TRACKING OFFICAL DEVELOPMENT ASSISTANCE FOR CHILD HEALTH
CHALLENGES AND PROSPECTS

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Abstract:
The main aim of this study was to develop, test and recommend a methodology for tracking Official Development Assistance (ODA) to child health activities and provide an estimate of how much ODA goes to child health in developing countries for selected donors. In addition, the feasibility of tracking ODA at the country level was explored.

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1. Introduction

Why Track Official Development Assistance for Child Health?

The availability of adequate financial resources is a prerequisite for scaling up effective child survival interventions to achieve the child mortality Millennium Development Goal (MDG-4). Although the challenge of achieving universal coverage of priority interventions is more complex than simply adequate financing, insufficient funding remains, for many countries, the major factor limiting their ability to reduce child mortality. Recent studies have shown that substantial additional resources are required if developing countries are to have any chance of meeting MDG-4 (Bryce, Black et al. 2005; WHO 2005a; WHO 2005b).

However, little is known about how much is currently being invested in interventions or activities to improve child health, or whether levels are changing. Specifically, we do not know the extent of financial resource flows from external sources to priority recipient governments for child health, nor how much is being channelled to child health within recipient countries. Only with this information will it be possible to assess the extent of the resource gap between what is currently being invested and what is actually required. For these reasons, tracking child health resource flows is viewed as a critical tool for advocating effectively for additional funds, monitoring progress in reducing child mortality and holding stakeholders to account. Given that adequate funding is a necessary condition for the attainment of the MDG for child survival, financial flows are a good indicator of the genuine commitment of developing country governments and the international community.

In anticipation of the Child Survival Conference: Countdown to 2015, held in London in December 2005, a technical working group was formed to explore the feasibility of tracking resources for child health. Our study, funded by the BASICS project[1], is one of a number of pieces of research being carried out on behalf of the working group. WHO and PHR Plus are piloting National Health Accounts Child Health Subanalyzes in several countries and, RPM Plus is conducting a study to track child health related commodities and drugs.

Objectives of the Study

The main aim of the study was to develop, test and recommend a methodology for tracking Official Development Assistance (ODA) to child health activities and provide an estimate of how much ODA goes to child health in developing countries for the selection of donors analyzed. In addition, we planned to explore the feasibility of tracking ODA at country level in a sample country of Sub-Saharan Africa. The in-country work particularly focused on how to allocate integrated funds provided through mechanisms such as Sector Wide Approaches (SWAps) and general budgetary support to child health. Based on the lessons learned, the study was expected to provide

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[1] BASICS is USAID-funded project whose aim is fight needless child deaths in the developing world

recommendations as to how data should be collected and used in future years. Given the limited amount of time available to conduct the two studies before the Countdown conference, we were constrained both by what could be done within the time and by what documents could be readily and quickly accessed within the sample country. The studies should therefore be regarded as exploratory rather than definitive.

Structure of the Report

The rest of the report is structured as follows. Chapter 2 provides some background to the study, including cost estimates for achieving the child health MDG, current efforts in health resource tracking and recent trends in ODA for health. Chapter 3 focuses on the global level tracking of ODA for child health, with an overview of the methods used and presentation of the main results. Chapter 4 describes the in-country work. Lastly, chapter 5 offers some conclusions and recommendations as to the next steps in tracking ODA for child health.

2. Background

Cost of Meeting the MDG for Child Health

Overview of costing studies

In recent years, various pieces of research have been conducted to estimate the financial resource requirements of scaling up child health services in developing countries towards the attainment of MDG-4. The Commission on Macroeconomics and Health estimated the global cost of scaling up implementation of priority programs through the health system, including childhood disease-related interventions as one component (Kumaranayake, Kurowski et al. 2001). In light of the evidence on the causes of child deaths and the effectiveness of interventions, Bryce et al. (2005) and WHO (2005a) have produced new estimates on the cost of achieving universal coverage of a set of key child survival interventions. Similar methods have been used to estimate the cost of saving newborn babies (Darmstadt 2005). The two most recent studies are considered in more detail below, while the methods and results of other costing exercises are summarised in Appendix 1.

Cost estimates and methods

Bryce et al. (2005) estimated that the recurrent cost of providing child survival interventions at 2000 coverage levels is US $4.2 billion. To prevent the deaths of 6 million children in the 42 countries which account for the overwhelming majority of global under-five deaths, an additional US$ 5.1 billion (or US$ 1.23 per capita) would be required annually. This implies a total annual cost of US $9.3 billion to reach target coverage levels. The analysis considers the set of 23 interventions identified by the Bellagio Child Survival Study Group; these have been shown to be effective in reducing under five mortality and are suitable for large scale implementation in low income settings (Jones, Steketee et al. 2003). These interventions are delivered to the child over a temporal period which includes pregnancy, childbirth, the early neonatal period and later months up to five years of age.

Additional costs are estimated for scaling up these interventions from year 2000 coverage levels to universal coverage, set at 99 percent of the target population (except for breastfeeding which is set at 90%). The methodology is based on an ingredients approach and wherever possible uses international health care standard protocols, such as the IMCI guidelines for the care of ill children at first level facilities and the guidelines on integrated management of pregnancy and childbirth. Estimates are based on WHO-CHOICE unit costs for a hospital bed day, outpatient visit, inpatient delivery and clean delivery with skilled attendant (Tan-Torres Edejer, Baltussen et al. 2003). The price of drugs and other materials, such as ITNs, are taken from the UNICEF supply list. Assumptions are made as to whether interventions are delivered at the community, primary health care or hospital level.

The study by WHO did not provide estimates of the cost of maintaining current coverage levels, but estimated an additional annual cost of US$ 2.2 billion (US$ 0.47 per capita) in 2006 rising to US $7.8 billion (US$ 1.48 per capita) by 2015 to implement the scale-up of child survival interventions in 75 countries with the greatest burden of child mortality (WHO 2005a). This is equivalent to a total additional cost of US$ 52.4 billion over the

period 2006–2015. Of the total additional cost, 48 percent is for the delivery of services, 39 percent for drugs, supplies and lab tests and 13 percent for program and health system costs. The cost of improving quality at current coverage levels was not estimated.

The model considers 16 child survival interventions (of which 15 are the same as those used by Bryce et al.) that are delivered to a child one week after birth to the age of 5 years. They were selected on the basis of effectiveness in reducing mortality and feasibility of delivery. Interventions delivered during pregnancy, childbirth and the 7-day period following birth are considered separately within a maternal and neonatal health model, summarized in Appendix 1 (WHO 2005b). Assumptions are made for the provision of interventions at multiple points of delivery, which include the levels of community, health facility, first referral and national (for salt iodization and breast milk substitutes code of marketing). Universal coverage was defined as service provision to 95 percent of the population in need. Similarly to Bryce et al. (2005), the analysis was based on a bottom-up ingredients approach. Estimates of service use and cost were derived from various models: (i) WHO/IVB for immunization costs; (ii) WHO/RBM for malaria; (iii) Futures Group for HIV/AIDS; and (iv) a model constructed by CAH in WHO for all remaining interventions. Notably, the model considers the cost of scaling up health systems based on an index of health system constraints derived for the Commission on Macroeconomics and Health (Hanson, Ranson et al. 2001). Possible uncertainties in the estimates may arise due to issues of comparability when using four different costing models.

Neither study fully includes the costs of strengthening the health system (notably the human resource situation) or improving equity. The scale up of services requires adequate human resources which are currently in short supply and is likely to benefit more those who need services least. Corrective actions to address these problems have important cost implications. Neither study attends to the problem of quality in the current delivery of interventions or addresses the fact that in many countries existing services are underfunded. Improving the quality of current coverage levels as well as the scaling up of services to universal coverage requires additional money. Lastly, there is no consideration of the effect of demographic trends in future years on unit costs, or of demand side costs such as transport and user time associated with seeking health care.

Current Efforts in Health Resource Tracking

Considerable efforts have been made by development agencies, governments and research institutions to track health resource flows in developing countries. Some have been ongoing for decades (Caiden and Wildavsky 1974; Lee and Mills 1982); others are more recently established. These recent data collection efforts are well documented in the background paper (Eiseman and Fossum 2005) for a working group on global resource tracking convened by the Center for Global Development in response to observations by the High Level Forum for the Health MDGs. The group's main aim has been to identify ways in which the timeliness, accuracy, coverage and availability of data on health resource flows in developing countries can be markedly improved. Existing methods either track external funds to developing countries at a global level or collect data on the flow of health resources within developing countries themselves. Typically, in both cases, data are collected on ODA to health sector activities.

There have been concerted efforts to track resources at the global level for specific diseases. This has been done for population activities (inclusive of family planning; basic reproductive health services; basic research and policy development; and STDs and HIV/AIDS), malaria, and tuberculosis (van Dalen and Reuser 2005; Waddington, Martin et al. 2005; WHO 2005c). These resource tracking exercises use numerous sources of information but rely predominantly on survey questionnaires to collect their data. This has meant they have been able to tailor their survey tools precisely to their data needs, but have as a result faced data collection problems associated with placing additional work on the providers of the information. The malaria and tuberculosis studies tracked only resources earmarked explicitly for these disease areas. The ongoing work to track population funds, however, does in addition include integrated funds flowing through multi-purpose projects. Of the three, only the Netherlands Interdisciplinary Demographic Institute (NIDI) who track resources for population activities on behalf of UNFPA and UNAIDS, have tried to analyze the flow of non-earmarked funds through SWAps in a few sample countries (Bruijn and Horstman 2005).

The most comprehensive data collection of donor aid flows to developing countries is the Creditor Reporting System (CRS) Database on Aid Activities, developed and maintained by the Development Assistance Committee (DAC) of the Organization of Economic Cooperation and Development (OECD). It is not restricted to health only, covering aid activities in all sectors. The CRS is accessible online and open to the public[2]. It provides detailed project level financial and descriptive information on the aid activities of all DAC members, in addition to other bilateral and multilateral donors who contribute to the database on a voluntary basis. The database includes financial data on both commitments and disbursements and categorizes each transaction according to the purpose of the project.

Problems in the completeness of data for the DAC member countries have been noted in the past as a limitation of the database (Attaran and Sachs 2001; Eiseman and Fossum 2005). However, analysis of the most recent year suggests data on commitments is now almost 100 percent complete. The database covers 90 percent of all disbursements on health and population activities, although there are important gaps for some of the largest donors. Descriptive information on projects, which is important for determining the precise nature and purpose of any aid transaction, is one field where data are often missing. Furthermore, there are data gaps for the multilateral institutions who report to the CRS on a voluntary basis as they are not DAC members. The World Bank reports commitments only, while UN agencies report disbursements only. Since 2003, the Global Fund for AIDS, TB and Malaria (GFATM) and the Global Alliance for Vaccines and Immunization (GAVI) report to the CRS as multilateral institutions. The categorization of projects in the CRS by sectors according to purpose codes is a source of uncertainty as the reporting requirement works on an 'all or nothing' basis. A project which provides support to both health and education activities, for example, can be categorized only under one of these two components, depending on which sector or activity is regarded as the primary recipient of funds.

Typically, data for the previous year is available in the CRS at the end of the current year. The time lag is the result of a lengthy quality control process and delays in the delivery of data from all government ministries who provide development aid. Despite these limitations, the CRS has been used as an important source of information for

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[2] www.oecd.org/dataoecd/50/17/5037721.htm

tracking ODA to specific areas of health (Attaran and Sachs 2001; van Dalen and Reuser 2005).

At the country level, the predominant methodology for analyzing the flow of health resources is the system of National Health Accounts (NHA). It uses methods that are internationally accepted (WHO 2003), and has been conducted in more than 60 low and middle income countries (De, Dmytraczenko et al. 2004). NHA is comprehensive in its approach, analyzing where resources come from, through whom they pass, which providers are the end recipients of these funds and what kinds of services and goods they purchase. The NHA framework can be used to analyze data within specific dimensions of the health sector, such as individual diseases or demographic groups. NHA subanalyzes for HIV/AIDS, for example, have been conducted in numerous countries. NHA relies on both primary and secondary sources of data, and typically involves extensive data collection through surveying of government ministries, donor agencies, private institutions and households. In terms of donor aid, in-country NHAs are able to get a much more detailed picture of how funds are used than resource tracking at the global level. At the same time, they can take many months to conduct and require significant inputs in terms of staff time and capacity which developing country governments often lack. Concerted efforts have been made to institutionalize the exercise into the regular activities of Ministries of Health. Currently, one-third of countries carrying out NHAs do so regularly, approximately every two years.

On a sub-national level, District Health Accounts can be used to monitor expenditures. Their main aim is to provide a planning tool and support the budgetary decisions of Districts rather than to track resources. The tool includes pre-defined exchange rates and burden of disease figures that are updated on an annual basis and provided to the Districts. In countries with an advanced stage of devolution to District authorities, the District Health Accounts tool would provide a common and standardized format of budgetary and expenditure recording ideal for tracking resources within countries. Other methods may be developed in individual countries such as electronic planning tools that provide for drawing up a budget via pre-designed spreadsheets. These tools also facilitate easier tracking within a given country.

The lessons learned from previous health resource tracking work have proved useful in guiding our approach and development of methods. At the same time, many of the challenges documented by these individual health resource data collection efforts are common to all and cannot be overcome easily, particularly by studies that aim to track resources in a specific area of health. The appropriate forum in which solutions to these problems can be identified is potentially the working group convened by the Center for Global Development. It is hoped the findings of this group will inform the development of a global health resource tracking system that is able to meet appropriately the demand of all of its users.


Trends in Official Development Assistance

Current ODA and past trends

Official Development Assistance to developing countries reached its highest ever level of $78.6 billion in 2004, representing an increase of 4.6 percent in real terms over the previous year. The total is equivalent to 0.25 percent of the collective gross national

income (GNI) of DAC member countries, which represent the 22 largest bilateral donors in the world. Reasons for the real increase in 2004 include increased contributions to international organizations to the tune of US$ 3.7 billion and a rise of US$ 1.5 billion in aid to Afghanistan and Iraq (OECD 2005). After a low in 1997, net ODA has steadily risen in the past seven years (Figure 1).

Figure 1. Net Official Development Assistance in real terms (US$ 2003 prices)
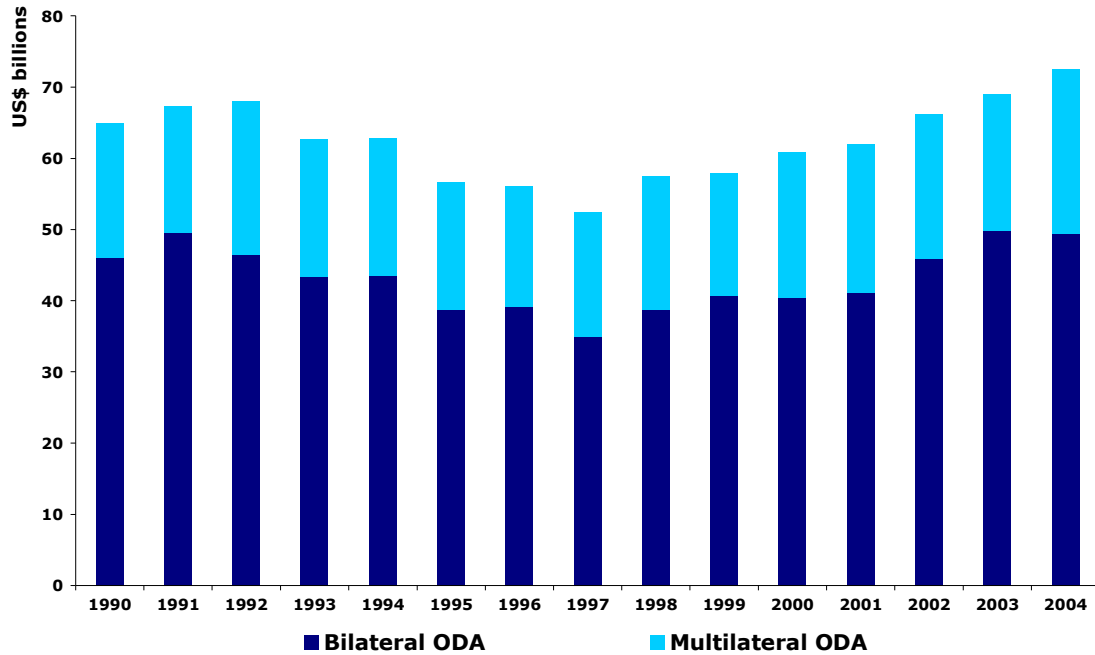
Source: OECD DAC Statistics Online Database

Despite the upward trend, many countries remain a long way off the UN target for ODA of 0.7 percent of GNI. Only five DAC member countries out of 22 managed to exceed this target, and the average country effort stands at 0.42 percent of GNI. The United States contributed US$ 19 billion in ODA in 2004, almost a quarter of the total of DAC member countries and equivalent to 0.16 percent of its GNI. Japan's ODA / GNI ratio stands at 0.19 percent, while the 15 DAC countries who are members of the European Union increased their ODA / GNI ratio to 0.36 percent in 2004.

ODA to health and population activities

Bilateral ODA channeled towards health and population reached $4.6 billion in 2003, equivalent to 8% of gross bilateral ODA. Of the total for health and population activities, almost a quarter was for HIV/AIDS related activities. The largest donors to health and population activities in absolute terms are the United States, United Kingdom, and Japan who together account for almost two-thirds of the total. It should be recognized that some donors channel significant aid flows as general budgetary support and some of these funds end up supporting health activities as they flow through the treasury of recipient country governments to the various sectors.

Figure 2. Gross Bilateral ODA to Developing Countries in 2003
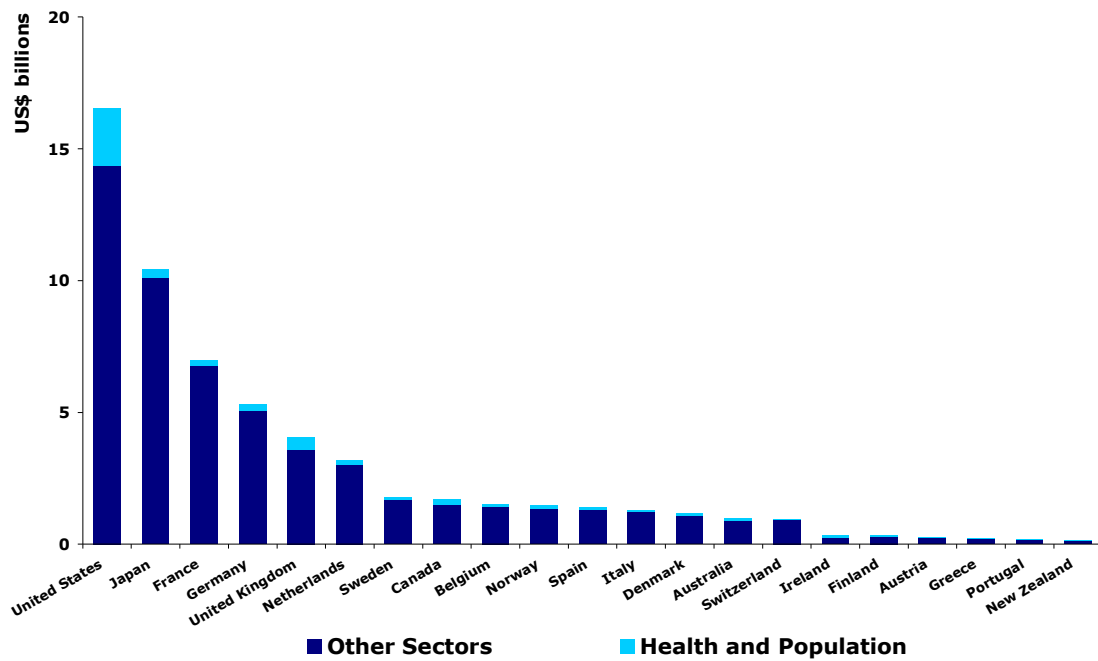
Source: OECD Creditor Reporting System Database on Aid Activities

Future projections of ODA

On the basis of recent public statements by major OECD donors, ODA is expected to rise substantially in the coming years to an estimated $130 billion in 2010, with Africa due to receive $25 billion of these additional funds. The overall increase would represent an extra US$ 50 billion in the next five years. As a caveat, note that these public statements imply that development aid for some donors would become the fastest rising component of public spending in the coming years, and past experience has shown that domestic political pressures often make delivering on such promises difficult for governments (OECD 2005).

3. Global Level Tracking of ODA for Child Health

Methods

Donors

The study was established to test the feasibility of resource tracking for child health, and had a very limited period of time to complete its work. It therefore focused on a restricted set of donors, of which three were bilateral development agencies, three multilateral organizations, and two global health initiatives (Box 1). Donors were chosen on the basis of the amount of ODA channeled to health (and anticipated aid flows to child health) and the availability of quality data.

Box 1. Donors selected in the analysis of ODA for child health		
Bilateral	**Multilateral**	**Global Health Initiative**
Canada (CIDA)	European Commission	GFATM
United Kingdom (DFID)	UNICEF	GAVI
United States (USAID)	World Bank	

Our selection of bilateral and multilateral donors covers almost 60 percent of total aid flows to health (44% of bilateral and 94% of multilateral). We would expect this proportion to be higher for child health given that the donors we selected are regarded as particularly active in this area.

Resource flows

The study captures flows of ODA, as defined by the (OECD 2002). We have therefore sought data for only those aid flows to countries on Part I of the DAC List of Aid Recipients, more commonly referred to as developing countries. Private financial flows are not included as ODA, which means in the case of UNICEF that non-core funding coming from private sources is excluded. Official Aid (OA), given to countries in transition, is not analyzed.

Financial data can show the amount of funds budgeted, committed or disbursed and they all have their respective uses (Eiseman and Fossum 2005). The study is interested primarily in disbursements, as defined by (OECD 2002). Disbursement data is the closest we can get to tracking expenditures in a developing country during a specific year. Here, disbursements refer to the placement of resources at the disposal of a recipient country or agency, not the actual expenditure within a country. The distinction is important as there may be a long delay between the time monies are disbursed to a country and the time they are actually spent within a country. This is one area where discrepancies might arise between estimates from resource tracking at the global level and those generated using methods applied within a country.

A clear distinction between bilateral and multilateral aid must be made to avoid double counting. The definitions of bilateral and multilateral aid, as provided by OECD (2002), are shown in Box 2. The regular contributions of donor country governments to

multilateral aid agencies, often referred to as core-funding, is classified as multilateral aid. However, funds that support projects implemented by multilateral institutions are classified as bilateral aid if the donor government retains significant control over how those funds are used.

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Box 2. Definition of bilateral and multilateral aid

Bilateral transactions are those undertaken by a donor country directly with an aid recipient. They also include transactions with national and international non-governmental organizations active in development and other internal development-related transactions such as interest subsidies, spending on promotion of development awareness, debt reorganization and administrative costs.

Multilateral contributions are those made to a recipient institution which:

1. conducts all or part of its activities in favor of development;
2. is an international agency, institution or organization whose members are governments, or a fund managed autonomously by such an agency; and
3. pools contributions so that they lose their identity and become an integral part of its financial assets.

If, however, the donor effectively controls the disposal of the funds by specifying the recipient or other aspects of the disbursement (e.g. purpose, terms, total amount, reuse of any repayments), then the contribution should be classified as bilateral, and allocated to the appropriate recipient country.

Source: OECD, Development Assistance Committee (2002). 'Reporting Directives for the Creditor Reporting System.' Paris.

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Funds flowing through GAVI and GFATM are categorized as multilateral as opposed to bilateral since they act autonomously and are able to determine the recipients of their funds and where they are directed, without the influence of donor countries. Prior to 2003, it was the case that funds flowing through these institutions were classified as bilateral but this has since changed. For policy interest, we identify these funds as coming from global health initiatives to make a distinction within the multilateral aid classification.

Tracking resources for child health presents two major challenges. First, a significant proportion of funds that authors explored support child health activities flow through multi-purpose health sector projects. Second, donors are increasingly providing aid as budgetary support and / or as basket-funding through SWAps. The implication of this shift away from projects is that as the share of budgetary and sector-wide support rises and more funds are channeled through recipient country governments, it becomes increasingly difficult to track external financial flows to specific areas of the health sector in the absence of robust and flexible government accounting systems. A survey limited to collecting information on child health specific projects only would therefore ignore these other potentially large flows to child health.

The methodology used in the study attempts to address these issues. A broad approach is adopted to capture expenditures on child health within all the aid modalities used by donor agencies. In doing so, we analyze the flow of funds through projects, basket-funding, health sector budget support, and general budgetary support (Box 3). At the project level, we consider not only child health specific projects but also those which support health system development.

Three broad categories of project were identified. First, a project can be exclusively dedicated to child health activities. The total of all expenditures within such projects are included and classified as child health expenditures in our analysis. Examples include those that fund child immunization activities or Integrated Management of Childhood Illnesses (IMCI). Second, there are projects in which child health is one of a number of components. Since donors are rarely able to report expenditures on different activities within projects, assumptions must be made on the child health proportion of total expenditure to derive child health expenditure. Third, some donor projects support health system development and by their very nature do not explicitly target any particular disease or demographic age group (although socioeconomic groups are often targeted). Support can be provided either at the administrative level (e.g. policy, planning and monitoring) or at the level of service delivery. Such projects typically provide financial support for health infrastructure, human resources, drug provision and management, medical equipment, policy development, monitoring and accounting systems.

Child health expenditure boundaries

It is important to have a clear and concise definition of what we mean by child health expenditures to ensure consistency in the estimates of different donors. For our purposes, child health expenditures are defined as expenditures on those activities whose primary purpose is to restore, improve and maintain the health of children during a specified period of time. We refer to children as those between 0 and 5 years of age. The study is primarily concerned with those interventions or services that are delivered *directly* to the child, the only exception being prevention of mother-to-child transmission of HIV/AIDS which we have chosen to include (Box 4). The definition used here is broadly in line with that used within the framework of the NHA to track domestic child

health expenditures at the country level. Note that some activities, such as care for orphans, fall outside our expenditure boundary because they are not health activities.

While it was important to have a precise point of departure in terms of our child health definition, it was found difficult in practice to apply such a definition as strictly as one would like due to the difficulties of tracking child health funds using accounting systems that are not designed to identify expenditures on different activities within a single project.

Box 4. Activities included and not included within the child health expenditure boundary

Projects supporting the following activities *are* included as child health expenditures	Projects supporting the following activities *are not* included as child health expenditures
▪ Integrated management of childhood illnesses;	▪ Family planning and birth spacing related activities and programmatic support;
▪ Malaria activities targeting children under five. Includes preventive activities (ITNs, spraying etc.), treatment of malaria using anti-malarials, and programmatic support (IEC, monitoring & evaluation etc);	▪ Maternal and reproductive health related activities and programmatic support. Includes antenatal care, emergency obstetric care, and all other interventions given directly to mother;
▪ Treatment of acute respiratory infection;	▪ HIV/AIDS services **except** PMTCT and treatment of children;
▪ Control of diarrheal disease;	▪ General food supplementation activities;
▪ Management of neonatal sepsis;	▪ Care of orphans;
▪ All immunization activities to children under five. Includes procurement of vaccines, materials, and cold chain equipment as well programmatic support;	▪ Water and sanitation activities;
▪ Breastfeeding counseling and promotion of complementary feeding;	▪ Research;
▪ Micronutrient supplementation given to children under five;	▪ Education.
▪ Fortification of food. Includes activities relating to iodized salt and vitamin A fortification as well as any support to Government programs;	
▪ Treatment of severely malnourished children activities;	
▪ Targeted food (macronutrient) supplementation to identified malnourished children;	
▪ Prevention of mother to child transmission of HIV (PMTCT) and treatment of HIV/AIDS in children;	
▪ All other services provided to children under five.	
▪ Training of community health workers and in-service training of health facility staff for the delivery of child health services.	

Assumptions

Assumptions were required to determine the child health proportion of total expenditure for integrated projects, sector budget support and general budget support, in order to derive child health expenditure. These assumptions were applied on a project by project

basis for approximately 8,000 annual disbursements between 2002 and 2004 for our selection of donors. The assumptions and data used are summarized in Box 5, and further explained below.

Box 5. Assumptions, data sources and ranges of uncertainty for allocation of funds to child   health

Nature of project / aid modality	Data	Data source	Baseline estimate	Range
Integrated projects				
Malaria	WHO region-specific malaria incidence in under 5	Korenromp 2004	Region specific	22%-52%
	% of preventive activities targeting children		75%	
	Proportional split of malaria projects between prevention and treatment	Based on analysis of GFATM project	62% prevention 38% treatment	
HIV/AIDS – non PMTCT	Country specific Incidence of HIV in U5 children	UNAIDS 2004	Country specific	
MCH/ nutrition projects for women/children	Proportion of activities to children		50%	40%-60%
Health system support	% of total health facility cost to children	WHO IMCI personal communication	40%	30%-50%
Budget support				
General budget support	% of GB support to health	WHO 2005	Country specific referring to 2002	
Health sector support / general budget support	% costs to hospital and PHC	Mills 1990	70% hospital 30% PHC	
	% hospital expenditure to child health	United Nations 2005	12%	
	% PHC expenditure to child health	WHO IMCI personal communication	40%	30%-50%

Integrated projects for which assumptions were needed are as follows: malaria, HIV/AIDS, maternal and child health, and nutrition activities targeting women and children. For malaria projects, disbursements were divided into prevention (62%) and treatment (38%) based on analysis of GFATM projects. We then derived region-specific child health proportions using estimates of malaria incidence attributed to under fives as a proxy for treatment (Korenromp 2004) and a fixed assumption that 75 percent of preventive activities (typically purchase and distribution of insecticide treated materials) target children. Our estimate of the child health proportion ranged from 52 percent for the EURO region to 62 percent for the AFRO region. For HIV/AIDS projects (except for those identified as a PMTCT project in which case we included the total expenditure) the child health proportion was based on country specific estimates of the proportion of children under five in the total population with HIV (UNAIDS 2004). In maternal and child health projects, 50 percent of total expenditure was attributed to children. The same proportion was used for nutrition projects targeting women and children. We allocated 40 percent of expenditures within health system development projects to child health, based on estimates of the proportion of total cost that child health services account for at the primary health care provider level in Tanzania and Brazil (personal communication Adam T, WHO).

For those funds that are provided as health sector budget support or basket-funding, we needed to find a suitable proxy for the proportion of government expenditure going to child health. Studies in a number of developing countries have shown that on average 70 percent of government expenditure goes on hospital level care and 30 percent on primary level care (Mills 1990). We allocated 40 percent of primary level care expenditures to child health services (as above). For hospital level care, we assigned 12 percent of expenditures at this level to child health, based on the average proportion of the total population under five years of age in developing countries (United Nations 2005). We have assumed that the probability of utilization of hospital services is the same for children as it is for the rest of the population and that the average cost of each contact is also the same. Together these assumptions mean that we allocated 20 percent of health sector budget support and basket funding to child health.

Child health expenditure from general budgetary support funds was derived using a two-step process. In the first instance, WHO country-specific estimates of government health spending as a proportion of total government spending were applied to give an approximation of how much of general budgetary support funds from each donor are spent on health (WHO 2005d). We then allocated 20 percent of these imputed health funds to child health, using the same reasoning as above.

Using best and worst case scenarios, sensitivity analyses were undertaken to provide an indication of the sensitivity of results to changes in key assumptions between realistic ranges. In this way we were able to provide both an upper and lower estimate of ODA to child health.

Data sources

The analysis relied upon both primary and secondary sources of data. After initial interviews with a core group of donors, it was apparent that some donor agencies were unable to provide more detailed information within the timeframe of our study than that which exists in the Creditor Reporting System, and that there was also a problem of donor fatigue with survey questionnaires. For four out of the eight donors, the CRS database was therefore the sole source of data. Disbursement estimates are provided in current US dollars and by calendar year. For the remaining donors, detailed guidelines were developed along with an official request for information. The guidelines specified the nature of information requested and suggestions for presentation of the data, without keeping to the rigid format of a survey tool. The World Bank, USAID and GAVI provided primary data. Information on GFATM was obtained from their website (www.theglobalfund.org/en/), which provides detailed breakdowns of expenditures by recipient country. In addition, other published sources of information were used to validate and triangulate the data, such as the Accessible Information on Development Activities (AiDA) database (http://aida.developmentgateway.org /AidaHome.do), and government financial reports and annual reports of donors from official websites. Data were compiled for the three year period 2002-2004. Data collection and analysis took place during the three months between September and December 2005. Out of a total of 8 donors, we obtained data on 7 donors for the year 2002, 8 donors for 2003, and 6 donors for 2004.

Results and Findings

Total ODA for child health

Official Development Assistance for Child Health was estimated at US$ 1,011 million in 2004 for the selection of donors analyzed in the study (Table 1). This represents a nominal increase over the estimates for 2003 (US$ 873 million) and 2002 (US$ 462 million). Over the period 2002-2004, the majority of funds for child health flowed through traditional projects (97%), while a small proportion was disbursed as general budget support (3%). The amount disbursed in 2004 for child health accounted for 4 percent of total ODA for the set of donors considered in that year, up from 2.8 percent in 2002 and 2.5 percent in 2003.

Table 1. ODA for child health disbursements by aid modality

Aid Modality	2002[a]	2003[b]	2004[c]
General budget support	17,351	25,510	21,242
Sector budget support	0	1,410	0
Basket-funding	491	3,147	1,020
Project	444,106	843,340	988,755
TOTAL	**461,948**	**873,407**	**1,011,017**
As a % of total ODA[d]	**2.8%**	**2.5%**	**4.0%**

Disbursements in thousands of US$

Note: caution should be taken when analyzing trends over time due to missing data from donors

[a] Based on information for 7 out 8 donors. No information was provided by USAID for 2002
[b] Based on information for all 8 donors
[c] Based on information for 6 out of 8 donors. No information was available in the CRS database for United Kingdom and European Union for 2004 at the time of writing
[d] Total ODA is for those donors analyzed in each year

Of the total ODA for child health, 82 percent was given as grants during the period 2002-2004. The proportion of child health ODA as grants appears to have declined in the last three years from 92 percent in 2002 to 74 percent in 2004. Owing to missing data from two donors in 2004 who provide all their aid in grant form, this result should be treated with caution and further investigation is warranted.

Nature of projects

Over the period 2002-2004, the majority of funds channeled through projects were for immunization activities (37%) and unspecified child health activities (37%). The unspecified classification is considerable because one donor who provided primary data could not specify how its child health funds were spent. Polio accounted for on average almost 25 percent of all immunization expenditure. However, the proportion was significantly higher in some individual years. Child health support through malaria and health system development projects represent 10 percent respectively, while IMCI and HIV/AIDS projects accounted for a relatively small percentage of the total (Figure 3).

Figure 3. Purpose of ODA for child health over the period 2002-2004
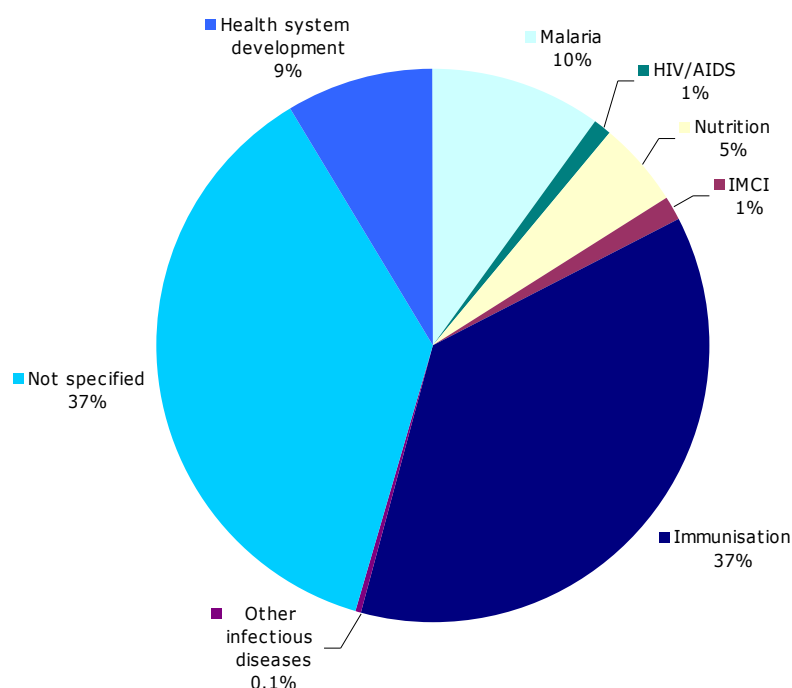
Table 2. Breakdown of ODA for child health in projects			
Nature of Project	**2002**	**2003**	**2004**
Malaria	10,359	82,925	132,334
HIV/AIDS	1,706	7,695	16,051
Nutrition	14,812	54,421	48,022
IMCI	8,107	15,508	8,867
Immunization	182,404	321,801	328,095
of which: Polio	*75,984*	*82,833*	*43,160*
Other infectious diseases	1,325	1,187	590
Health system development	78,174	95,298	22,381
Child health – not specified[a]	147,256	264,534	432,416
TOTAL for Projects	**444,143**	**843,370**	**988,755**

Disbursements in thousands of US$

Note: caution should be taken when analyzing trends over time due to missing data from donors

[a] It was not possible to determine the specific purposes of funds disbursed by the World Bank. These funds are defined as child health by the World Bank and definitions might vary

There have been significant increases in child health funds flowing through malaria, HIV/AIDS, nutrition and immunization projects during the period of analysis (Table 2). The United Kingdom, GFATM and GAVI account for the large increase between 2002 and 2003.

It should not be inferred from the results that those funds which are not supporting health system development are necessarily 'vertical' in nature. It is certainly the case that some projects supporting IMCI or malaria activities for example do not try to bypass the core delivery mechanisms of the health system and in fact contribute significantly to health system strengthening. We are simply unable to distinguish between projects on this issue.

Who provides the funds?

The breakdown of ODA for child health by type of donor indicates where the funds are coming from and whether they are rising for a particular sub-set of donors over time (Table 3). Although the number of donors analyzed was not the same each year during the period 2002-2004, we can comment with certainty on some of the time trends in ODA for child health. There have been substantial increases in disbursements by both global health initiatives and multilateral donors in each year. Further analysis of bilateral donors will be required when the data becomes available from the CRS for the year 2004.

Table 3. ODA for child health disbursements by type of donor

Type of Donor	2002	%	2003	%	2004	%
Bilateral	159,758 (2)	35	454,055 (3)	52	297,740 (2)	29
Multilateral	205,234 (3)	44	269,703 (3)	31	434,420 (2)	43
Global Health Initiative	96,955 (2)	21	149,649 (2)	17	278,857 (2)	28
Total	**461,948 (7)**	**100**	**873,407 (8)**	**100**	**1,011,017 (6)**	**100**

Disbursements in thousands of US$

Note: caution should be taken when analyzing trends over time due to missing data from donors

Values in brackets indicate number of donors analyzed in that year

Who are the recipients of the funds?

The following sections refer to 2003 only, the year for which we were able to analyze data for all donors in our sample. Estimates for this year are deemed the most reliable. They are based on analysis of six donors, as two donor agencies were unable to provide country level disbursement information for their aid operations.

The countries which make up the top fifteen recipients of aid for child health to some degree mirror the demographic situation of developing countries (Figure 4 and Appendix II). Ten out of the fifteen top aid recipients are Sub-Saharan African countries, reflecting the desperate health situation of their populations and particularly children in this region. India was the largest recipient in 2003, receiving an estimated US$ 66 million for child

health, of which US$ 53 million was for polio immunization. Some of the countries with the largest ODA for child health nonetheless receive small amounts on a per child basis.

Figure 4. Top fifteen recipients of ODA for child health in 2003
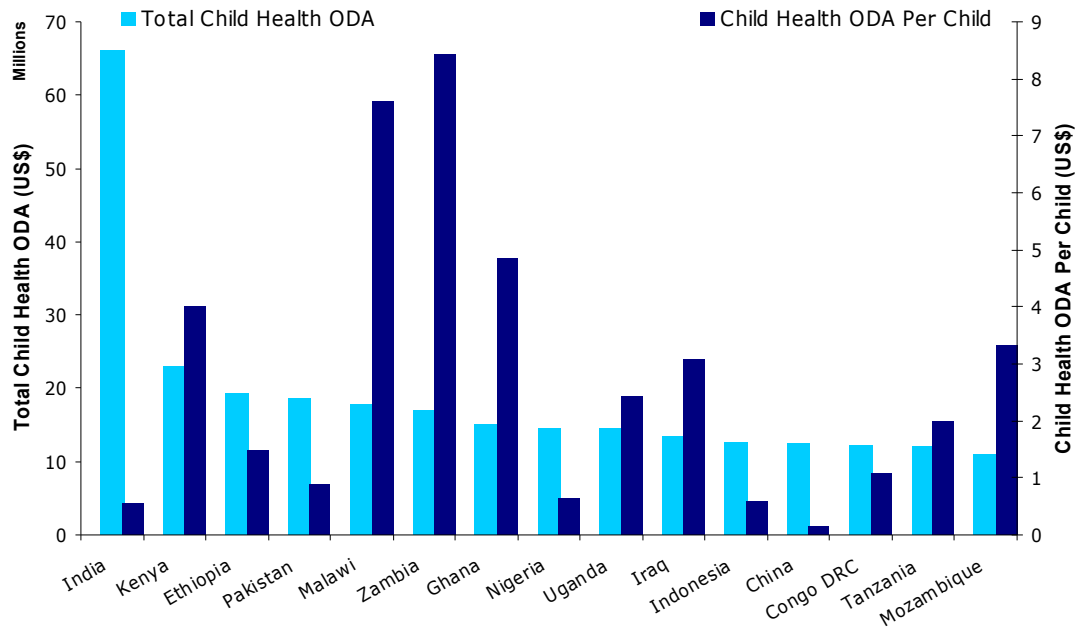
Figure 5 shows where ODA for child health in per child terms is concentrated. Africa and more specifically Sub-Saharan Africa received the greatest per child flows in 2003. Typically, individual estimates range from US$ 1 to US$ 3 per child in these countries.

Figure 5. Worldwide distribution of child health ODA per child in developing countries in 2003

Child Health ODA Per Child
- US$ 0
- US$ 0 >US$ 1
- US$ 1 > US$ 2
- US$ 2 > US$ 3
- US$ 3 >
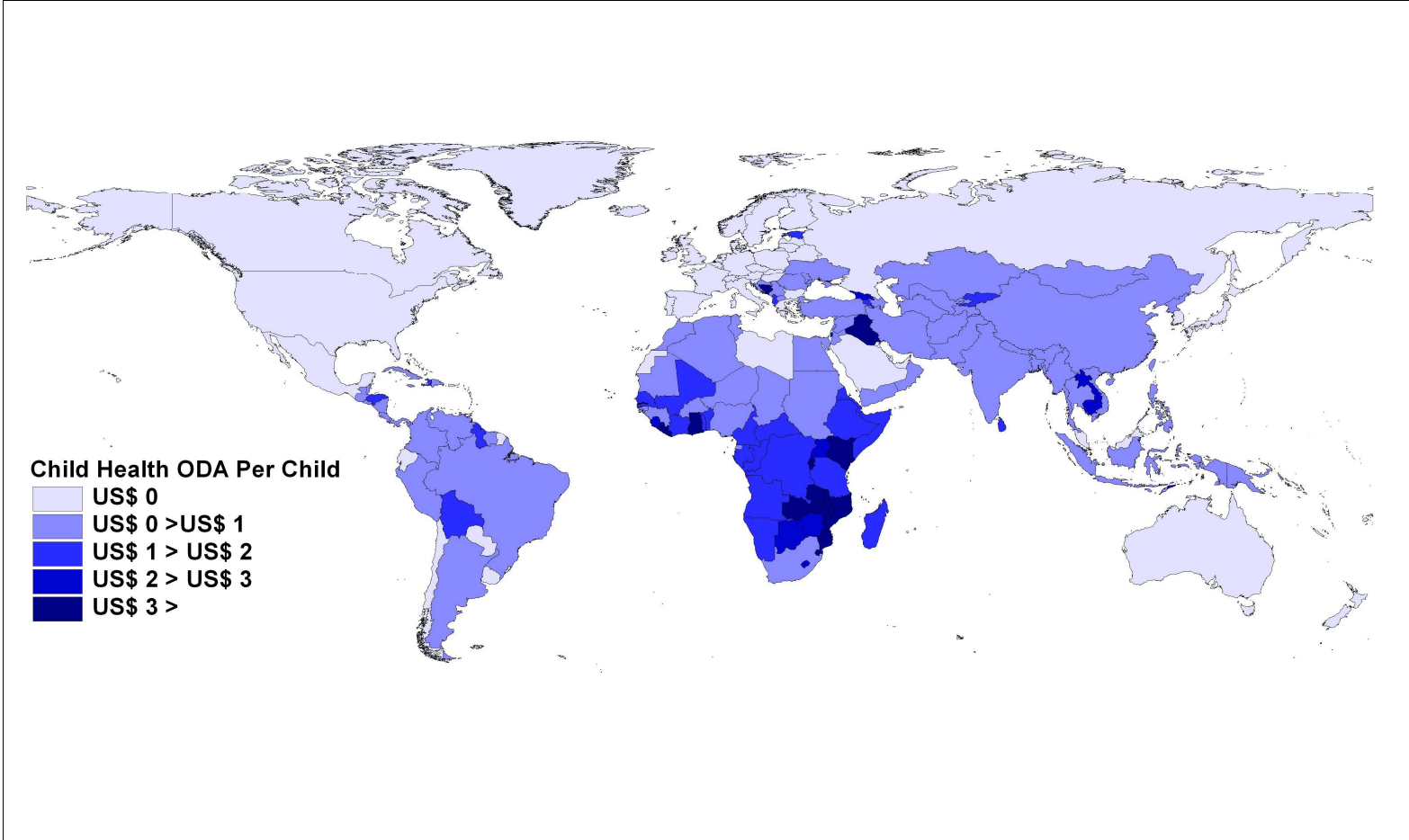
Countries in greatest need

If aid were given purely on the basis of need, one would expect those countries with the greatest number of annual child deaths to receive the greatest amount of ODA for child health and those countries with the highest under-five mortality rate to receive the greatest amount of child health ODA per child.

Tables 4a and 4b show how well ODA flows for child health reflect the needs of developing countries, both in aggregate and per child terms, based on analysis of disbursements for our sample of donors. In Table 4a, countries are ranked in descending order according to the number of annual child deaths (Black et al. 2003) and shown alongside their corresponding child health ODA rank. The two rankings, while not perfectly matched, do correspond to some degree. Table 4b ranks countries in descending order according to their under under-five mortality rate (Black, Morris et al. 2003). The relationship between a country's under-five mortality rate ranking and child health ODA per child ranking appears to be weak.

Sensitivity analysis

We undertook sensitivity analyses to provide an indication of the effect of our assumptions on the final annual estimates. The best case assumptions refer to those values at the lower end of the ranges shown in Box 5 of the methods and vice-versa for the worst case assumptions. For 2003, the estimates of disbursements based on a best-worst case scenario analysis are approximately ±32 million (±4%) either side of the baseline? estimates (Table 5).

Table 5. Best and worst case estimates of ODA for child health and percentage difference from baseline value

Assumptions	2002	%	2003	%	2004	%
Best case	438,831	-5	839,646	-4	994,075	-2
Baseline	461,948	-	873,407	-	1,011,017	-
Worst case	487,431	+6	905,255	+4	1,022,892	+1

Disbursements in thousands of US$

Note: caution should be taken when analyzing trends over time due to missing data from donors

Table 4a. Countries ranked by number of child deaths and child health ODA in 2003

Child Health ODA in 2003 Rank	Country	Total Number of U5 Deaths Rank
1	India	1
8	Nigeria	2
12	China	3
4	Pakistan	4
13	Congo Dem.Rep. (Zaire)	5
3	Ethiopia	6
16	Bangladesh	7
23	Afghanistan	8
14	Tanzania	9
11	Indonesia	10
19	Angola	11
45	Niger	12
15	Mozambique	13
9	Uganda	14
25	Myanmar (Burma)	15
22	Mali	16
75	Brazil	17
2	Kenya	18
26	Sudan	19
33	Burkina Faso	20
10	Iraq	21
34	Somalia	22
52	Yemen	23
27	Cote d'Ivoire	24
5	Malawi	25
24	Madagascar	26
6	Zambia	27
32	Cameroon	28
40	Philippines	29
43	South Africa	30
29	Nepal	31
71	Egypt	32
41	Chad	33
92	Iran	34
136	Mexico	35
31	Sierra Leone	36
100	Turkey	37
7	Ghana	38
21	Cambodia	39
30	Viet Nam	40
44	Guinea	41
17	Rwanda	42

Table 4b. Countries ranked by under five mortality rate and child health ODA per child in 2003

Child Health ODA Per Child in 2003 Rank	Country	U5 Mortality Rate Rank
22	Sierra Leone	1
82	Niger	2
38	Angola	3
69	Afghanistan	4
8	Liberia	5
37	Mali	6
43	Somalia	7
63	Guinea Bissau	8
59	Congo Dem.Rep. (Zaire)	9
5	Zambia	10
67	Chad	11
17	Mozambique	12
62	Burkina Faso	13
13	Burundi	14
6	Malawi	15
11	Rwanda	16
74	Nigeria	17
80	Mauritania	18
53	Central African Rep.	19
63	Guinea	20
45	Ethiopia	21
47	Cote d'Ivoire	22
34	Tanzania	23
48	Benin	24
88	Equatorial Guinea	25
60	Cameroon	26
50	Djibouti	27
14	Swaziland	28
57	Togo	29
58	Senegal	30
51	Madagascar	31
28	Cambodia	32
26	Lesotho	33
19	Iraq	34
20	Gambia	35
30	Uganda	36
52	Haiti	37
29	Timor-Leste	38
16	Kenya	39
23	Zimbabwe	40
35	Eritrea	41
92	Yemen	42

4. In-Country Tracking of ODA for Child health

Approach of the In-Country Work

Rationale for choice of the sample country

A sample country was chosen for the in-country analysis on the basis of its variety of financing mechanisms ranging from individual project support (either channeled through government structures or NGOs), pooled funding at sector level (Sector Wide Approach – SWAp) to General Budget Support (GBS).

Sources of information

Due to the exploratory nature of this work as well as the complementary function with regard to the global work, we did not envisage doing a full financial analysis of all interventions that are currently carried out in the country. Moreover, we relied on material that is Public Domain, in order not to draw excessively on the time and resources of various organizations and government structures within the country.

We reviewed the Health Sector Public Expenditure Reviews (Updates) for the Financial Years 2004 and 2005. For concrete data analysis, the Medium Term Expenditure Framework (MTEF) documents for the years 2003 until 2008 as well as a sample of 5 district health planning documents (hereafter called DHPD) of the year 2004/05 were reviewed and budget information on General Health Expenditure as well as Child Health specific expenditure extracted. The DHPD also provided utilization rates, differentiated between under 5 year old children (<5) and 5 year old and above (5+).

A copy of publicly available expenditure information tables for the year 2004 was also obtained. All of this material was publicly available; further documents (reports that describe the implementation of the DHPDs as well as further regional budgetary documents) were not readily available in the short timeframe and were thus excluded in this analysis.

Representatives of various multilateral organizations were consulted and information obtained during informal meetings with donor agencies and people familiar with the country's health sector contributed to this work.

Methodological considerations

Budget information within the MTEF as well as the DHPDs are mainly recorded by activities and in DHPD mostly attributed to a particular priority area (such as Reproductive and Child Health – RCH, Expanded Program on Immunization – EPI, Nutrition etc.). Resources that are directed towards Child Health can thus occur in three different forms:

- Some activities are clearly directed towards children <5 years[3]. In this case, 100% of the resources are counted towards Child Health.
- Others are directed at RCH or Maternal and Child Health (MCH) or other combined activities for which children are one of the target groups but not the only one[4]. In this case we needed to attribute a certain share to Child Health. We generally assumed a share of 50% (in line with the global resource tracking exercise) to these shared activities.
- For all other resources to health (excluding the two former ones but including all other health sector funding)[5] we needed to derive a share that is benefiting children. We applied the <5 year old utilization of outpatient and inpatient facilities as a proxy for this share. The advantages and constraints of using age specific utilization data as a proxy are discussed later.

Another assumption needed to be made for an appropriate share of government funded activities that are attributable to General Budget Support (GBS). For the analysis of sample data, we assumed the proportion of *Total Government **Health** Expenditure* to *Total Government Expenditure* to be a proxy of the share of GBS that is directed towards health. This, however, is a crude assumption, as (due to the nature of GBS which is channeled into the overall government budget) we do not know whether, after the introduction of GBS, the share of each sector was increased in the same proportion or whether the GBS funding triggered higher funding only for one or a few particular sector(s). We are essentially lacking a baseline.

Sources of Budgetary and Expenditure Data at Country Level

Background of health sector funding in the sample country

The health sector is currently funded by a variety of funding instruments including individual donor funded projects and programs, an active Basket consisting of a number of partners that invest jointly in the health sector (see Table 6) and General Budget Support (GBS) administered via the Ministry of Finance (MoF).

In the Financial Year (FY) 2004, the health sector received a share of 9.7% of overall Government funds. The share of foreign resources directed to the health sector in the country was fairly constant between FY 2000 and 2003 at roughly 30% but dropped to 22% following DFID's decision to switch to GBS in 2004.

The share of foreign funding that is administered *off-budget* [6], was estimated at 29% of total health expenditure and still rising. This makes any analysis of actual and complete health sector expenditure very difficult.

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[3] In this report termed: *Child Health specific funds/resources*
[4] In this report termed: *Child Health shared funds/resources*
[5] In this report termed: *non-Child Health specific funds/resources*
[6] *Off budget,* meaning resources that are not recorded by the recipient Government (MoF).

Table 6.	Estimates on Health Basket contributions for FY 2005				
Partner	**Own currency**	**Amount (M)**	**R of Ex**	**USD (M)**	
DANIDA – council	DKK	45.3		7.4	
DANIDA – council	DKK	6.5		1.1	
Germany – KfW	Euro	2.5	1.20	3.0	
Ireland	Euro	3.1	1.20	3.8	
Netherlands	Euro	3.1	1.20	3.7	
SDC	CHF	5.0	0.66	3.3	
UNFPA	USD	0.3	1.00	0.3	
World Bank	USD	35.0	1.00	35.0	
Total				**57.6**	

Medium Term Expenditure Framework

The MTEF documents cover the budgets for the Ministry of Health for the current and following two years. These documents are drawn up by activities and include budgetary figures for each line item (see Table 7). They also normally state whether these funds are obtained through general government funds, basket funds or other (of which the latter would capture individual project money).

The MTEF shows a high level of detail and therefore would allow identification of activities that represent *Child Health specific resources* as well as *Child Health shared resources*. An example for the latter would be, "Conduct National compilation and analysis for area RCH reports for the year 2004 before the National RCH meeting."

Another advantage of the MTEF is the multi-dimensional setup, allowing for filtering/disaggregating by sub-vote/vote code that in principle allows a comparison with the documents "Estimates of Public Expenditure" (published by MoF) which are public domain (see below).

In addition, the categorization of sources of funds (disaggregated by *government*, *pool* and *other*) allows for filtering activities by funding mechanism. However, in some tables, the category "P" was omitted (such as in the example given in Table 7). We suspect that this happens if no funds can be attributed to the Basket within a particular sub-vote in which case this category becomes unnecessary.

The major drawbacks of the MTEF relate to the fact that only Ministry level expenditures are covered. Regional and district level expenditures are not included. Another disadvantage is that the MTEF is in its very nature a budgetary instrument, hence the actual expenditure cannot be derived from these documents. Moreover, while the MTEF is supposed to be comprehensive, it does not always cover all expenses by development partners (in particular those that are *off-budget*).

Table 7: Example of Medium Term Expenditure Framework table

OPMENT ... 007/08

Objective B: To create an Inducive and Gender Responsive Environment for Efficient and Effective Delivery of Supportive Services.

Target 01S: Effectively and timely provision of administrative and logistic support to all staff under the DHR.

Segment 2	Activities to Achieve Target (i)	Required Input				2005/2006		2006/2007		2007/2008		Total	Source	
		Item Code (ii)	Description of Input (iii)	Measurement Unit (iv)	Unit Cost of Input (v)	Number of Unit (vi)	Estimates (v) x (vi) = (vii)	Number of Unit (viii)	Estimates (v) x (viii) = (ix)	Number of Unit (x)	Estimates (v) x (x)= (xi)	(vii)+(ix)+(xi) = (xii)	G	O
C01C10	Review IMCI modules and support IMCI teaching in 12 health training institutions.	250311	Perdiems - Domestic	Person	360,000	30	10,800,000	45	16,200,000	47	16,920,000	43,920,000		
		260105	Printing	copy	5,000	30	150,000	45	225,000	47	235,000	610,000		
		260302	Food and Refreshments	Person		000		45	1,260,000	47	1,316,000	3,416,000		
		260605	Stationary Supplies	Lot		0,000		3	1,500,000	3	1,500,000	4,000,000		
		260703	Conference facilities	Day	100,000	7	700,000	7	700,000	7	700,000	2,100,000		
		260901	Travel Tickets - Domestic	Trip	70,000	25	1,750,000	38	2,660,000	38	2,660,000	7,070,000		
		270301	Service and Repair - Vehicle	Vehicle	100,000	3	300,000	3			300,000	900,000		
		270503	Diesel	Litre	1,100	1500	1,650,000	1500	1,650,000	1500	1,650,000	4,950,000		
	Sub total						17,190,000		24,495,000		25,281,000	66,966,000	G	

For the purpose of identifying ODA that is directed to Child Health, the MTEF has value only for identifying expenditures that occur at MoH level. It is not possible to link any expenditure to a particular donor, even if the activity is project funded as the project or donor will not be named in the MTEF.

We found in the most recent MTEF only a few activities that are attributable to ODA funded activities that represent *Child Health specific* or *shared funding*. This is understandable as Ministry expenditure mostly relates to wider systems issues whereas targeted activities are be increasingly channeled through District based funding following decentralization reforms.

District Health Planning Tools (DHPD)

The DHPD represent the budgetary planning instrument at District level. These plans are prepared by the District Health Authorities on an annual basis (Financial Year). They include basic population data as well as utilization data for outpatient and inpatient services (usually disaggregated by major diagnoses and between <5 years old and 5+). They also include an overview of the total funds available, disaggregated by source of funds (Government, Basket, as well as Projects/NGOs). The main body of the DHPDs is composed of a detailed listing of all envisaged activities and corresponding budgets (similar to the MTEF by line item but with the budget only for one year), source of funding and category of activities (such as RCH for Reproductive and Child Health, EPI for immunization etc.).

The listing of the individual activities allows filtering of *Child Health specific* and *shared resources* and attributable activities. For all other (*non Child Health specific*), one can identify the total amounts funded through SWAp and projects. The <5 utilization data (versus 5+ utilization) could be used to attribute a percentage for Child Health (as explained above).

The DHPDs are the most useful documents for identifying ODA that is directed towards Child Health as these funds are mainly used by the districts. They are complementary to the MTEF documents as they cover the budgetary data for the Districts only. The detail is sufficient to easily identify *Child Health specific/shared resources* and attributable activities.

The disadvantages are the budgetary nature of the data. The amount actually disbursed and used would be available in the (*physical* and *financial*) *implementation reports*, which we did not have time to access. Ideally both DHPD and implementation reports would need to be screened and compared. However, the latest Public Expenditure Review Update criticises the lack of comprehensiveness and weak quality of data in the implementation reports.

An additional disadvantage is the lack of standardization of these plans, as the format of tables and the detail of data vary between districts. Moreover, the quality of data also vary: we copied the basic tables of funding sources as well as utilization and found in 2 out of 5 DHPD differences in the total numbers between an excel based calculation and the total given in the DHPD.

The standardization of the DHPD and change towards an electronic format that would allow easy identification and calculation of subsets of the DHPD as well as comparisons between districts is currently under way through two approaches. A donor supported health project in one of the country's regions has developed an MS Excel-based spreadsheet that represents the DHPD in an electronic format. This tool automatically codes priority areas and facilitates an automated analysis as well as implementation report generation. The second instrument, currently developed and successfully implemented by an NGO supported project, is the District Health Accounts tool, which is annually renewed and has pre-loaded electronic information on drug prices, exchange rates, capitation allowances and MoH guidelines. Both tools also allow comparison of budgets against burden of disease oriented priorities.

Neither DHPD nor MTEF cover regional budgets. Unfortunately, we were not able to consult regional budgetary documentation in the time available.

Public Expenditure Review

The Public Expenditure Reviews (PER) provide a very good overview of Health Sector budget and expenditure. The share of Total Government Expenditure that is allocated to health both in real and net terms, the breakdown and details of funds allocated to the Basket (Sector Wide Approach/SWAp) and further information was derived from the PER. The PER, therefore, are of high value in obtaining an overview over health sector expenditure and are invaluable for studying any subsectoral expenditure such as resources flowing towards child health.

Estimates of public expenditure

As both the MTEF as well as DHPD represent budgetary data that stem from within the MoH and Districts, we inquired about expenditure data that originate at the MoF. A source for expenditure data are the *Estimates of Public Expenditure*, separated by recurrent and capital expenditures. The Supply Votes cover recurrent expenditures whereas the Development Votes relate to capital expenditure. By the very nature of investments, donor funded investments are rarely found in the Supply but rather in the Development Votes. The Votes are differentiated by sector for state level and regional votes that are further disaggregated into sub-votes capturing preventive and curative services.

We obtained a copy of the Regional Supply Votes. The Regional Vote does not cover a sufficient level of detail as the sub-votes are disaggregated by preventive and curative services but do not list the individual activities that fall in either category. Nor are the sources of funding mentioned, so that filtering Child Health expenditures is virtually impossible. The documents described are likely to be only a summary of the data available at the MoF, and it would be valuable to investigate whether a more detailed breakdown could be obtained that would show information on *Child Health specific/shared funding*.

Another shortcoming of the MoF data are that the Development Votes (in contrast to the Supply votes) represent budgetary but not expenditure data.

Sample Data

Expenditure at ministry level (MTEF)

Out of the total budget of the MTEF for the FY 2005/2006, 48 activities related to children: 33 represented *Child Health specific* activities, and 15 *Child Health shared* activities. As outlined above, for the activities that represent *Child Health shared funding* (such as RCH activities that are not differentiated between mothers and children), we assumed a share of 50% applicable to children. Under this assumption, we obtained a total of 2,047,594 US $ that was invested in *Child Health specific* or *shared* activities (1.27% of the total budget, see Table 8). As pointed out above, some tables of the MTEF do not show a column for pooled funds, which may well mean that the Basket did not invest in certain areas. For the *Child Health specific* or *shared* activities, pooled funds were indicated in the draft proposal only for *development* expenditure details but not in the proposed *recurrent* expenditure. In the proposed development expenditure, we obtained a total of 478,461 US $ that represents Child Health specific or shared funds invested by the Basket (Table 8). This is 23.37% of the total *Child Health specific* and *shared* funds. "Other" (which would include some of the bilateral ODA, though not exclusively) related to 251,434 US $, which is 12.28% of the total *Child Health specific* and *shared* funds. Finally, for 8,719 US $, the source was not indicated. The government's overall share was 1,308,978 US $, which represents 63.93% of the total *Child Health specific* and *shared* funds.

Table 8: Amount and percentage invested in Child Health specific and shared funds by source in US $ according to MTEF 2004/2005

Type of Source	Amount invested in CH specific or shared activities	Percent of total amount invested in CH specific or share activities
Government (incl. GBS)	1,308,978	63.93
Basket	478,461	23.37
Other	251,434	12.28
unknown	*8,719*	*0.42*
Total invested in CH in MTEF (recurrent & development)	**2,047,594**	**1.27%** of overall MTEF budget
Total (recurrent & development) MTEF budget	161,358,552	

We calculated the share that is attributable to children of the *non-Child Health specific funding,* applying two methods: (a) applying an overall share of 40% (as applied in the global resources tracking exercise), and (b) applying the overall <5 utilization rate (inpatient and outpatient average) that we obtained across the five sample districts in the country of 46.46%. For (a) we obtained a total of 65,452,198 US $ and for (b) 75,692,042 US $ that is applicable to under 5 year old children (including the above 1.27% or 2,047,594 US $ that are *Child Health specific* or *shared funds*). The amount calculated represents 40.56% and 46.91% of the total MTEF budget.

This exercise demonstrates that the share *Child Health specific* or *shared funds* (1.27%) is negligible in comparison to the amounts obtained by applying a percentage to the *non-Child Health specific* budget (either 40% or 46.46% for methods (a) or (b), respectively). We therefore suggest that there is little value in filtering MTEF for Child Health-specific expenditures in order to obtain a crude estimate of the amount flowing towards child health overall. More important is the percentage applied to all funds to identify Child Health funds.

Expenditure at district level

5 DHPD were scanned for specific Child Health related activities and their corresponding sources of funds. Of the total available funds, the percentages invested in *Child Health specific* activities varied from 1.01% to 4.87% (Table 9). Among the Basket funds, the share invested in specific Child Health activities ranged from 7.92% to 18.31%. Using the percentage of utilization by < 5 year old children (inpatient and outpatient) as a proxy for attributing the share of *non-Child Health specific* funds, the overall percentage that was directed toward < 5 year old children ranged from 33.91% to 61.00%. The latter difference is explicable by the huge variation in utilization by < 5 year old children by district (Table 9, Figure 8). The relationship between utilization by < 5 year old children and the child specific basket funding in the district is surprising (Figure 6): the district with the highest utilization by children shows the lowest child specific funding through the basket. Also, for the District with the lowest average utilization by < 5 year old children, the funding via the basket is rather in the middle range. The picture is somewhat different for total available funds (from all sources) directed towards specific Child Health Interventions but does not correspond with utilization either.

Table 9: Percentage of funds directed to *Child Health specific* or *shared* activities, utilization of < 5, and total Child Health related funds *(specific, shared and non-specific)*

	District 1	District 2	District 3	District 4	District 5	Average
All sources	2.28	5.24	1.01	1.21	4.87	**2.92**
Basket funds	7.92	18.31	10.09	12.85	10.53	**11.94**
ODA (Basket and project)	8.87	16.41	8.94	2.21	8.68	**9.02**
Avg. utilization of <5 (inpatient & outpatient)	60.09	54.82	38.01	33.10	46.28	**46.46**
Total CH related funds (specific & non-specific)	61.00	57.19	38.64	33.91	48.90	**47.93**

In summary, *Child Health specific funding* is overall low and in none of the 5 districts does it go beyond 5% of the total budget. As with the MTEF, there is thus little point in filtering all DHPDs for Child Health specific funding unless one is desperate to find the difference between utilization and funding. The huge variation in < 5 utilization will be described and discussed below. However, both the variation in < 5 utilization and also the finding that Child Health specific funding does by no means follow the < 5 utilization pattern puts into question whether utilization data are a good proxy for Child Health funding overall.

Figure 6: Percentage of Utilization by < 5 year old children (inpatient & outpatient average) and percentage of funds that are directed to Child Health specific activities.
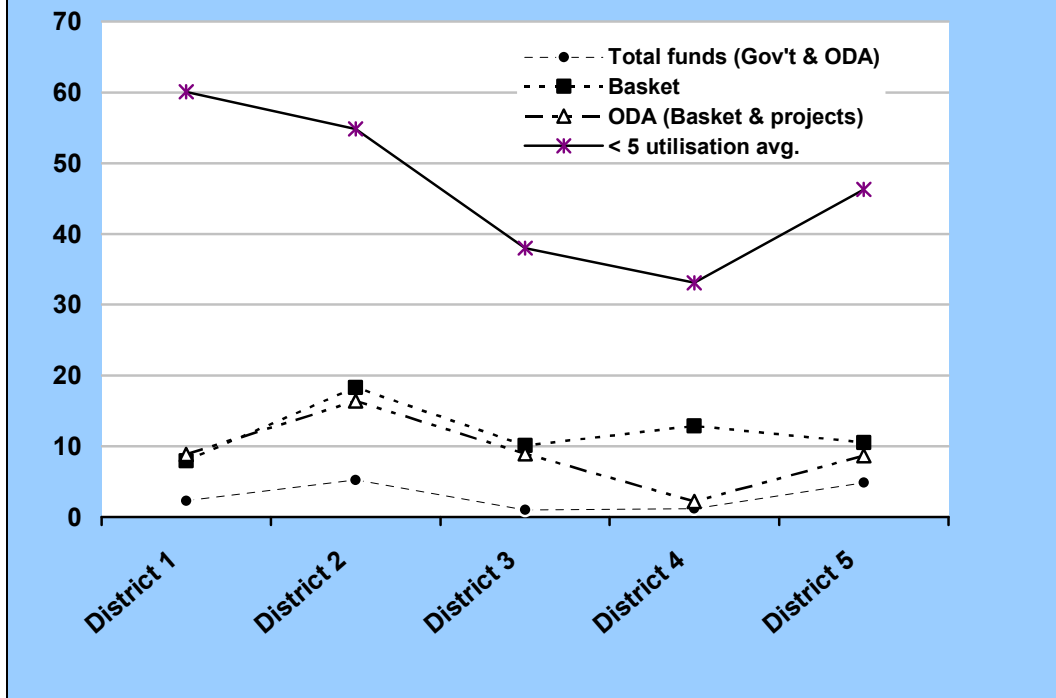
Attributing non-child health specific funds by utilization data

We intended to attribute the share of *non-Child Health specific funds* to children by means of age specific (i.e. < 5) utilization data as outlined above.

Two sources of these data were readily available: the DHPD offer inpatient and outpatient utilization data that are disaggregated by diagnosis as well as between < 5 and 5+. In addition, the utilization data from 4 districts in which the IMCI strategy was evaluated were available to us.

Whichever of the two sources we looked at, the percentage of under-five year old patients varies widely between districts (Figure 7) and even within districts over time (Figure 8). At the bottom end we have a utilization rate of less than 35%, and at the high end utilization ranges up to over 60%. This variance may be explained by variation in disease specific morbidity (Figure 9), possibly following geographical (and climatic) differences between these districts. Malaria endemic areas, for instance, may account for higher utilization by the under fives as opposed to utilization by 5+ (who may face a degree of immunity). Malaria epidemic areas (or those with very seasonal transmission) may face a more equal attendance of various age groups due to lower immunity levels across all age groups. Rural and urban environments may also account for differences in disease-specific morbidity and subsequent utilization amongst various age groups.

Interestingly, the percentage of < 5 utilization (cases) varies little between outpatients and inpatients within each district (Figure 7).

The variation in utilization poses a major challenge to using these data for apportioning general funds to Child Health. Ideally, this would have to be done by district and within the district, it might even be worthwhile to filter all activities for age group specific diseases (such as activities directed towards Sexually Transmitted Diseases or Mental Health) and apply the diagnosis specific < 5 utilization rate (Figure 9). This would be a tedious exercise if data are neither recorded electronically nor standardized.

Figure 7: Percentage of utilization by < 5 year old children (by outpatients vs. inpatients)..
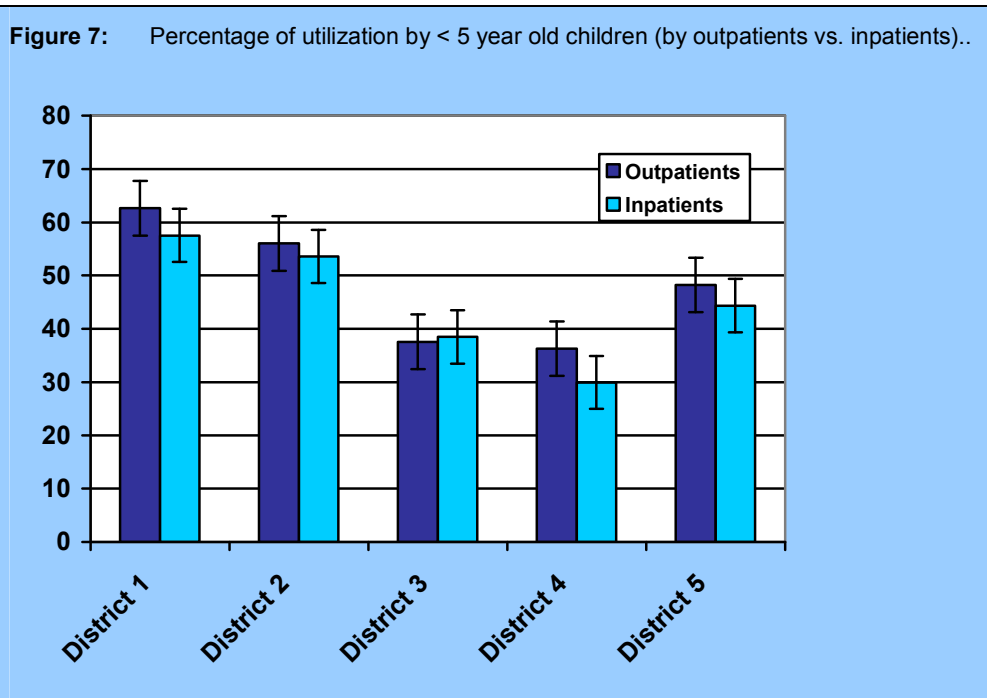
Figure 8: Percentage of Utilization by < 5 year old children (by District, year).
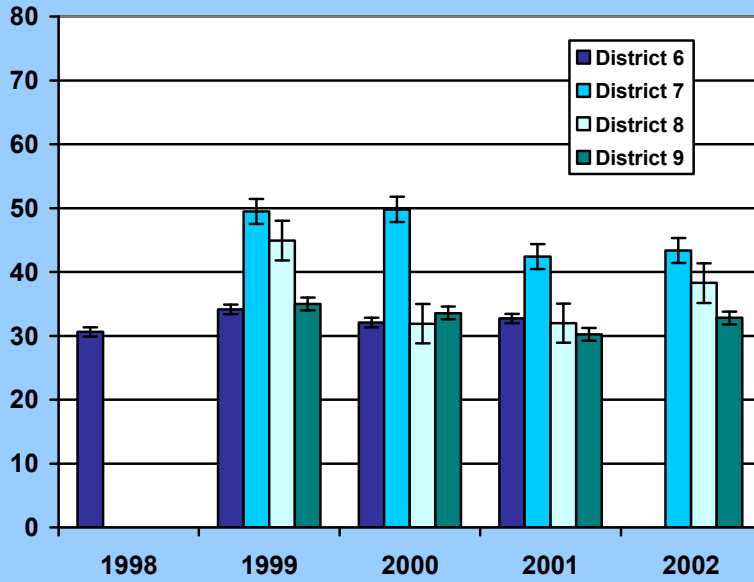
Figure 9: Percentage of Utilization by < 5 year old children in one District (by diagnosis).
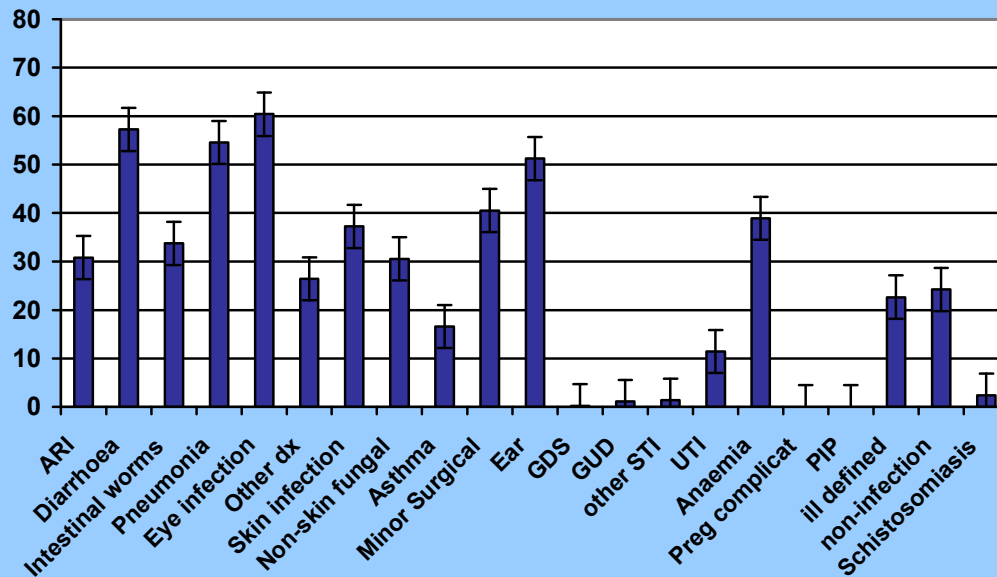
5. Conclusions and Recommendations

Main Findings

We estimate that approximately US$ 873 million in 2003 and US$ 1.011 billion in 2004 ODA went to child health in developing countries based on our sample of donors studied. The majority of these funds went through projects. To put this in perspective, ODA for malaria control was estimated at US$ 410 million in 2003 (Waddington, Martin et al. 2005); ODA for tuberculosis was just under $200 million in 2004 (WHO 2005c) and ODA for population activities was US$2.56 billion in 2003 (van Dalen and Reuser 2005). It should however be noted that we did not include all donors in our study, there are significant methodological differences between these resource tracking studies and as a result there is overlap between estimates.

Challenges and Limitations

For a selection of donors, it was necessary to make a request for information as the data in the CRS database was not sufficiently complete. Donors responded positively and before the deadline. However, they were in general reluctant to provide information at the project level as requested and instead gave aggregate disbursements. This made it impossible to apply consistent allocation methods and the same definition of child health across all donors. It was apparent from looking at donor information systems that the definition of child health activities varies considerably from donor to donor. Only by allowing an independent institution to analyze project level data is it possible to apply a standard methodology to derive results that are comparable across donors.

Donor fatigue and capacity constraints are genuine barriers to the collection of primary data and result from multiple demands being placed on donor agencies over the past few years to provide information for specific agendas. Any child health resource tracking methodology that relies predominantly on primary data will face these issues and is therefore not deemed a viable long-term option. As an illustration, the CRS system which has been institutionalized for over ten years still faces significant challenges in getting complete and accurate data from donors for whom this is a mandatory task.

As expected, the allocation of general budgetary support and pooled funds within SWAp arrangements to child health posed problems. The methods used in the study are not country specific and are therefore relatively crude. However sensitivity analysis shows that the total ODA for child health does not change much under alternative assumptions because the amount of funds flowing through budgetary mechanisms are relatively small. In order to allocate such funds to child health with a high degree of accuracy, it is necessary to analyze financial flows of domestic resources at the country level. Experience shows that this was by no means easily done. We tried to allocate this share by using under five utilization data, but were faced with the limitations described below. Further tools need to be explored at the –country level; for instance where District Health Accounts are available, they represent a valuable source of budget and expenditure data at the district level and might be able to offer more detail as to the source of funding (e.g. basket funding). We need to recognize, however, that District

Health Accounts are not likely in the foreseeable future to produce data that will permit international comparisons of donor support.

Can our results be used to estimate the financing gap for child health? There are substantial methodological problems in attempting to do this. Our definition of child health activities was driven largely by NHA standards rather than the set of child survival interventions costed by Bryce et al (2005) and WHO (2005a) in their estimates of the global 'price tag'. As such we have focused on those health activities that are delivered to children rather than the health activities that have the greatest impact on child mortality. The bottom-up nature of the methodologies used in the costing models makes it easy to include or exclude specific interventions. However, resource tracking can only follow disbursements down to the project level and is unable to disaggregate expenditures on specific interventions within an individual project. For example, there is no obvious way of disaggregating expenditures between neonatal and maternal health interventions in a safe motherhood project. Our definition of child health is therefore dictated by how projects are designed in practice. Accounting systems can identify funds flowing through different types of projects but do not track resources for specific interventions which are often packaged together within projects.

A further problem lies in the fact that our study tracks only ODA flows for child health. At the country level there are likely to be significant funds coming from government and private sources including out-of-pocket expenditure from households. In some countries with the highest child mortality rates it may be fair to assume that the government is subject to such fiscal constraints that the only realistic source of additional funds in the short to medium term is external sources. Nevertheless, one cannot assume this to be the case for all developing countries.

The global level and country level work suffer from a number of limitations. The global study was primarily a test of concept and therefore we did not analyze data for all DAC member countries who provide almost all ODA. Therefore, these results are not representative of the global situation and further analysis of the CRS dataset for the remaining donors would need to be carried out in order to reach a global estimate of ODA for child health.

Second, these results do not represent actual expenditures but rather disbursement of funds put at the disposal of entities within the recipient country. For the purpose of resource tracking at the global level, the definition of disbursements used in the study is sufficiently adequate. A NHA would be required to track actual expenditures of ODA at the country level and get a more detailed picture of how the money is spent.

Third, results for a specific year are not available until the end of the following year because the methods are heavily reliant on the availability of data from the CRS. Delays in OECD releasing data occur as a result of a rigorous quality control process and late delivery of data from all relevant ministries and agencies in DAC member countries. However, compared with current health resource tracking methods, a delay of just one year from the reference year in producing results is acceptable.

Last, our study did not make future projections of donor funding for child health, as primary data bearing on this was very limited.

At the country level, most of the available data are of a budgetary nature. This is less of a constraint than one would imagine as the execution of budgets and absorption was reasonably high in the health sector of the sample country with a recurrent budget performance of 92% and a development budget performance of 83%. However, the completeness of these data is questionable as a high degree of funding is still facilitated off-budget: for the FY 2004 this was estimated at 29% of the total. Some of this may appear in the DHPDs but not all (e.g. if administered parallel to the health sector).

Second, donors are increasingly subscribing to GBS and the exact share that is directed towards health is unmeasurable (as GBS is by its very nature not earmarked). For a rather crude analysis, however, we used the proportion of government expenditure on health to allocate general budget support.

Third, and most importantly, there is the need to apportion *non-Child Health specific* activities and funding to children. This could be done using utilization data that differentiate between < 5 year old versus 5+ year old utilization rates. However, these utilization rates differed substantially between districts (varying between under 35% to over 60%). A solution would be to allocate disease-specific utilization of <5 year old children to certain activities that are disease-specific and only for all non-disease specific (and mostly systems oriented activities) apply the average utilization rate. This approach is dependent on utilization being an accurate method of apportioning funding towards child health. The lack of correlation between utilization rates of <5 year olds and child health specific funding in a number of districts indicated this may not be the case .

Conclusions and Recommendations

Our study has tested the feasibility of tracking ODA for child health globally for a selection of what are widely regarded as the largest donors in this area within the health sector. Using predominantly the CRS system of the OCED, it has been feasible to derive results for those funds flowing through projects, and the sensitivity analysis suggests that these results are reasonably robust to alternative assumptions. After over ten years in operation, the CRS system now covers almost all ODA disbursements and is publicly available. Standard methods can be applied to derive results that are comparable between all bilateral and multilateral organizations and available approximately one year after the reference year. By relying on this system, it means that little additional reporting burden is placed on donors. As the allocation methods for integrated funds depend on health information, good quality data of this type is an important ingredient to producing reliable financial estimates.

The reliability of estimates would be improved if the CRS were to be reinforced. It should be mandatory for not only bilateral donors but also all multilateral development organizations to provide both commitment and disbursement data on projects to DAC in a timely fashion. Moreover, donors should increase efforts to provide long descriptions of projects and indicate the channel of delivery for funds. The DAC plans to pilot a modification to the system which will allow donors to allocate funds within each project to multiple sector codes, and this should increase accuracy of estimates further if implemented successfully.

Our estimates of child health funds flowing through general budget support and basket funding mechanisms should be treated with more caution as they are reliant on basic

assumptions which are not country specific. These estimates are tentative and can only be improved if efforts are made to collect data on domestic child health expenditures at the country level. An important rationale for using general budget support and basket funding mechanisms is to improve government planning, budgeting, accounting and auditing systems and it is hoped as a result that the capacity of governments to track health resources in the future will improve.

However, it should be recognized that routine budgeting and accounting systems are unlikely to provide disease-specific or client and population group disaggregations of expenditure on a regular basis. In resource-poor countries, the emphasis is likely to be on strengthening basic financial management systems rather than linking expenditure to objectives. The history of program budgeting methods, which were not widely adopted despite widespread interest, cautions in expecting radical improvements in resource tracking despite the possibilities created by information technology developments. Hence availability of data on child health expenditures is likely to continue to be dependent on the availability of NHA data. Given the demands of undertaking an NHA, it is unrealistic to expect that all countries will have NHA data, let alone NHA data on child health.

In the long-term, improved and standardized computerized accounting systems (District Health Accounts or electronic budget planning tools) will facilitate better quality of data. This will allow an analysis at district levels, which may guide district planning teams and the MoH as to whether budgeting is in line with envisaged priorities and burden of disease.

The advent of general budgetary support and basket funding changes the financing context within countries and it is important that those working in child health in developing country governments, donor and civil society organizations appreciate this. An understanding of the Poverty Reduction Strategy process and SWAps is vital if child health is to be prioritized and given the financial support it deserves.

Child survival interventions that are delivered to the mother typically find themselves supported by maternal health projects as opposed to child survival projects. It would therefore make sense to derive the financing gap by comparing ODA for maternal, neonatal and child health collectively against cost estimates of scaling up maternal, neonatal and child survival interventions to be sure that we are costing and tracking resources for the same interventions. NIDI and Resource Flows Project already track financial flows for maternal health (as a category of population activities) and future collaboration in this area is therefore recommended.

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Appendices

Appendix I. Inventory of Costing Exercises Related to Child Health

Authors	Department of CAH and Department of HSF, World Health Organisation	Department of MPS and Department of HSF, World Health Organisation	Bryce J, Black RE, Walker N, Bhutta ZA, Lawn J, Staketee for the Bellagio Child Survival Study Group	Darmstadt GL, Bhutta ZA, Cousens S, Adam T, Walker N, de Bernis L for the Lancet Neonatal Survival Steering Team
Title	Methodology and assumption used to estimate the cost of scaling up child health interventions	Estimating the cost of scaling-up maternal and newborn health interventions to reach universal coverage	Can the world afford to save the lives of 6 million children each year?	Evidence based, cost-effective interventions: how many newborn babies can we save?
Years of estimation	Period 2006 – 2015	Period 2006 – 2015	No period of projection specified. Annual cost given based on 2000 coverage	No period of projection specified. Annual cost given based on 2000 coverage
Focal group	Children aged 0 to 5 years	Mothers and children aged 0 to 1 month	Children aged 0 to 5 years	Neonates
Countries of focus	75 countries	75 countries	42 countries	75 countries
Criteria for country selection	Multiple criteria. Countries account for 94.2% of all under-five deaths in 2002	Multiple criteria. Countries account for 93.1% of feto-neonatal deaths and 97.5% of maternal deaths in 2002	Countries accounting for 90% of worldwide deaths in children younger than five years in 2000	Taken from WHO 2005 World Health Report (i.e. same as WHO costing exercises)
Definition of interventions	Cost-effective interventions delivered to the child from 1 week after birth to age of 5 years (excluding complications at birth)	Cost-effective Interventions delivered during pregnancy, childbirth, and the period following birth, including first seven days after birth	High impact interventions delivered to the child at birth to age 5 years and including some prenatal interventions	Interventions showing evidence of efficacy and effectiveness to reduce perinatal and neonatal mortality
Interventions	16 child survival interventions (15 out 23 Lancet interventions)	67 maternal and neonatal health interventions	23 child survival interventions of the Bellagio Child Survival Study Group. Note some interventions are prenatal	16 neonatal health interventions
Coverage targets	Universal coverage – 95% of target population	Universal coverage – 95% of target population	Universal coverage – 99% of target population, except breastfeeding which was set at 90%	Different targets used for multiple scenarios: 90% outreach package; +90% family/community package; +50% facility-based clinical care; +90% facility-based clinical care
Costing approach	Bottom-up ingredients approach using the following models: WHO/IVB (immunisation); WHO-CHOICE; WHO/RBM (malaria); Futures Group (HIV/AIDS); CAH model (other interventions)	Bottom-up ingredients approach using the following models: WHO/IVB (TT); WHO/RBM (IPT and ITN); Treatment protocols	Ingredients approach using WHO-CHOICE estimates, and UNICEF prices	Ingredients approach using WHO-CHOICE estimates, and UNICEF prices
Costs calculated	Incremental cost estimates	Incremental cost estimates	Includes both total costs for 2000 coverage levels and additional cost to provide universal access	Includes both total costs for 2000 coverage levels and additional cost to provide universal access
Recurrent costs included	Yes	Yes	Yes	Yes
Capital costs included	Yes	Yes	Yes	Yes

Authors	Department of CAH and Department of HSF, World Health Organisation	Department of MPS and Department of HSF, World Health Organisation	Bryce J, Black RE, Walker N, Bhutta ZA, Lawn J, Staketee for the Bellagio Child Survival Study Group	Darmstadt GL, Bhutta ZA, Cousens S, Adam T, Walker N, de Bernis L for the Lancet Neonatal Survival Steering Team
Title	Methodology and assumption used to estimate the cost of scaling up child health interventions	Estimating the cost of scaling-up maternal and newborn health interventions to reach universal coverage	Can the world afford to save the lives of 6 million children each year?	Evidence based, cost-effective interventions: how many newborn babies can we save?
Program costs included	Yes – administration, vehicles, M&E, training etc.	Yes – administration, vehicles, M&E, training etc.	Some – training, supervision, monitoring, evaluation and other management costs. No scaling up considered	Some – training, salaries and supervision. No scaling up considered
Costing scenarios	Yes	Yes	No	Yes
Source of current coverage levels	DHS Surveys; GBD regional averages; WHO expert opinion	DHS Surveys; GBD regional averages; WHO expert opinion	UNICEF's ChildInfo website	UNICEF's ChildInfo website; Expert opinion
Source of population in need	UN Population Division; WHO disease incidence estimates (GBD); Expert opinion and assumptions	UN Population Division; WHO disease incidence estimates (GBD); Expert opinion and assumptions	UN Population Division; Child Health Epidemiology Reference Group; Department of Immunisations, Vaccines and Biologicals in WHO	UN Population Division; Neonatal Group the Child Health and Epidemiology Reference Group
Delivery mechanisms	1. family / community level 2. primary health care facility level 3. first referral care level 4. national level	1. first level health care 2. back-up care at secondary level	1. family / community level 2. outreach level – population orientated services 3. clinical level	1. family / community level 2. outreach level – population orientated services 3. clinical level
Price tag results	• Additional cost would be $52.4 billion in total over period 2006-2015 • In 2006, incremental cost is estimated at $2.2 billion ($0.47 per capita) • In 2015, incremental cost is estimated at $7.8 billion ($1.48 per capita)	• Additional cost would be $39 billion in total over period 2006-2015 • In 2006, incremental cost is estimated at $1 billion ($0.22 per capita) • In 2015, incremental cost is estimated at $6.1 billion ($1.18 billion)	• Preventive interventions at year 2000 coverage levels cost $3.2 billion • Treatment interventions at year 2000 coverage levels cost $1 billion (or $0.4 billion after savings from expanded prevention) • Additional running cost of providing preventive and treatment interventions from year 2000 coverage to all children is $5.1 billion annually, or equivalent to $887 for each child life saved • Implied total cost is $9.3 billion annually	• Cost of year 2000 coverage levels is $1.97 billion • Additional cost of expanding from current levels to 90% is $4.11 billion • Implied total cost is $6.1 billion annually • The cost per neonatal death averted is estimated at $2100
Limitations	• No account of wastage or loss of drugs / supplies • No estimation of expenditures required to maintain current coverage until 2015 • Supply-side analysis only – no consideration of demand side costs • Use of multiple models – comparability? • No sensitivity analysis • No consideration of pre-service training for HR	• Lack of data on current coverage and accurate measures of the incidence/prevalence of conditions made it necessary to develop and use assumption based estimates • Current levels of remuneration used, which are unlikely to be sufficient to recruit, retain and deploy where they are most needed in the future	• Cost of scaling up the health system is excluded (training, management capacity) • Additional costs of achieving equity are excluded • No consideration of demographic trends • Direct and opportunity costs of patients are excluded – no consideration of demand side costs	• Cost of scaling up the health system is excluded (training, management capacity) • Evidence on the effectiveness of large scale, robust trials is lacking • No consideration of filling current gaps in health infrastructure and the availability of human resources • No consideration of demand side costs to improve health care seeking behaviour

Authors	Working Group 5 of the Commission on Macroeconomics and Health	Soucat A, Van Lerberghe W, Diop F, Nguyen S, Knippenberg R	UN Millennium Development Project
Title	**Costs of Scaling-up Priority Health Interventions in Low and Selected Middle Income Countries**	**Marginal Budgeting for Bottlenecks Tool**	**Investing in Development: A Practical Plan to Achieve the Millennium Development Goals**
Years of estimation	2007, 2015	Adjustable but usually over a three year time period or up to 2015	2006, 2010, 2015
Focal group	Specific interventions / programs in child health	Children aged 0 to 5 years and mothers	General population
Countries of focus	83 countries	Country specific – already used in India, Ethiopia, Madagascar, Mauritania, Rwanda	Country specific. Focused on Bangladesh, Cambodia, Ghana, , Uganda
Criteria for country selection	Poor countries (GNP per capita less than $1200), all in SSA and countries with a high burden of disease (infectious)	n/a	n/a
Definition of interventions	Interventions effective in reducing the disease burden of the major causes of excess mortality in poor countries	Interventions showing evidence of effectiveness (based on Bellagio set of interventions)	Interventions showing evidence of effectiveness in impacting on health MDGs
Interventions	49 interventions (and 65 treatment lines)	23 interventions originally (although constantly evolving)	27 intervention *packages*
Coverage targets	Intervention specific coverage targets based on international coverage targets and expert opinion (from various sources)	Country specific targets specified in PRSPs and health sector plans	Based on MDGs where possible; otherwise analytically derived
Costing approach	WG5 obtained unit costs for each intervention from a literature review. These unit costs were then multiplied by the additional workload needed to reach set coverage targets. The costs are annual recurrent plus an annual equivalent capital cost. Scaling up costs are also factored in to include additional costs to support effective implementation of the scaling up process	Adaptation on the WHO effective coverage model for the purposes of costing. Uses tracer interventions under each delivery mode to calculate costs of increasing coverage of each coverage determinant. Inputs are categorised according to delivery mode, and coverage determinant	Ingredients approach using where possible frameworks developed by WHO and UNAIDS
Costs calculated	Incremental cost estimates (full economic cost)	Incremental cost estimates	Total cost estimates
Recurrent costs included	Yes	Yes	Yes
Capital costs included	Yes	Yes	Yes
Program / non service delivery costs included	Yes – higher level management, expenditures to improve absorptive capacity, costs of quality improvement, increased salaries for health workers	Yes – M&E, demand side subsidies, MoH administration, quality improvement etc.	Not known
Costing scenarios	Yes (in terms of years)	Yes	No
Source of current coverage levels	Based on extensive literature review	Country specific but usually based on DHS, MICS, expert opinion	Not known
Source of population in need	UN Population Division and WHO disease incidence rates	DHS, disease reporting systems	UN Population Division
Delivery mechanisms	None specified	1. family / community level 2. outreach level – population orientated services 3. clinical level	None specified

Authors	Working Group 5 of the Commission on Macroeconomics and Health	Soucat A, Van Lerberghe W, Diop F, Nguyen S, Knippenberg R	UN Millennium Development Project
Title	**Costs of Scaling-up Priority Health Interventions in Low and Selected Middle Income Countries**	**Marginal Budgeting for Bottlenecks Tool**	**Investing in Development: A Practical Plan to Achieve the Millennium Development Goals**
Price tag results	• Annual incremental cost for treatment and prevention of childhood illnesses is $5 billion in 2007, and $12 billion in 2015. • In low-income countries, annual incremental cost for treatment and prevention of childhood illnesses is $3 billion in 2007 ($0.8 billion for immunisation, and $2.3 billion for treatment) and $7.2 billion ($1 billion for immunisation, and $6.1 billion for treatment). • Annual incremental cost for treatment and prevention of malaria is $2.5 billion in 2007 ($2.3 billion in LICs), and $4.4 billion in 2015 ($4.1 billion in LICs). • Incremental cost adjusted for scaling up process would roughly double the above estimates.	Country specific results, for example: • Annual incremental cost is estimated at $8-9 per capita in Ethiopia in 2012-15 • Annual incremental cost is estimated at $5 per capita to reach U5MR MDG in Madagascar by 2015	Country specific results, for example: • Per capita investment needs for health in Ghana are estimated at $18 in 2006, $21 in 2010 and $34 in 2015 • Per capita investment needs for health in Uganda are estimated at $25 in 2006, $32 in 2010 and $44 in 2015
Limitations	• No consideration of increased service coverage on disease epidemiology • Problems of allowing for cost of relaxing absorptive capacity constraints • Problems of knowing current coverage • Unit costs not allowed to vary by scale (I think – but there is a very odd relationship between incremental coverage gains and incremental total costs as you switch from 2007 to 2015. • No consideration of reduced treatment cost due to increased coverage of preventive interventions	• Use of tracers interventions to estimate coverage of other interventions can be misleading • Large data dependency • The effect of increased coverage on treatment costs not considered • Over simplified epidemiological and demographic model	Too little detail on methodology available to comment on limitations

Appendix II. Child Health ODA by Country in 2003

No.	Country	Child Health ODA Total US$m	Per Child US$	No.	Country	Child Health ODA Total US$m	Per Child US$
1	India	66.2	0.6	54	Honduras	1.0	1.1
2	Kenya	23.0	4.0	55	Ukraine	0.9	0.2
3	Ethiopia	19.4	1.5	56	Bosnia-Herzegovina	0.9	4.7
4	Pakistan	18.6	0.9	57	Dominican Republic	0.8	0.8
5	Malawi	17.8	7.6	58	Central African Rep.	0.8	1.2
6	Zambia	16.9	8.4	59	Gambia	0.7	3.1
7	Ghana	15.0	4.8	60	Romania	0.7	0.1
8	Nigeria	14.5	0.7	61	Georgia	0.7	2.9
9	Uganda	14.5	2.4	62	Kosovo	0.6	0.4
10	Iraq	13.3	3.1	63	St. Helena	0.6	45.1
11	Indonesia	12.7	0.6	64	Kyrgyz Rep.	0.6	1.2
12	China	12.4	0.1	65	Lesotho	0.6	2.7
13	Congo Dem.Rep. (Zaire)	12.2	1.1	66	Swaziland	0.6	4.3
14		12.1	2.0	67	Tajikistan	0.5	0.6
15	Mozambique	10.9	3.3	68	Botswana	0.5	2.4
16	Bangladesh	10.1	0.6	69	Timor-Leste	0.5	2.6
17	Rwanda	7.0	4.7	70	Egypt	0.4	0.0
18	Burundi	5.8	4.4	71	Albania	0.4	1.6
19	Angola	5.1	1.7	72	Cape Verde	0.4	5.5
20	Zimbabwe	5.1	2.9	73	Comoros	0.4	2.9
21	Cambodia	4.9	2.7	74	Brazil	0.3	0.0
22	Mali	4.5	1.7	75	Namibia	0.3	1.3
23	Afghanistan	4.5	0.8	76	Nicaragua	0.3	0.4
24	Madagascar	3.8	1.2	77	Peru	0.3	0.1
25	Myanmar (Burma)	3.7	0.8	78	Mauritania	0.3	0.6
26	Sudan	3.7	0.7	79	Colombia	0.3	0.1
27	Cote d'Ivoire	3.6	1.3	80	Azerbaijan	0.3	0.4
28	Liberia	3.5	5.5	81	Bhutan	0.2	0.8
29	Nepal	3.3	0.9	82	Sao Tome & Principe	0.2	10.4
30	Viet Nam	2.9	0.4	83	Armenia	0.2	1.4
31	Sierra Leone	2.8	2.9	84	El Salvador	0.2	0.3
32	Cameroon	2.7	1.1	85	Cook Islands	0.2	286.1
33	Burkina Faso	2.4	1.0	86	Gabon	0.2	1.2
34	Somalia	2.3	1.5	87	Kazakstan	0.2	0.2
35	Senegal	2.1	1.1	88	Turkmenistan	0.2	0.4
36	Laos	2.1	2.3	89	Papua New Guinea	0.2	0.2
37	Sri Lanka	1.9	1.2	90	Argentina	0.2	0.1
38	Benin	1.9	1.3	91	Iran	0.2	0.0
39	Bolivia	1.9	1.5	92	Oman	0.2	0.6
40	Philippines	1.7	0.2	93	Costa Rica	0.2	0.4
41	Chad	1.6	0.9	94	Djibouti	0.1	1.2
42	Korea - Dem. Rep.	1.6	0.9	95	Thailand	0.1	0.0
43	South Africa	1.5	0.3	96	Cuba	0.1	0.2
44	Guinea	1.5	0.9	97	Moldova	0.1	0.7
45	Niger	1.5	0.5	98	Guyana	0.1	1.6
46	Uzbekistan	1.5	0.5	99	Turkey	0.1	0.0
47	Eritrea	1.4	1.8	100	Jordan	0.1	0.1
48	Haiti	1.4	1.2	101	Guatemala	0.1	0.0
49	Estonia	1.4	1.8	102	Panama	0.1	0.2
50	Palestinian adm.areas	1.3	2.1	103	Maldives	0.1	1.6
51	Congo - Rep.	1.2	1.6	104	Tunisia	0.1	0.1
52	Yemen	1.2	0.3	105	Algeria	0.1	0.0
53	Togo	1.2	1.2	106	Syria	0.1	0.0

Based on data from six donors. No country level data was available for World Bank and USAID.