2001, *Trade in Health Services. Paper WG4:5:* Commission on Macroeconomics and Health, Geneva: World Health Organization

Chen, L.C., 1986, 'Primary health care in developing countries: Overcoming operational, technical, and social barriers', *The Lancet,* 2 (8518):1260–5

Chopra, M. and Sanders, D., (1997) 'Growth monitoring: Is it a task worth doing in South Africa?', *South African Medical Journal,* 87 (7):875–8

Chowdhury, A. M. R., 1990, 'Empowerment through health education: the approach of an NGO in Bangladesh' (Chapter 9), cited in: Streefland, P. and Chabot, J. (eds), 1990, *Implementing Primary Health Care. Experiences since Alma-Ata,* Amsterdam: Royal Tropical Institute, p117

Commission on Macroeconomics and Health, 2001, *Macroeconomics and Health: Investing in Health for Economic Development,* Geneva: World Health Organization

Drèze J and Sen A., 1989, *Hunger and Public Action,* Oxford: Clarendon.

Drèze J and Sen A., 2002, *India: Participation and Democracy,* Oxford: Oxford University Press

Esrey, S. A., 1996, 'Water, waste, and well-being: a multicountry study', *American Journal of Epidemiology,* 143 (6):608–23

Evans, P., 1996, 'Government action, development and social capital: Reviewing the evidence for synergy', *World Development,* 24 (6):1119–1129

Ezzati, M., Lopez, A. and Rodgers, A., 2002, 'Selected major risk factors and global and regional burden of disease', *The Lancet,* 360:1–14

Filmer, D., 2002, Fever and its Treatment Among the More and Less Poor in Sub-Saharan Africa. World Bank Development Economics Research Group *Working Paper* 2789, Washington DC: World Bank

Filmer, D. and Pritchett, L., 1999, 'The impact of public spending on health: Does money matter?', *Social Science & Medicine,* 49 (10):1309–23

Fogel, R. W., 1994, 'Economic growth, population theory and physiology: the bearing of long-term processes on the making of economic policy', *The American Economic Review,* 84:369–395

Fu, W., 1999, *Health Care for China's Rural Poor,* Washington DC: International Policy Programme, World Bank

Gadomski, A., Black, R. W. and Mosley, W. H., 1990, 'Constraints to the potential impact of child survival in developing countries', *Health Policy and Planning,* 3:236–241

Garfield, R., 1993, 'Nicaragua: Health under Three Regimes', in: Rohde, J., Chatterjee, M., Morley, D. (eds) *Reaching Health for All,* Delhi: Oxford University Press

German, T., Randel, J. and Ewing, D., 2002, *Reality of AID,* Manila: IBON

Gillespie, S., Mason, J. and Martorell, R., 1996, *How Nutrition Improves,* Geneva: United Nations Administrative Committee on Coordination/Sub-Committee on Nutrition (ACC/SCN)

Gillespie, S., McLachlan, M. and Shrimpton, R., 2003, *Combating Malnutrition. Time to Act.* New York: World Bank, Washington and United Nations Children's Fund

Gilson, L., 1997, 'The lessons of user fee experience in Africa', *Health Policy Planning,* 12 (4):273–85

Gilson, L., 1998, 'In defence and pursuit of equity', *Social Science & Medicine,* 47 (12):1891–6; discussion 1897–8

Glewwe P., 1999, 'Why does mothers' schooling raise child health in developing countries?', *Journal of Human Resources* 34 (1): 129–144

Grantham-McGregor, S. and Ani, C., 2001, 'A review of studies on the effect of iron deficiency on cognitive development in children', *The Journal of Nutrition,* 131:649S–666S

Guha, S., 1994, 'The importance of social intervention in England's mortality decline: the evidence reviewed' *Social History & Medicine,* 7 (1):89–113

Gutierrez, G., Tapia-Conyer, R. and Guiscafre, H., 1996 'Impact of oral rehydration and selected public health interventions on reduction of mortality from childhood diarrhoeal diseases in Mexico', *Bulletin of the World Health Organization,* 74 (2):189–97

Gwatkin, D. R., 2001, 'The need for equity-oriented health reforms', *International Journal Epidemiology,* 30:720–723

Gwatkin, D. R., Rutstein, S., Johnson, K., Pande, R. and Wagstaff, A., 2000, *Socioeconomic Differences in Health, Nutrition and Population,* Washington, DC: World Bank

Hall, A. J. and Cutts, F. T., 1993, 'Lessons from measles vaccination in developing countries', *British Medical Journal,* 307:1294–1295

Halstead, S. B., Walsh, J. A. and Warren, K., 1985, *Good Health at Low Cost,* New York: Rockefeller Foundation

Hanlon, M., 2000, 'How much debt must be cancelled?', *Journal of International Development,* 12:877–901

Hanmer, L., Lensink, R. and White, H., 2003, 'Infant and child mortality in developing countries: analysing the data for robust determinants', *Journal of Development Studies,* 40:101–119

Hope, A. and Timmel, S., 1984, *Training for Transformation. A Handbook for Community Workers,* Gweru: Mambo Press, quoted in MacDonald, J. (1993)

Horton, S., Ross, J., 2003, 'The economics of iron deficiency', *Food Policy,* 28:51–75

Hossain, S. M., Bhuiya, A., Khan, A. R. and Uhaa, I., 2004, 'Community development and its impact on health: South Asian experience', *British Medical Journal,* 328 (7443):830–3

Huttly, S. R., Morris, S. S. and Pisani, V., 1997, 'Prevention of diarrhoea in young children in developing countries', *Bulletin of the World Health Organization,* 75 (2):163–74

Jones, G., Steketee, R. W., Black, R. E., Bhutta, Z. A., Morris, S. S. and Bellagio Child Health Group 2003, 'How many child deaths can we prevent this year?', *The Lancet,* 362:65–71

Jonsson, U., 1997, 'Success factors in community-based, nutrition-oriented programmes and projects', in: Gillespie, S. R. (ed) *Malnutrition in South Asia: A Regional Profile,* Kathmandu: UNICEF

Jonsson, U., Pelletier, D. and Shrimpton, R., 1998, *A UNICEF Nutrition Information Strategy. UNICEF Working Paper No. PD-98-004,* New York: UNICEF

Kramer, M. S., 1987, 'Determinants of low birthweight. Methodology and meta analysis', *Bulletin of the World Health Organization,* 65:663–737

Kober, K. and Van Damme, W., 2004, 'Scaling up access to antiretroviral treatment in Southern Africa: Who will do the job?', *The Lancet,* 365:103–107

Labonte, R., Schrecker, T., Sanders, D. and Meeus, W., 2004, *Fatal Indifference: The G8, Africa and Global Health,* Cape Town: University of Cape Town Press

Lavy, V., Strauss, J., Thomas, D. and de Vreyer, P., 1996, 'Quality of health care, survival and health outcomes in Ghana', *Journal of Health Economics,* 15 (3):333–57

Lovell, C. and Abed, F. H., 1993. *'Scaling-up in Health: Two Decades of Learning in Bangladesh'* (Chapter 10), cited in: Rohde, J. and, Chatterjee, M.

MacDonald, J., 1993, *Primary Health Care: Medicine in its place,* London: Earthscan.

Martineau, T., Decker, K. and Bundred, P., 2002, *Briefing Note on International Migration of Health Professionals: Levelling the Playing Field for Developing Health Systems,* Liverpool: International Health Division School of Tropical Medicine

Mason, J. B., 2001, *Measuring Hunger and Malnutrition,* New Orleans: Tulane School of Public Health and Tropical Medicine

McCoy, D., Chopra, M., Lowenson, R. and Kemp, J., in press, 'Expanding access to anti-retroviral therapy in sub-Saharan Africa: Avoiding the pitfalls and dangers; capitalising on the opportunities', *American Journal of Public Health*

McIntyre, D. and Gilson, L., 2002, 'Putting equity in health back onto the social policy agenda: experience from South Africa', *Social Science & Medicine,* 54 (11):1637–56

McIntyre, D., Muirhead, D. and Gilson, L., 2002, 'Geographic patterns of deprivation in South Africa: Informing health equity analyses and public resource allocation strategies', *Health Policy Planning,* 17 Suppl:30–9

McNay, K., 2003, *Sri Lanka as a Case Study of a Successful Public Health Care System,* London: Save the Children UK

McPake, B., 1993, 'User charges for health services in developing countries: a review of the economic literature', *Social Science and Medicine,* 36:1397–405

Mehrotra, D. and Delamonica, I., 2003, *Public Spending for Children: An empirical note,* New York: UNICEF

Mendez, M. A. and Adair, L. S., 1999, 'Severity and timing of stunting in the first two years of life affect performance on cognitive tests in late childhood', *The Journal of Nutrition,* 129:1555–62

Musgrove, P., 1996, *Public and Private Roles in Health: Theory and financing patterns. World Bank Discussion Paper 339.* Washington, DC: World Bank

Nahar, S. and Costello, A., 1998, 'The hidden cost of "free" maternity care in Dhaka, Bangladesh', *Health Policy Plan,* 13:417–22

National Control of Diarrheal Diseases Project, 1998, 'Impact of the National Control of Diarrhoeal Diseases Project on infant and child mortality in Dakahlia, Egypt', *The Lancet,* 2:145–148

Padarath P, Chamberlain, C., McCoy, D., Ntuli, A., Rowson, M., Loewenson, R., 2003, 'Health personnel in Southern Africa: confronting maldistribution and brain drain', Equinet Discussion Paper Number 4, www.equinetafrica.org/policy (accessed December, 2003).

Pelletier, D. L., Frongillo, E. A. Jr and Schroeder, D. G., 1995, 'The effects of malnutrition on child mortality in developing countries', *Bulletin of the World Health Organization,* 73:443–448

Peterson, S., Nsungwa-Sabiiti, J., and Were, W., 2004, 'Coping with paediatric referral: Ugandan parents' experience', *The Lancet,* 363 (9425):1955–6

Poore, P., Cutts, F., Seaman, J., 1993, 'Universal childhood immunisation: is it sustainable?', *The Lancet,* 341 (8836):58

Preston, S. H., 2003, 'The changing relation between mortality and level of economic development, 1975', *Bulletin of the World Health Organization,* 81 (11):833–41

Ratzan, S. C., Filerman, G. L. and LeSar, J. W., 2000, 'Attaining global health: challenges and opportunities', *Population Bulletin,* 55:1–48

Rifkin, S. B. and Walt, G., 1986, 'Why health improves: defining the issues concerning "comprehensive primary health care" and "selective primary health care"', *Social Science & Medicine,* 23 (6):559–66

Ross, D. A., 1998, 'Vitamin A and public health: challenges for the next decade', *Proceedings of Nutrition Society,* 57 (1):159–65

Ross, D. A., Kirkwood, B. R. and Binka, F. N., 1995, 'Child morbidity and mortality following vitamin A supplementation in Ghana: time since dosing, number of doses, and time of year', *American Journal of Public Health,* 85 (9):1246–51

Sanders, D., 1997, 'Success factors in community based nutrition programmes', *Food and Nutrition Bulletin,* 20:300–307

Sanders, D., 2001, *Revitalisation of Primary Health Care: Background Document for 20th Anniversary of Alma-Ata Conference: 27–28 November 1998,* Geneva: World Health Organization

Sanders, D. and Chopra, M., 2001, 'Integrated comprehensive health care in developing countries', *International Journal of Integrated Care* 3:258–268

Sanders, D. and Davies, R., 1988, 'The economy, the health sector and child health in Zimbabwe since independence', *Social Science and Medicine* 27; 7:723–731

Save the Children UK, 2003, *Submission to the World Development Report 2004: Making services work for poor people,* London: Save the Children

Schellenberg, J. A., Victora, C. G. and Mushi, A., 2003, 'Inequities among the very poor: health care for children in rural southern Tanzania', *The Lancet,* 361 (9357):561–6

Schwartz, B., Atkin, J. and Popkin, B. M., 1988, 'Price, income and income elasticity for modern health care: The case of infant health in Bangladesh', *World Bank Research Review,* 2:49-63

Simms, C. Rowson, M., and Peattie, S., 2001, *The Bitterest Pill of All: The collapse of Africa's health system,* London: Medact, Save the Children Fund Briefing Report

Szreter, S., 1999, 'Rapid economic growth and 'the four Ds' of disruption, deprivation, disease and death: Public health lessons from nineteenth-century Britain for twenty-first-century China?', *Tropical Medicine and International Health,* 4 (2):146–52

Szreter, S., 2002, 'Rethinking McKeown: the relationship between public health and social change', *American Journal of Public Health,* 92 (5):722–5

Szreter, S., 2003, 'The population health approach in historical perspective', *American Journal of Public Health,* 93 (3):421–31

Szreter, S., 2004, 'Industrialization and health', *British Medical Bulletin,* 69:75–86

Tendler, J. and Freedheim, S., 1994, 'Trust in a rent-seeking world: health and government transformed in Northeast Brazil', *World Development,* 22:1771–91

Tontisirin, K. and Winichagoon P., 1997, 'Community-based programmes: success factors for public nutrition derived from the experience of Thailand', *Food and Nutrition Bulletin,* 20:323-335

Tudor Hart, J., 2000, 'Commentary: Three decades of the inverse care law', *British Medical Journal,* 320 (7226):18–19

UNAIDS/WHO, 2003, *AIDS Epidemic Update,* Geneva: UNAIDS/WHO

UNICEF/WHO, 1978, *Report of the International Conference on Primary Health Care Alma-Ata, USSR, 6–12 September 1978* Geneva: WHO

UNICEF, 1994, *State of the World's Children,* New York: UNICEF

UNICEF, 1998, *State of the World's Children,* New York: UNICEF

UNICEF, 2002, *State of the World's Children,* New York: UNICEF

Victora, C. G., Olinto, M. T., Barros, F. C. and Nobre, L.C., 1996, 'Falling diarrhoea mortality in Northeastern Brazil: Did ORT play a role?', *Health Policy Planning,* 11 (2):132–41

Victora, C. G., Vaughan, J.P., Barros, F. C., Silva, A. C. and Tomasi, E., 2000, 'Explaining trends in inequities: Evidence from Brazilian child health studies', *The Lancet,* 356 (9235):1093–8

Victora, C. G., Wagstaff, A., Schellenberg, J. A., Claesen, M. and Habicht, J.P., 2003, 'Applying an equity lens to child health and mortality: more of the same is not enough', *The Lancet,* 362 (9379):233–41

Volmink, J. and Garner, P., 2003, 'Directly observed therapy for treating tuberculosis', *Cochrane Database Systems Review,* 3 (1):CD003343

Wagstaff, A., 2002, 'Inequality aversion, health inequalities and health achievement', *Jounal of Health Economics,* 21 (4):627–41

Wagstaff, A., 2003, 'Child health on a dollar a day: some tentative cross-country comparisons', *Social Science & Medicine* 57(9):1529–38

Wagstaff, A., Bustereo, F., Bryce, J. and Claesen, M., 2004, 'Child health: reaching the poor', *American Journal of Public Health,* 94 (5):726–36

Walsh, J. A. and Warren, K. S., 1979, 'Selective primary health care: an interim strategy for disease control in developing countries', *New England Journal of Medicine,* 301 (18):967–74

Walt, G., Pavignani, E., Gilson, L. and Buse, K.,1999, 'Managing external resources in the health sector: What are the lessons for SWAps?', *Health Policy and Planning* 14;3:273–285

Warren, K. S., 1982, 'Selective primary health care: strategies for control of disease in the developing world. I. Schistosomiasis', *Review of Infectious Diseases,* 4 (3):715–26

Werner, D. and Sanders, D., 1997, *Questioning the Solution: The politics of primary health care and child survival,* Palo Alto: HealthWrights

Whitehead, M., Dahlgren, G. and Evans, T., 2001, 'Equity and health sector reforms: Can low-income countries escape the medical poverty trap?', *The Lancet,* 358 (9284):833–6

Wong, E. L., Popkin, B. M., Guilkey, D. K. and Akin, J. S., 1987, 'Accessibility, quality of care and prenatal care use in the Philippines', *Social Science & Medicine,* 24 (11):927–44

World Bank, 1993, *World Development Report 1993: Investing in Health,* New York: Oxford University Press

World Bank, 1997, *Health, Nutrition and Population Sector Strategy,* Washington DC: World Bank

World Bank, 2000a, *Health, Nutrition and Population Sector Strategy,* Washington DC: World Bank

World Bank, 2000b, *Attacking Poverty. World Development Report, 2000/2001,* Washington DC, World Bank

World Health Organization, 2002 *Global Burden of Disease 2000 version 2, Methods and Results.* http://www.who.int/evidence (accessed June 20th, 2004)

World Health Organization, 2004, *HIV/AIDS: Changing History,* Geneva: World Health Organization

Yaqub, S., 1999, *How Equitable is Public Spending on Health and Education? Background Paper for World Development Report 2000/1,* Washington (DC): World Bank

The Childhood Poverty Research and Policy Centre (CHIP) is a collaborative venture between Save the Children and the Chronic Poverty Research Centre (CPRC). CHIP is working with both researchers and advocates, North and South, to produce research, and influence policy and practice on childhood poverty in the wider context of chronic poverty.

CHIP is funded by DFID, Save the Children and the CPRC.

Directors: Dr Caroline Harper and Professor David Hulme

Poor child health and nutrition impose significant and long-term economic and human development costs on the poorest countries and communities, often trapping them in poverty. The greatest burden of childhood death and disease is concentrated among the poor. A decrease in the rate of improvement in child health in the past two decades has lead to widening inequalities in survival and quality of life between richer and poorer groups. Over ten million children under five still die every year, 99 per cent of them in non-OECD countries, and the poorest children are up to three times more likely to die than the richest children.

This report examines policies that have been successful in improving child health, and factors which have undermined improvements, leading to such gaping inequalities in child health. Successes in child health have largely taken a comprehensive, equity-oriented primary healthcare approach, combining pro-poor social policies with efficacious public health interventions and participatory approaches. Fiscally conservative macro-economic policies and a narrowing of the primary healthcare approach largely account for the lack of recent success in child health improvements. In this context, the report stresses the importance of strengthening public health systems - by addressing financing gaps, preventing health worker brain drain, avoiding vertical approaches that are poorly integrated with public health systems, and invigorating district and community level provision.

Published by Childhood Poverty Research and Policy Centre (CHIP)

For information contact:
CHIP, c/o Save the Children, 1 St. John's Lane, London EC1M 4BL
Telephone: 44 (0)207 012 6796
Email: info@childhoodpoverty.org
Web: www.childhoodpoverty.org

ISBN 1-904922-11-2 First Published: 2004

Published by Childhood Poverty Research and Policy Centre (CHIP)

Chronic Poverty
Research Centre

www.chronicpoverty.org

Save the Children