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Ethiopia
A Country Status Report on Health and Poverty

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CURRENCY EQUIVALENTS
(Exchange Rate Effective August 6, 2004)

Currency Unit	=	Birr
Birr 8.45	=	US$1
US$1	=	1.46275 SDR

FISCAL YEAR
July 8 - July 7

ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome	MMR	Maternal Mortality Ratio
ANC	Antenatal Care	MOF	Ministry of Finance
ARI	Acute Respiratory Infection	MOH	Ministry of Health
BCG	Bacillus Calmette Guerin	MOJ	Ministry of Justice
BMI	Body Mass Index	NFFS	National Family and Fertility Survey
BOD	Burden of Disease	NGO	Non-Governmental Organization
CSA	Central Statistical Authority	NMOVDC	National Malaria and Other Vector Borne Diseases Control
CSR	Country Status Report	ORS	Oral Rehydration Solutions
DALY	Disability Adjusted Life Years	ORT	Oral Rehydration Therapy
DLY	Discounted Life Years	PC	Private Clinic
DPT	Diphtheria, Pertussis and Tetanus	PHC	Primary Healthcare
EFY	Ethiopia Fiscal Year	PHC/U	Primary Health Care/Unit
EPI	Expanded Program on Immunization	PHS	Potential Health Service
FLHW	Female Health Workers	PHRD	Policy and Human Resource Development
FMOH	Federal Ministry of Health	PPD	Planning Department
FP	Family Planning	PO	Project Office
GDP	Gross Domestic Product	PRSP	Poverty Reduction Strategy Paper
GER	Gross Enrollment Rate	RHB	Regional Health Bureau
GM	Growth Monitoring	SD	Standard Deviation
GMP	General Medical Practitioner	SIDA	Swedish International Development Agency
GOE	Government of Ethiopia	SDPRP	Sustainable Development and Poverty Reduction Program
GP	General Practitioner	SNNPR	Southern Nations, Nationalities and Peoples Region
HC	Health Center	SSA	Sub-saharan Africa
HE	Health Education	STD	Sexually Transmitted Disease
HF	Health Facility	TB	Tuberculosis
HH	Household	TFR	Total Fertility Rate

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HICES	Household Income, Consumption and Expenditure Survey	TGE	Transitional Government of Ethiopia
HP	Health Post	TT	Tetanus Toxoid
HSEP	Health Services Extension Package	U5MR	Under-five Mortality Rate
HSCSR	Health Sector Country Status Report	UNESCO	United Nations Educational, Scientific and Cultural Organization
HIV	Human Immunodeficiency Virus	UNFPA	United Nation Fund for Population Activities
HS	Health Station	WB	World Bank
IEC	Information, Education and Communication	WBCAS	The World Bank Country Assistance Strategy
IMR	Infant Mortality Rate	WDR	World Development Report
IUD	Intrauterine Device	WH	Weight for Height
LDC	Least Development Countries	WHO	World Health Organization
MBB	Marginal Budgeting for Bottlenecks	WMS	Welfare Monitory Survey
MCH	Maternal and Child Health		
MDG	Millennium Development Goals		
MEDAC	Ministry of Economic Development and Co-operation		

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ACKNOWLEDGMENTS

1. INTRODUCTION

1.1   Ethiopia is located in Northeast Africa, commonly referred to as Horn of Africa, and is situated east of Sudan, north of Kenya, south of Eritrea, west of Djibouti, and northeast of Somalia. Ethiopia is a country endowed with many resources, a diversified topography, and many nationalities. A multi-ethnic society, it serves as the home of about 80 ethnic groups (CSA 1998).

1.2   Ethiopia is a country of great geographical diversity. Its main topographic features range from Ras Dejene, the highest peak at about 4620m above sea level, down to the Afar depression (Kobar Sink) at about 110m below sea level. The Great Rift Valley separates the western and northern highlands from the southeastern and eastern highlands.   These highlands give way to vast semi-arid lowland areas in the east, west and especially in the south of the country. The country is divided into three major ecological zones: Kolla (arid lowlands below 1,000 meters above sea level), Weina Dega (land between 1000 meters and 1500 meters above sea level) and the Dega (highlands between 1500 and 3000 meters above sea level). About 40 percent of Ethiopia's total land area is comprised of highlands, which are found at elevations above 1500m. The annual rainfall of the highland area ranges between 500mm to over 2000 mm. The mean annual temperature in the highlands is below 20°c. The lowlands of Ethiopia cover about 60 percent of the total area of the country. Rainfall in the lowland areas is relatively low, often poorly distributed, and highly erratic. It ranges from 300mm to 700mm annually. The temperature in the lowland areas is consistently greater than 20°c.

1.3   Ethiopia is one of the poorest countries in the world. The country's per capita gross national income (GNI) of US$100 (US$720 in purchasing power parity (PPP) terms) in 2002 compares poorly with the sub-Sarahan Africa (SSA) country average per capita GNI of US$450 (US$1,620 in PPP terms) and is significantly lower than the world average of US$5,080 (US$ 7,570 in PPP terms) (World Development Indicators (WDI), 2003)[1]. Millions of Ethiopians continue to live in absolute poverty. The poverty headcount declined slowly from 45.5 percent in 1995 to 44.2 percent in 2000, with about 28 million Ethiopians below the poverty line (PRSCI PAD 2004, Worku 2004).[2] More than 50 percent of Ethiopians remain food insecure, particularly in rural areas. About ten percent of the population is chronically food insecure.

1.4   Over the past ten years, Ethiopia has been progressively undertaking economic reforms. The country has been operating a free market economy since 1991. The government introduced the Economic Recovery and Structural Adjustment Program in 1992 to stabilize the macro-economic framework by liberalizing foreign exchange markets. Structural reforms were initially emphasized in the agricultural sector where

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[1] In terms of GDP per capita (constant 1995 US$), Ethiopia's GDP was only US$123 in 2002 compared to the SSA average of US$575 and the world average of US$5,654 (WDR 2003).
[2] Using the absolute poverty line of Birr 1075 in 1995 prices, the Risk and Vulnerability Study (WB 2003) also finds that the national head count poverty rate also declined between 1995 and 2000 although the % decline was much higher (from 61% in 1995 to 48% in 2000).

various restrictions and quotas were either lifted or lowered. Legal, institutional and policy reforms were also undertaken to promote private sector investment. These economic measures paid positive dividends, reversing years of persistent decline in the per capita gross domestic product (GDP). Real GDP grew on average by 5.8 percent from 1992/93-2001/02, while population growth was about 2.7 percent over the same period. The Ethio-Eritrean border conflict affected GDP growth rates from 1998 to 2000, and in 2003 the economy declined sharply and experienced a negative growth rate as a result of the drought, which affected 14 million people.

1.5   The agricultural sector continues to be a major contributor to the overall Ethiopian economy although its contribution has decreased from 54.4 percent 1982 to 39.9 percent in 2002.[3] Agricultural productivity levels are low resulting from the decline of traditional farming systems, which is due to environmental degradation and rapid population growth. The sector is also highly vulnerable to external shocks as droughts have occurred every three years during the past decade. The human resource base for agricultural development is also largely illiterate and inadequately equipped with modern skills, inputs and equipment. As a result of these conditions, within the span of two decades, the services sector has emerged as the most dynamic sector, increasing its sectoral share from 33.2 percent in the 1980s to 47.6 percent in 2002. Within the same period, the industrial sector has maintained its sectoral share of 12 percent, although it experienced some decline in the 1990s.

1.6   Decentralization decision making power and responsibilities have been devolved over time to regional and local governments. When Ethiopia emerged from civil war in 1991, the Derg regime was replaced and, in 1994, a new constitution was introduced, creating a federal structure of government. The country's first multi-party elections were organized in 1995. Ethiopia now has a parliamentary federal government administering nine regional states and two administrative councils (Addis Ababa and Dire dawa), which are sub-divided into 560 woredas (districts). These woredas, in line with the country's decentralization policy, represent the basic units of planning and political administration. Below the districts are kebeles or peasant associations.

1.7   Ethiopia has a young and rapidly growing population, which places pressure on cultivatable lands. With a population of around 69.1 million in 2003, Ethiopia is the second most populous country in sub-Saharan Africa, preceded only by Nigeria (140 million). The population has been growing on average at a rate of two million persons annually from 2000 to 2005 (2.7 percent growth rate), which is fairly close to the average annual growth rate of sub-Saharan Africa (2.5 percent). Its population increased by more than ten million between 1984 and 1994 (Table 1-1) and by an additional 10 million by 2001.

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[3] While the share of agriculture has declined over time, it is still the primary source of employment for about 80% of the work force. It also comprises about 80 to 90% of merchandise export earnings (PRSC 2004).

Table 1-1: Population and Fertility Trends in Ethiopia

	1984 Census	1994 Census	2001 UNPOP	MOH 2002	DHS 2000
Population (millions)	42.6	53.5	64.4		
Inter-Census growth rate (percent)	3.1	2.9	2.5		
Life expectancy (years)			44		
Male	51.1	50.9		53.4	
Female	53.4	53.5		55.4	
Total Fertility Rate*			6.8		5.9
HIV/AIDS adult prevalence rate				6.6	
Number of adults (15-49) living with HIV/AIDS (millions)				2.2	
Religion (%)					
Orthodox					50.5
Muslim					29
Catholic					1.1
Protestant					15.8
Others					3.5

* The rate was 6.4 in 1990 (NFFS)

1.8   The majority of Ethiopians live in rural areas (83%). The urban population is growing at a much faster rate of 4.1 percent per annum compared to the slower rate of 1.9 percent in rural areas. Large-scale migration by the rural population in search of better employment opportunities in urban areas can explain this gap.

1.9   Population density is moderate relative to some SSA countries even though it is twice the average for SSA (Table 1-2). Population density is very high in the highlands and lowest in the eastern and southern lowlands. About 23.2 percent of the population is concentrated in nine percent of the country, putting pressure on cultivatable lands and contributing to environmental degradation (MOH 2002). On the other hand, about 50 percent of the land area is sparsely populated with nomadic or semi-nomadic tribes living in an arid or semi-desert environment. The population is young, with 44 percent of the population under the age of 15. This population structure connotes both a high dependency ratio and rapid exponential population growth in the future. If population growth does not decline in the coming years it is expected that the population of Ethiopia will double in about 25 years.

1.10   The average Ethiopian household is comprised of 4.8 persons. In rural areas, there are about 4.9 persons per household, while urban households have, on average, 4.2 persons. There are three times as many single–headed households in urban areas in rural areas (13 percent versus four percent). Ethiopian households are predominantly headed by males; less than 25 percent are headed by females (DHS 2000).

1.11   Approximately 85 percent of households rely on agriculture as their main source of livelihood. The average annual expenditure for an Ethiopian household in 2000 was Birr 5401, 60 percent of which was spent on food and only 1.1 percent of which was spent on health and medical care.

1.12   Access to basic social services is limited despite efforts made by the Government of Ethiopia (GOE) to ensure access. The SSA average for access to improved sanitation is 55 percent as compared to only 15 percent in Ethiopia. Approximately 24 percent of Ethiopians have access to improved drinking water. This is slightly less than half of the SSA average (55 percent).

1.13   Life expectancy is 42 years, which is slightly lower than the SSA average of 46 years. Sixty-one percent of Ethiopians are illiterate, which is much higher than the SSA average of 39 percent.

1.14   The success of public health initiatives depend on the awareness and literacy of the citizens. Thus, low literacy levels in Ethiopia pose a major challenge in achieving public health goals, a factor that needs to be noted and incorporated in planning, program implementation, and information, education and communication interventions. The primary school gross enrollment rate (GER) has tripled from 20 percent in 1993/94 to about 62 percent in 2001/02. However, Ethiopia's primary GER is still lower than the SSA average of 86 percent (Ethiopia at a Glance 2002). Even if the adjusted GER of 68 percent is used (making the rate comparable to the analysis of grades one through six used in other countries), it is only ahead of certain countries including Sierra Leone, Guinea, Sudan and the Democratic Republic of Congo (Education CSR Draft 2004).

1.15   While the Ethiopian constitution recognizes the equal rights of women and men, the country's traditional societal structure renders women in a vulnerable position. Traditional harmful practices are common: 80 percent of women have undergone some type of circumcision. The illiteracy rate for adult females is high at 66 percent (compared with 51 percent for adult males). An intense workload (Ethiopian women work an average of 15-18 hours per day and many domestic tasks are highly labor intensive) and early marriage (the average age at first marriage was 17.6 years in 1998) are common. Limited studies and police and media reports suggest that violence against women is quite high and increasing every year (SGCA 2004). In 2000, women occupied a very small percentage of key government decision making positions: 7.7 percent in the House of Representatives; 5.6 percent in the House of Federation; 13 percent in regional councils; and 14 percent in kebele councils (Ashenafi, EWLA, 2000).

PURPOSE OF THE HEALTH SECTOR COUNTRY STATUS REPORT

1.16   The Ethiopia Health Sector Country Status Report (HSCSR) aims to consolidate knowledge in order to lay the groundwork for discussing and refining strategies and policies in the health sector in Ethiopia. In theory, the developmental sequence is first to prepare the HCSR; then to discuss it with government counterparts; and lastly to collaborate with the government on designing a broad agenda for policy reform and implementation. In practice, however, the sequence has unfolded differently in Ethiopia. The preparation of the HSCSR began in July 2002, however, a draft Poverty Reduction Strategy Document was already prepared and approved by the WB and IMF Boards in September 2002. The main objective of Ethiopia's Sustainable Development and Poverty Reduction Program (known as SDPRP, the Ethiopian version of the Poverty Reduction Strategy Program (PRSP) is to reduce poverty by enhancing rapid economic growth and

maintaining macro-economic stability. A reduction in child and maternal mortality rates is among the key objectives of the Ethiopia SDPRP. One key strategic option of the PRSP for reducing maternal and child mortality is to expand the provision of essential health and nutrition services to the rural poor of Ethiopia.

1.17   The World Bank Country Assistance Strategy (WBCAS) for 2003-2005 will provide support to Ethiopia's SDPRP and thereby assist in the country's program to reduce poverty and achieve the Millennium Development Goals (MDGs). In particular, the WBCAS seeks to enhance pro-poor growth, improve human development outcomes, reduce vulnerability, and improve governance. The HSCSR is also expected to contribute to the medium-term health sector strategic planning process for the period 2005-2010 and preparation of the Health Sector Development Program 3 (HSDP3), a share of which will be funded under the Poverty Reduction Strategy Credits (PRSCs).

1.18   To contribute to the SDPRP, the WBCAS, the medium-term sector strategic planning process, the Ethiopia HSCSR report seeks to:

(a) Consolidate and improve health sector knowledge, with a particular focus on identifying key health nutrition population (HNP) issues for the poor in Ethiopia;

(b) Provide input into the preparation of HSDP3 and the PRSCs, as well as to the revised version of the SDPRP based on a menu of strategic options for the health sector, and make recommendations for public expenditure reform and poverty reduction; and

(c) Establish an objective benchmark for tracking subsequent policy development and dialogue.

1.19   To structure the analysis in a systematic manner, the Ethiopia HSCSR will follow the HNP and PRSP Framework, identifying the key factors at the household, community and health system levels that have an impact on health outcomes.

**Figure 1-1: HNP/PRSP Framework: Determinants
of Health Related Poverty Outcomes**

Health Related Poverty outcomes	Households/Communities		Health system & related sectors	Government policies & actions
Health outcomes Health & nutritional status; mortality **Income protection** Out of Pocket Spending **Participation** Poor's empowerment	**Household behaviors & risk factors** Use of public & private health services, dietary and sanitary practices, lifestyle, care & stimulation of children, etc. **Community factors** environment, culture, values, social capital, ecology, geography, etc.	**Household resources** Income, assets, land, education, etc.	**Health service supply** Availability, accessibility, prices & quality of health services **Other parts of health system** Health input markets. Health financing system. **Supply in related sectors** Availability, accessibility, prices & quality of food, energy, roads, water & sanitation, etc.	**Health policies:** e.g. financing and expenditure, provision, stewardship, inter-sectoral, evaluation & monitoring. **Other govt. policies,** e.g. infrastructure, transport, energy, agriculture, water & sanitation, etc.

Source: Claeson M. et al 2001 cited in Soucat and Diop 2001

1.20   In addition to this introductory chapter, the Ethiopia HSCSR is comprised of six other chapters. It is structured in the following manner:

- Chapter 2 describes basic health outcomes in Ethiopia with comparisons over time, between urban and rural areas and across regions and income levels.

- Chapter 3 analyzes (to the extent that data allow), the factors at the household and community levels that affect health outcomes. These include knowledge about health issues such as appropriate feeding of infants; health-seeking behavior; and utilization of preventive health and reproductive health services, as well as basic services of curative care for child and maternal health.

- Chapter 4 examines household expenditures on healthcare. This section on household spending will describe the pattern of household out-of-pocket spending in relation to income and types of services used.

- Chapter 5 assesses the performance of the Ethiopian health service delivery system. The performance of the sector is analyzed by comparing indicators of coverage of key health interventions by region, urban/rural classifications, and income groups.

- Chapter 6 examines how public spending is allocated across different levels of care by region and by urban/rural location. The chapter compares the actual level of financing with the Federal Democratic Republic of Ethiopia's (FDRE) intended levels and determines whether adequate levels of resources are allocated to address the needs of the poor.

- Chapter 7 evaluates potential financing options and corresponding costs, as well as the impact of Ethiopia's efforts to increase health service coverage.

The chapter places a particular focus on effective preventive and curative health interventions.
- Chapter 8 outlines the strengths of the health sector and other policy issues to be used for future discussions emerging from the analysis.

1.21 The HSCSR relies on existing data sources including: the Demographic and Health Survey (DHS) 2000 for Ethiopia; (b) Welfare Monitoring Surveys (WMS); the Household Income, Expenditure and Consumption Survey (HICES) 1995/96 and 1999/2000; reports produced by the Program and Planning Department (PPD)/MOH, reports from the service and program departments of the MOH; facility level surveys including the Policy and Human Resource Development (PHRD) Health Facilities 1996 Study; and other sector reports such as those from the Health Sector Development Program (HSDP).

1.22 To set the stage for the rest of the report, a summary of HNP status indicators and HNP service indicators are presented by wealth quintiles (Table 1-1).

1.23 Wealth-based differentials in health status and services indicators underscore the gap between the rich and the poor in Ethiopia, which, as the next sections will show, is still relatively lower than the gaps in other countries. In particular, infant mortality rates (IMR) are more than 16 percent higher and under-five mortality rates (U5MR) are 31 percent higher among children from the poorest quintile (compared to children from the richest quintile). Severe underweight is almost 260 percent higher in children from the poorest quintile than in children from the richest quintile. Around 17 percent of the children from the poorest quintile had none of the standard immunizations, while only 6 percent of the children from the richest quintile were lacking immunizations. Oral rehydration therapy (ORT) use during episodes of diarrhea is more than five times higher in wealthy households than in poor households. Antenatal care (ANC) is more than three times higher among the women from the richest quintile, and deliveries attended to by trained professionals is more than 25 times higher. A more extensive analysis of inequities will be presented later in this report. The evidence presented here should sufficiently underscore the need to closely examine health sector related issues in Ethiopia and to assess successful and unsuccessful policies targeted to assist the poor in order to enhance the responsiveness of HNP policy and programs in addressing equity issues.

1.24 This report will also study urban/rural and regional differences. National averages tend to mask regional differences, particularly within the context of Ethiopia, a country comprised of 11 regions (nine regions and two administrative urban councils: Addis Ababa and Dire Dawa). These regions have different agro-climatic zones; levels of development capacity and organization; and population size and characteristics, resulting in different health outcomes (Table 1-3).

1.25   The regional states and administrative councils are differentiated into three broad categories (HSDP PAP 1998):

- Large, central, highly-populated regions: Tigray, Amhara, Oromiya and SNNPR;
- Urban regions/administrative councils: Addis Ababa , Dire Dawa and Harari; and
- Newly emerging, peripheral regions: Afar, Somali, Benishangul-Gumuz and Gambella.

1.26   Tigray, SNNPR and three out of the four emerging regions (Afar, Benshangul Gumuz and Gambella) have poverty head count ratios that exceed 50 percent. Tigray has the highest level of poverty ratio at 61 percent. The emerging regions generally have less favorable health indicators; less developed health infrastructure, including a more limited availability of qualified health providers and managers; and a higher percentage of pastoralist communities than do the other regions.

Table 1-2: Health, Population and Select Economic Indicators of Ethiopia and Other sub-Saharan African Countries (2000)

Indicator	CF	TD	ZR	CG	ER	ET	KE	MW	MZ	NA	NG	NE	SO	SD	TZ	UG	ZM	ZW	BW	S.A.	SSA	WD
Birth rate, crude (per 1,000 people)	36.1	44.9	45.7	42.5	38.7	43.8	34.5	45.8	40.3	35.6	39.6	50.6	50.9	34.3	39.4	45.4	40.0	29.8	32.0	25.8	39.5	21.5
Death rate, crude (per 1,000 people)	19.5	16.3	16.5	14.1	12.8	20.1	14.2	24.2	20.4	17.0	16.2	19.3	17.5	11.5	17.2	19.2	21.4	17.7	19.9	16.0	16.8	9.1
Fertility rate, total (births per woman)	4.7	6.4	6.1	6.0	5.4	5.6	4.4	6.3	5.1	5.0	5.3	7.2	7.1	4.6	5.3	6.2	5.3	3.8	4.0	2.9	5.2	2.7
GDP per capita (constant 1995 US$)	339	218	..	841	155	116	328	169	191	2408	254	203	..	319	190	348	392	621	3951	3985	564	5631
GDP per capita, PPP (current international US$)	1172	871	..	825	837	668	1022	615	854	6431	896	746	..	1797	523	1208	780	2635	7184	9401	1683	7415
Illiteracy rate, adult total (% of people ages 15 and above)	53.3	57.4	38.6	19.3	44.3	60.9	17.6	39.9	56.0	18.0	36.1	84.1	..	42.2	24.9	32.9	21.9	11.3	22.8	14.7	38.5	..
Improved sanitation facilities (% of population with access)	31.0	29.0	20.0	..	13.0	15.0	86.0	77.0	43.0	41.0	63.0	20.0	..	62.0	90.0	75.0	78.0	68.0	..	86.0	54.8	56.2
Improved water source (% of population with access)	60.0	27.0	45.0	51.0	46.0	24.0	49.0	57.0	60.0	77.0	57.0	59.0	..	75.0	54.0	50.0	64.0	85.0	..	86.0	55.4	80.5
Life expectancy at birth, total (years)	43.5	48.5	45.7	51.3	52.0	42.3	47.0	38.8	42.4	47.2	46.8	45.7	48.1	56.2	44.4	42.1	38.0	39.9	39.0	47.8	46.5	66.5
Mortality rate, under 5 (per 1,000 live births)	152	188	163	106	103	179*	120	193	200	112	153	248	195	..	149	161	186	116	99	79	162	78
Population (in millions)	3.7	7.7	50.9	3.0	4.1	64.3	30.1	10.3	17.7	1.8	127.0	10.8	8.8	31.1	33.7	22.2	10.1	12.6	1.6	42.8	659.0	60.6
Population density (per sq km)	6.0	6.1	22.5	8.8	40.6	64.3	52.9	109.6	22.6	2.1	139.3	8.6	14.0	13.1	38.1	112.7	13.6	32.6	2.8	35.1	27.9	46.6
Population growth (annual %)	1.4	2.7	2.7	2.8	2.6	2.4	2.3	2.1	2.2	2.2	2.4	3.3	3.6	1.7	2.3	2.7	2.1	1.9	0.9	1.6	2.4	1.3
Urban population growth (annual %)	2.4	4.1	3.8	4.2	4.3	4.9	5.0	4.6	5.5	3.7	4.5	5.7	4.9	4.4	4.9	5.1	2.8	3.9	1.9	2.2	4.3	2.1
Rural population (% of total population)	58.8	76.2	69.7	37.5	81.3	82.4	66.9	84.6	59.8	69.1	56.0	79.4	72.5	63.9	72.2	85.8	55.5	64.7	49.7	45.0	65.6	53.0
Rural population growth (annual %)	0.7	2.4	2.3	0.7	2.3	1.9	0.9	1.7	0.1	1.6	0.8	2.8	3.1	0.2	1.3	2.3	1.6	0.8	-0.2	0.9	1.4	0.6

CF   CAR
TD   CHAD
ZR   CONGO DR
CG   CONGO R
ER   ERITREA
ET   ETHIOPIA

KE   KENYA
MW   MALAWI
MZ   MOZAMBIQUE
NA   NAMIBIA
NG   NIGERIA
NE   NIGER

SO   SOMALIA
SD   SUDAN
TZ   TANZANIA
UG   UGANDA
ZM   ZAMBIA
ZW   ZIMBABWE

BW   BOTSWANA
SA   SOUTH AFRICA
SSA   SUB-SAHARAN AFRICA
WD   WORLD

Source: World Development Indicators, 2002, World Bank.
*Note: Figure obtained from Population Reference Bureau

Table 1-3: Summary of HNP Indicators for Ethiopia by Wealth Quintiles

Indicator	Summary Definition (*)	Poorest	2nd	Middle	4th	Richest	Average	Ratio
		Quintiles					Population Poor/Rich	
HNP Status Indicators								
IMR	Deaths under age 12 months per thousand births	93.5	86.9	110.4	95.4	80.5	97.0	1.16
U5MR	Deaths under 5 years per thousand births	149.6	189	174	157.2	114.1	166.2	1.31
Children stunted (%)	Below-2 sd z-score, height for age, children under 5 years	54.9	53.8	51.3	52.5	41.6	51.2	1.32
Children underweight (% moderate)	Below-2sd z-score, weight or age, children under 5 years	53.9	48.0	48.2	46.0	36.7	47.1	1.47
Children underweight (% severe)	Below-3 sd z-score, weight or age, children under 5 years	19.9	17.4	16.9	16.3	7.7	16.0	2.6
Low maternal BMI (%)	Body Mass Index <18.5	26.5	23.0	27.5	26.1	25.3	25.7	1.05
Total fertility rate	Births per woman age 15-49	6.4	6.3	6.6	6.4	3.9	5.8	1.6
Age specific fertility rate (15-19 years)	Births per 1000 women age 15-19	127	130	140	102	70	109	1.8
HNP Service Indicators								
Immunization coverage (%):	Children age 12-23 months, by vaccination card or mother's report							
- Measles		19.8	15.3	23.5	28.1	52.0	26.6	0.38
- DPT3		14.1	8.6	20.9	22.0	45.2	21.1	0.31
- All		6.7	5.6	15.4	15.1	33.3	14.3	0.20
- None		16.9	22.9	16.2	16.6	6.4	16.2	2.65
Medical Treatment of Illnesses								
Treatment of Diarrhea (%):								
- Prevalence	% ill in the preceding 2 weeks	23.3	25.9	25.0	22.9	20.4	23.7	1.14
- ORT use	ORS, RHF	8.4	11.8	20.2	18.7	42.4	18.6	0.19
- Seen medically	Brought to a health facility if ill	11.5	12.9	14.4	14.4	33.4	16.1	0.34
- % seen in a public facility	Among those medically treated	7.8	7.9	9.9	9.0	21.1	10.4	0.36
Treatment of Acute Respiratory Infection (%):								
- Prevalence	% ill in the preceding 2 weeks	22.7	25.8	26.7	26.2	20.2	24.5	1.12
- Seen medically	Brought to a health facility if ill	14.2	13.7	16.2	17.8	36.9	18.4	0.38
- % seen in a public facility	Among those medically treated	11.4	10.3	12.1	12.4	23.3	13.1	0.49
Antenatal care visits (%):								
- to a medically trained person	Doctor, nurse, or nurse-midwife	15.3	16.4	20.6	28.7	58.2	26.5	0.26
2+ visits delivery attendance (%):								
- by a medically trained person	Doctor, nurse, or nurse-midwife	0.9	1.5	1.4	4.8	24.3	5.7	0.03
- % in a public facility		0.7	1.0	1.1	3.7	21.0	95.9	0.03
- % in a private facility		0.13	0.09	0.3	0.7	1.1	4.7	0.11
- % at home family planning (%)		99.2	98.9	98.6	95.6	77.9	0.4	1.27
Family planning (FP) (%):								
- Female married contraceptive use	A modern method	2.0	1.3	2.0	3.3	12.8	4.7	0.16
- Female married contraceptive use	Any method	3.4	2.3	4.1	5.7	27.5	8.0	0.12
- Women approves FP		57.7	55.7	53.6	64.5	77.8	62.6	0.74
- Husband approves FP		29.5	26.8	25.3	32.4	59.4	34.0	0.49
- Knows about a modern method		75.5	75.5	75.0	81.9	93.1	80.8	0.81
- Knows source of modern method		30.7	26.4	28.4	35.2	57.0	36.6	0.53
- Ideal number of children more than five		57.3	57.1	59.2	52.6	29.6	50.1	1.93
Knowledge of HIV/AIDS prevention (%):	Knows sexual transmission routes of HIV/AIDS							
- Females		81.4	80.3	80.2	85.0	94.7	85.3	0.86
Source: DHS 2000 and Authors' calculations								

Table 1-4: Socio-Economic & Demographic Indicators of Ethiopia by Region

Region	Population (millions)		Percentage of total population	Poverty head count		Annual population growth rate (%) 2000-2005	TFR (births/woman) 2000	Contraceptive prevalence rate (CPR) (%) 2000	Total unmet need for FP (%) 2000	Infant mortality rate (deaths per 1000 births) 2000	Under age 5 mortality (death per 1000 births) 2000
	2003	2015		1995/96	1999/2000						
Tigray	4.00	5.42	5.83	56.1	61.4	2.67	5.8	10	28.0	104	169
Afar	1.30	1.66	1.93	33.1	56.0	2.22	4.9	8	12.3	129	229
Amhara	17.65	23.92	25.70	54.3	41.8	2.67	5.9	8	40.9	112	183
Oromiya	24.36	23.65	35.18	34.0	39.9	2.87	6.4	7	36.4	116	194
Somali	4.0	5.41	5.84	30.9	37.9	2.63	5.7	3	14.3	99	184
Ben-Gumuz	0.58	0.77	0.85	46.8	54.0	2.54	5.4	9	31.9	98	198
SNNPR	13.66	18.80	19.67	55.8	50.9	2.92	5.9	6	35.5	113	192
Gambella	0.23	0.30	0.32	34.3	50.5	2.57	4.5	14	34.4	123	233
Harari	0.17	0.26	0.25	22.0	25.8	3.40	4.4	22	30.1	118	191
Addis Ababa	2.71	3.79	3.93	30.2	36.1	2.80	1.9	45	19.2	81	114
Dire Dawa	0.35	0.54	0.50	29.5	33.1	3.80	3.6	28	24.5	106	176
Rural	58.32	77.05	84.5	47.5	45.4	2.55	6.4	4	37.3	115	193
Urban	10.71	17.48	15.5	33.2	36.9	4.18	3.3	36	25.0	97	149
National	69.13	94.53	100	45.5	44.2	2.73	5.9	8.1	35.8	97	166

Source: Population Profile of the National Office of Population and DHS 2000

2. HEALTH OUTCOMES

2.1   This chapter analyzes the status of maternal and child health outcomes, which are key indicators targeted by the Millenium Development Goals (MDGs). The analysis includes:

- Basic health outcome indicators with comparisons over time;
- An assessment of the burden of health problems on the poor relative to the rich;
- An analysis of the levels and trends in inequities over a period of time;
- Sub-national analysis of health outcomes between urban and rural areas and across regions; and
- A description of the key health problems that affect the poor including priority diseases that contribute most to the burden of disease, child and maternal mortality, etc.

CHILD MORTALITY

2.2   Child mortality has declined in Ethiopia over the past 15 years and the decline has been more pronounced over the last ten years. Figure 2-1 presents neonatal, infant and under-five mortality rates for the three most recent five-year periods before the Demographic and Health Survey (DHS) 2000. Nonetheless, almost one in every ten babies born in Ethiopia (97 per 1,000) does not survive to celebrate its first birthday, and one in every six children dies before its fifth birthday. Under-five mortality rates (U5MR) are 21 percent lower now than it was five to nine years ago. The corresponding decline in neonatal and post-neonatal mortality over the same period is 29 percent and 21 percent, respectively.

Figure 2-1: Ethiopia and the Global Trends in Infant Mortality and Under-Five Mortality

Source: World Development Indicators, World Bank, Washington, D.C
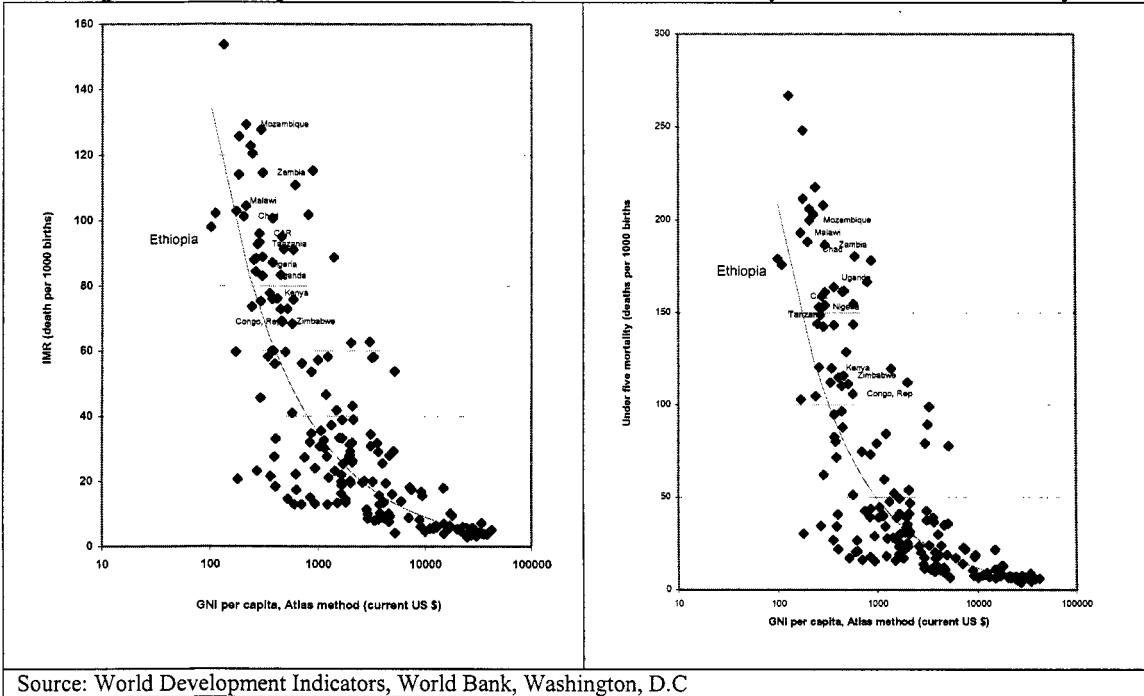
Figure 2-2: IMR and Poor/Rich Inequalities in Various Countries
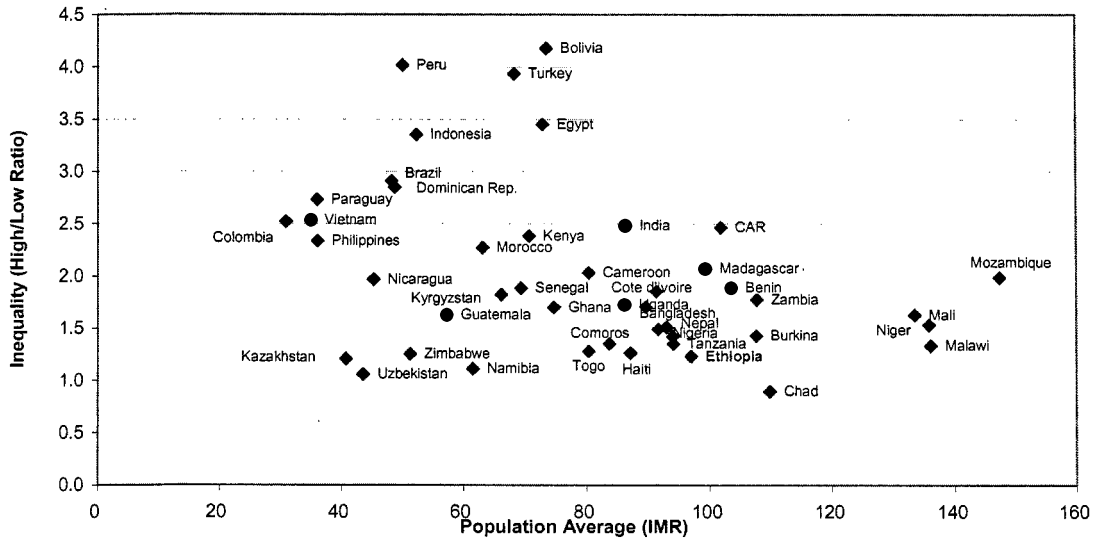
2.3   How does Ethiopia fare compared to other countries with regards to child survival relative to per capita income? Figure 2-1 and Figure 2-2 indicate that although Ethiopia has very high IMR and U5MR, the rates are lower than those of countries with similar per capita incomes (Ethiopia's scatter plot point is left of the trend line in both cases as depicted in Figure 2-1). Figure 2-2 confirms that while Ethiopia's IMR is high, intra-country inequities between rich and poor are low. Going forward, Ethiopia should try to maintain these low inequity levels while reducing the high levels of child mortality.

Figure 2-3: Trends in U5MR in Ethiopia Compared to Other Regions of the World
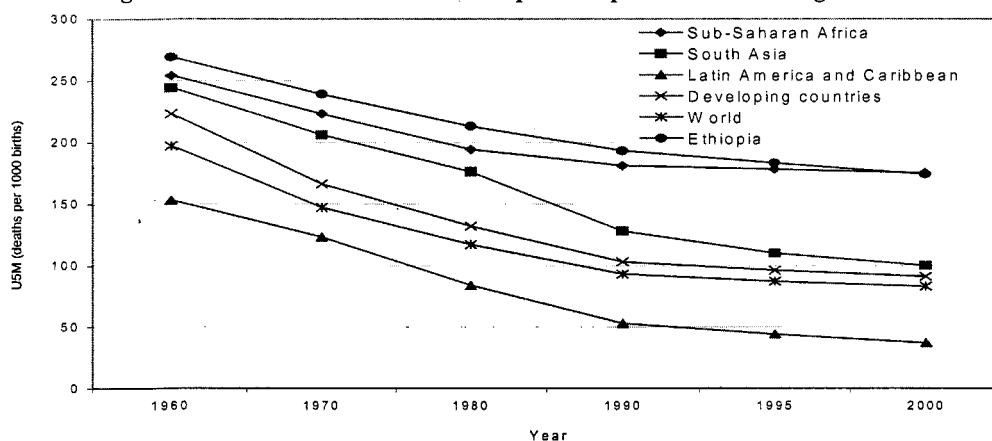
Source: UNICEF, 2002

Table 2-1: Trends in IMR of Selected Countries in sub-Saharan Africa, 1960-2000

Country	Trends in IMR					Decadal decrease in IMR (negative indicate increases)				Rank in 1980-90	Rank in 1990-2000
	1960	1970	1980	1990	2000	1960-70	1970-80	1980-90	1990-2000		
CAR	187	149	121	115	115	20.3	23.1	5.2	0.0	8	9
Chad	195	149	124	118	118	23.6	20.2	5.1	0.0	9	8
Congo	143	100	88	83	81	30.1	13.6	6.0	2.4	7	6
Congo DR	175	147	130	128	128	16.0	13.1	1.6	0.0	11	7
Ethiopia	180	160	143	128	117	11.1	11.9	11.7	8.6	4	5
Kenya	122	96	73	63	77	21.3	31.5	15.9	-22.2	2	12
Malawi	205	189	157	146	117	7.8	20.4	7.5	19.9	6	1
Mozambique	180	163	140	143	126	9.4	16.4	-2.1	11.9	12	4
Sudan	123	104	86	75	66	15.4	20.9	14.7	12.0	3	3
Tanzania	142	129	106	102	104	9.2	21.7	3.9	-2.0	10	10
Uganda	133	110	108	100	81	17.3	1.9	8.0	19.0	5	2
Zambia	126	109	92	108	112	13.5	18.5	-14.8	-3.7	13	11
Zimbabwe	97	86	69	53	73	11.3	24.6	30.2	-37.7	1	13

Source: UNICEF www.childinfo.org

2.4   Table 2-1 shows that Ethiopia has experienced a slow but steady decline in IMR since 1960, with an average IMR reduction of 10 percent each decade. The country fared particularly well during the 1980s and 1990s when many of the other SSA countries showed stagnation or even increases in IMR.[4] Figure 2-3 shows the trends in under-five mortality in Ethiopia between 1960 and 2000 and compares it with other regions of the world. It indicates that Ethiopia's mortality rate, which used to be higher than the SSA

[4] More analysis is needed to explain this trend. Some possible contributing factors could be price stability and community health agents mobilization to undertake growth monitoring and health promotion activities during this period.

average in 1960, is slowly falling towards the SSA average. However, it is still high compared to South Asia and other developing countries.

2.5   Reaching child survival MDGs at the current pace will be challenging. In order to reach the child survival MDG target by 2015, Ethiopia would have to reduce under-five mortality at the rate of 5.2 per 1000 live births each year starting in the 1990s. However, between 1990 and 2000, the rate of decrease of under-five mortality has only been about 1.9 per 1000 live births per year (Figure 2-4). Moving forward, Ethiopia would have to reduce child mortality by 7.4 per 1000 live births per year between 2003 and 2015 to achieve the MDG target. This is extremely challenging given the country's past track record as well as the plethora of unmet needs for child survival in Ethiopia, which this report will highlight. However, through appropriate, cost-effective strategies, many of the factors contributing to child mortality can be mitigated.

Figure 2-4: Achieving MDG for Child Survival
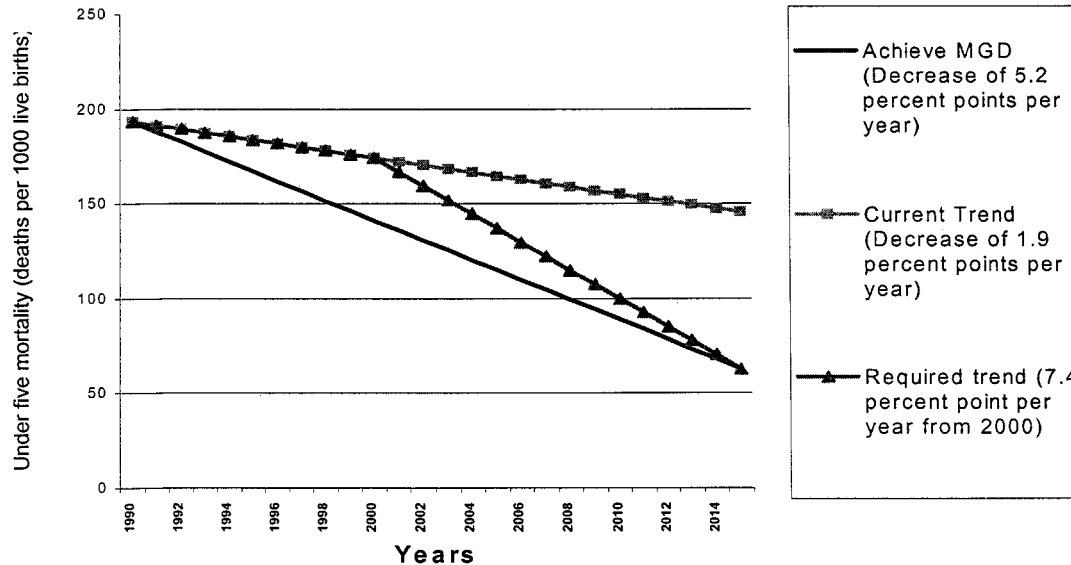
2.6   Wealth-based inequities remain large, yet they are lower relative to those in other countries with similar per capita incomes. While IMR and U5MR are high in all regions and income groups, on average, wealthier urban children are surviving longer. The infant mortality rates are 96.5 and 114.7 in urban and rural areas respectively. U5MR are 148.6 and 192.5 in urban and rural areas respectively. Regional variations are even more pronounced (Figure 2-5): Addis Ababa has the lowest IMR (81) and under-five mortality (113), while Gambella has the highest IMR (123) and under-five mortality (233).

Figure 2-5: Regional Variation in IMR and U5MR in Ethiopia
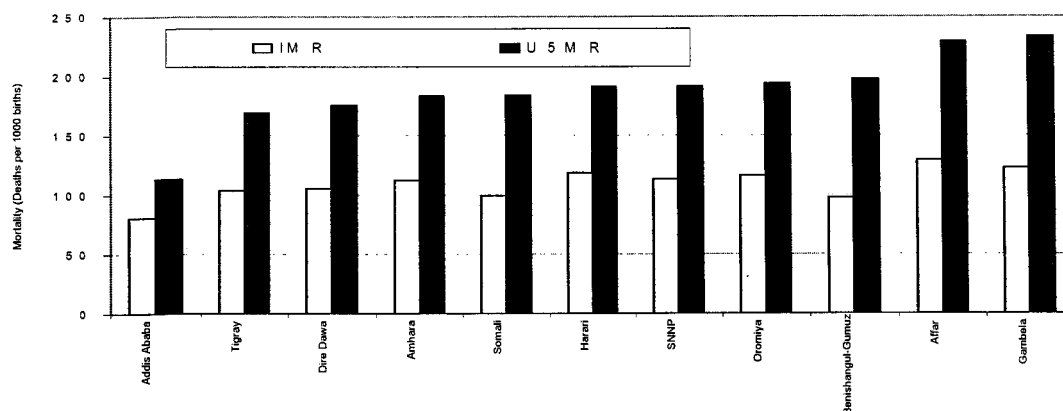
2.7   The differentials in child mortality by wealth quintiles are also prominent. For example, the IMR in the poorest quintile is 93.5 while in the richest quintile it is 80.5. Likewise, the U5MR in the poorest quintile is 149.6and 114 in the richest quintile. Girls have lower IMR (110) and U5MR (178) relative to boys (124 and 197 respectively).

2.8   High mortality rates can be partly related to living conditions and high incidence of illness.

2.9   Table 2.2 shows the reported morbidity by age and income quintile during the two months prior to the survey. Overall morbidity is 27 percent, but it is much higher among those older than 50 years and younger than five years. Reported morbidity in children less than five years old during the two-month survey period was 34 percent (Table 2-2)[5] Reported morbidity does not differ significantly by income quintile.

Table 2-2: Morbidity by Age Reported in the Two Months prior to the Survey

Age Category	Population Average	Poorest Quintile	Richest Quintile
<5 years	34.29	32.99	36.11
5-14 yrs	16.7	16.69	17.12
15-49 yrs	27.23	29.32	24.63
>50 yrs	47.28	47.43	48.26
Total	**27.2**	**27.36**	**27.14**
Source: WMS 2000			

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[5] Two sources of data are available to assess child morbidity levels in Ethiopia. The Welfare Monitoring Surveys (WMS), 2000 sought information about prevalence of illness in all age groups of population.. The other source of child morbidity is the DHS 2000. In DHS 2000 child morbidity relating to acute respiratory illness and diarrhea during two weeks prior to the survey was sought.

2.10   Table 2-3 reports overall morbidity by regions and income quintile. Reported morbidity is highest in Benshangul (38 percent) and Dire Dawa (36 percent) and lowest in Addis Ababa (17 percent), the capital of Ethiopia and the most urbanized among the regions. The national rich to poor ratio is 1.0, indicating that the reported incidence of illness among the rich and poor is the same. The rich to poor ratio is highest in Harari (1.3) and lowest in Dire Dawa (0.7).

Table 2-3: Overall Morbidity during the Two Months prior to the Survey by Region and Income Quintile

Region	Yes	No	Poorest	2nd Poorest	Middle	2nd Richest	Richest	Rich to poor ratio
Tigray	31	69	33	34	30	31	29	0.9
Afar	25	75	27	17	23	30	30	1.1
Amhara	29	71	28	27	29	31	31	1.1
Oromiya	26	74	26	26	25	27	26	1.0
Somali	33	66	27	32	38	37	31	1.2
Benshangul	38	62	37	41	35	38	40	1.1
SNNPR	26	74	27	24	24	26	27	1.0
Gambela	33	67	33	29	29	30	41	1.2
Harari	25	75	19	26	28	24	25	1.3
Addis Ababa	17	83	22	18	16	17	17	0.8
Dire Dawa	36	64	49	39	30	35	35	0.7
National	**27**	**73**	**27**	**26**	**27**	**29**	**27**	**1.0**

Source: WMS 2000

2.11   The top ten reasons for outpatient visits, inpatient admissions and death from MOH service statistics are summarized in Table 2-4. A majority of the top ten causes of morbidity are communicable diseases.

Table 2-4: Top Ten Causes for Outpatient Visits, Inpatient Admissions and Death in Ethiopia

	Outpatient visits			Inpatient Admissions			Death	
	Number	%		Number	%		Number	%
1 All types of malaria	549,632	15.5	All types of malaria	31,470	20.4	All types of malaria	1204	27.0
2 Helminthiasis	253928	7.2	Deliveries w/o complication	14,695	9.5	All types of TB	511	11.5
3 Acute upper respiratory infection	200,178	5.7	Bronchopneumo nia	6767	4.4	Bronchopneumoni a	278	6.2
4 Dysentery	170,403	4.8	All types of TB	6608	4.3	Primary atypical, other & unspecified pneumonia	194	4.4
5 Gastritis and Duodenitis	132,638	3.7	Dysentery	4348	2.8	Tetanus	101	2.3
6 Bronchopneumo nia	124,336	3.5	Other complications of pregnancy, childbirth & the puerperium	4049	2.6	Lobar pneumonia	89	2.0
7 Infections of skin and subcutaneous tissue	117,588	3.3	Relapsing fever	3777	2.5	Hypertension	90	2.0
8 All other infective and parasitic diseases	82,579	2.3	Abortion w/o sepsis or toxaemia	3653	2.4	Dysentery	82	1.8
9 All other diseases of Genito-urinary system	81,648	2.3	Primary atypical, other & unspecified pneumonia	3322	2.2	Pyrexia of unknown origin	68	1.5
10 Primary atypical, other, and unspecified pneumonia	74,742	2.1	Helminths	1015	2.0	Relapsing fever	42	0.9
Total of all the above cases	1,787,672	50.5	Total of above case	81774	53.1	Total of all the above cases	2659	59.6
Total of all cases	**3,542,231**	**100.0**	**Total of all cases**	**154032**	**100.0**	**Total of all cases**	**4459**	**100.0**

Source: PPD, MOH Health and Health-related Indicators. 2002/03
Note: Data does not include Amhara, Oromia, and Somali (three of the largest regions in Ethiopia)

2.12   The incidence of illness contributing to avoidable deaths caused by acute respiratory illness ARI (24.4 percent) and diarrhea (23.6 percent) are higher among under-five children in Ethiopia than in SSA comparison countries (Table 2-5). On average, children under five-years-old experience about two episodes of serious illness per year.[6]

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[6] Acute Respiratory Infection (ARI) is one of the major causes of childhood morbidity and mortality throughout the world. Diarrhea has been selected for analysis because dehydration due to diarrhea is a major cause of death among young children.

Table 2-5: ARI and Diarrhea Incidence (2000)

Country	Percent of children under 5 with ARI in the two weeks prior to the survey	Percent of children under 5 with diarrhea in the two weeks prior to the survey
CAR	28.2	26.5
Chad	12.5	31.2
Nigeria	11.3	15.3
Ethiopia	**24.4**	**23.6**
Kenya	20.1	17.1
Malawi	12.3	16.1
Mozambique	11.8	20.7
Tanzania	13.9	12.4
Uganda	27.1	23.5
Zambia	12.7	23.5
Zimbabwe	15.8	13.9

Source: UNICEF, 2002

2.13   Figures 2-6 and 2-7 show the prevalence of ARI and diarrhea during the two week period prior to the survey in the poorest and the richest quintiles along with the population averages for selected countries. Differentials exist between the rich and the poor quintiles [the prevalence of diarrhea in the poorest quintile (25 percent) is higher than in the richest quintile (19 percent)], but the gap appears to be narrower than in other countries.

Figure 2-6: ARI in Children Under Five during the Two Week Period prior to Survey Sorted by Income quintiles
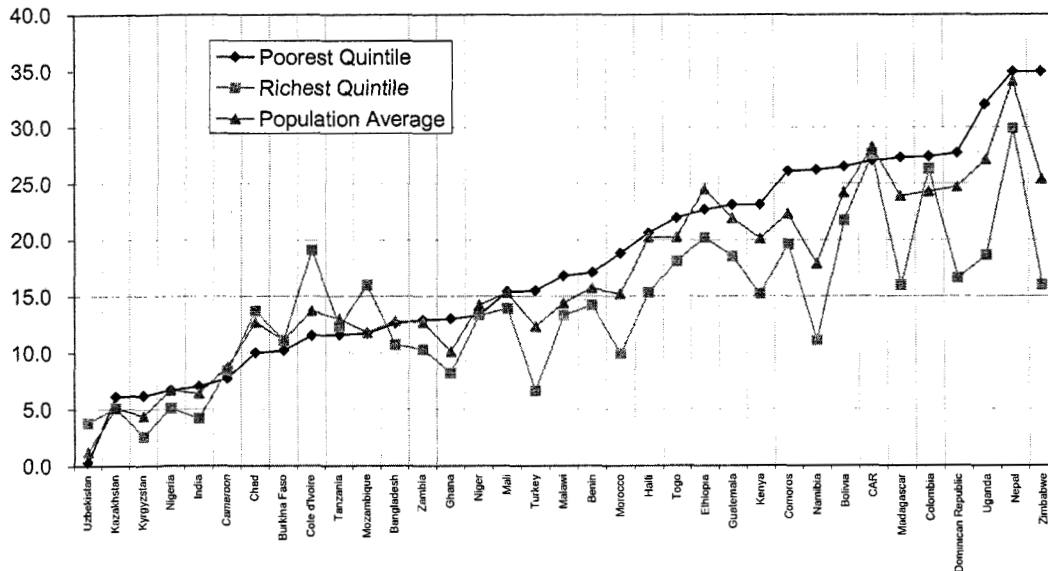
Figure 2-7: Diarrhea in Children under Five during the Two Week Period prior to Survey Sorted by Income quintiles
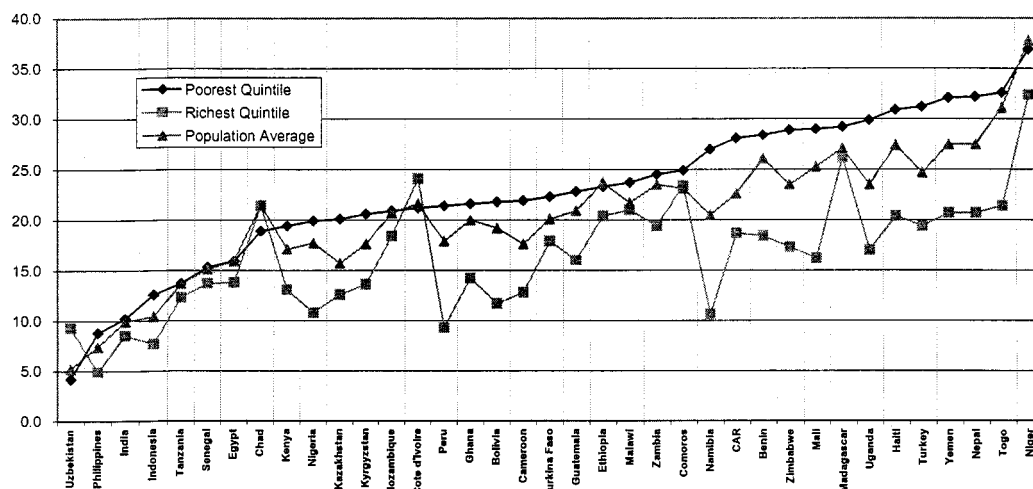
2.14   Based on DHS 2000 results, Tigray (29.2 percent) and Benshangul Gumuz (29.6 percent) have the highest ARI prevalence rates while Addis Ababa has the lowest rate (10.4 percent). Rates for children living in SNNPR (29.4 percent), Oromiya (25 percent), Gambella (27.4 percent) and Benshangul Gumuz (26.3 percent) are higher compared to other regions. On the other hand, children living in Addis Ababa (12.2 percent) have the lowest prevalence of diarrhea, while those living in SNNPR have the highest prevalence (30 percent) as can be seen in Table 2-6. These results are discussed further in Section 3 of this report.

Table 2-6: Diarrhea Incidence among Children Under 5 Years Old

	Poorest quintile	Richest quintile	Below poverty line	Above poverty line	Average
Prevalence of diarrhea children < 5 years					
National average	**25.4**	**19.3**	**24.1**	**21.0**	**22.6**
Regional variation					
Tigray	18.3	13.2	18.3	17.2	17.7
Afar	23.1	19.5	16.2	16.4	16.3
Amhara	16.5	14.8	19.2	18.0	18.8
Oromiya	27.3	24.2	26.0	24.6	25.4
Somali	11.5	25.5	20.1	18.2	19.3
Benishangul-Gumuz	32.1	22.9	30.3	22.2	26.9
SNNPR	29.4	27.3	30.4	28.4	29.6
Gambella	30.1	25.8	27.9	25.5	26.8
Harari	27.9	20.0	25.8	22.9	23.6
Addis Ababa		12.5		12.8	12.8
Dire Dawa	27.7	17.0	32.1	19.2	21.3

Source: DHS 2000

2.15   On average, diarrhea and pneumonia are the main causes of early death in young children in Ethiopia. The relatively large proportion of highlands in Ethiopia results in malaria having an epidemic profile in these areas, in contrast with the more common endemic profile of SSA[7]. Malaria is estimated to have caused only six percent of the cases of child mortality in Ethiopia, but it is the leading cause of total morbidity (measured by outpatient visits and inpatient days) and mortality, detrimentally affecting labor productivity and economic growth.[8] According to recent estimates validated by international experts, a majority of deaths in children under five in Ethiopia can be attributed to diarrhea (24 percent), a disappearing cause of deaths in many poor countries, and pneumonia (28 percent). Measles (2.2 percent) is less of threat than it was a decade ago; the reduction of measles-related deaths probably contributed to the reduction in child mortality in the 1980s and 1990s. On the other hand, HIV has emerged as a growing cause of early deaths of children (6.2 percent).

CHILD MALNUTRITION

2.16   High malnutrition rates in Ethiopia pose a significant obstacle to achieving better child health outcomes. Ethiopia has among the highest underweight and stunting rates among young children in SSA (Table 2-7). Almost one of out two children (about 47 percent) are moderately to severely underweight, and 16 percent are severely underweight. Chronic malnutrition in Ethiopia is worst than in other SSA countries: about one in two children (51 percent) is moderately to severely stunted, and slightly more than one in four children (26 percent) is severely stunted. On the other hand, severe to moderate wasting at 11 percent is relatively lower compared to other SSA countries.[9]

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[7] Malaria transmission in Ethiopia is seasonal and unstable because of the varied topography. Its transmission is either perennial, seasonal or epidemic. Ecological conditions at high altitudes do not normally increase malaria transmission, however major epidemics do occur at high altitudes. Climatic changes render people vulnerable because they have been unable to develop the immunity that comes with regular exposure infections (Ethiopia Rollback Malaria Consultative Mission Report, 2004).

[8] Three quarters of the land mass (altitude < 2000 m) is regarded as malaria affected. About 68% (>46 million people) of the total population is at risk of acquiring malaria infections (Ethiopia Rollback Malaria Consultative Mission Report, 2004).   A majority of Ethiopia's population lives in the over-crowded highlands, mainly due to the high prevalence of malaria and other dangerous tropical diseases in the lowland regions. Hence, malaria has huge negative effects on the economy and on labor productivity. It prevents Ethiopia from mobilizing the growth potential of its lowlands, affects private investment decisions in these area, and contributes to the population and environmental trap in the highlands (World Bank, CEM 2004).

[9]Weight-for-age is a composite index of height-for-age and weight-for-height. Being underweight could mean that a child is stunted or wasted or both.   Children whose weight-for-age is below minus two standard deviations from the median of the reference population are underweight, while those whose measurements are below three standard deviations from the reference population are severely underweight. Height-for-age measures linear growth retardation over a long period and does not vary with the season of data collection. Children who are below minus two standard deviations from the median of the reference population are considered short for their age or stunted. Children who are below minus three standard deviations from the reference population are severely stunted. Weight-for height measures body mass in relation to body length which shows current nutritional status and reflects the inability to receive adequate nutrition during the period immediately before the survey. Wasting can be due to seasonal food availability or the result of recent illness such as diarrhea. Children whose weight-for-height is below minus two standard deviations from the median reference population are too thin for their height or wasted. Those who measure below minus three standard deviations from the reference population are severely wasted.

Table 2-7: Malnutrition in sub-Saharan Africa

Country	Underweight (weight-for-age)		Stunting (height-for-age)		Wasting (weight-for-height)	
	Moderate and severe	Severe	Moderate and severe	Severe	Moderate and severe	Severe
Benin	29.2	7.4	25	7.8	14.3	2.7
Burkina Faso	34.3	11.8	36.8	16.6	13.2	2.5
Cameroon	21	4.2	34.6	13.3	4.5	0.8
Central African Rep.	24.3	6	38.9	19.1	8.9	2.1
Chad	27.6	9.8	28.3	13.4	11.7	2.9
Congo	13.9	3	18.8	6.6	3.9	0.9
Congo, Dem. Rep.	34.4	10.2	45.2	24.6	9.6	3.5
Cote d'Ivoire	21.4	4	21.9	7.8	10.3	0.9
Ethiopia	**47.1**	**16**	**51.2**	**25.9**	**10.7**	**1.4**
Gambia	17	3.5	18.7	5.9	8.6	1.2
Guinea	23.2	5.1	26.1	10.1	9.1	2.1
Kenya	22.7	6.5	37.2	17.6	6.3	1.4
Malawi	25.4	5.9	49	24.4	5.5	1.2
Mozambique	26.1	9.1	35.9	15.7	7.9	2.1
Namibia	26.2	5.7	28.4	8.3	8.6	1.5
Niger	39.6	14.3	39.8	19.5	14.1	3.2
Nigeria	27.3	10.7	45.5	25.6	12.4	4.9
Somalia	25.8	6.9	23.3	12.1	17.2	3.5
Tanzania	29.4	6.5	43.8	17.1	5.4	0.6
Uganda	25.5	6.7	38.3	15	5.3	0.9
Zambia	25		59		4	
Zimbabwe	13	1.5	26.5	9.4	6.4	1.6

Source: UNICEF, 2002

2.17   Variations in weight by income quintile relative to other countries are shown in Figure 2-8. Ethiopia has one of the highest malnutrition rates. These rates are similar to those in Nepal and slightly lower only to those in Bangladesh, India and Niger. However, the rich/poor gap in Ethiopia is less significant than in many other countries.

Figure 2-8: Moderate to Severe Underweight Rates Sorted by Income Quintiles
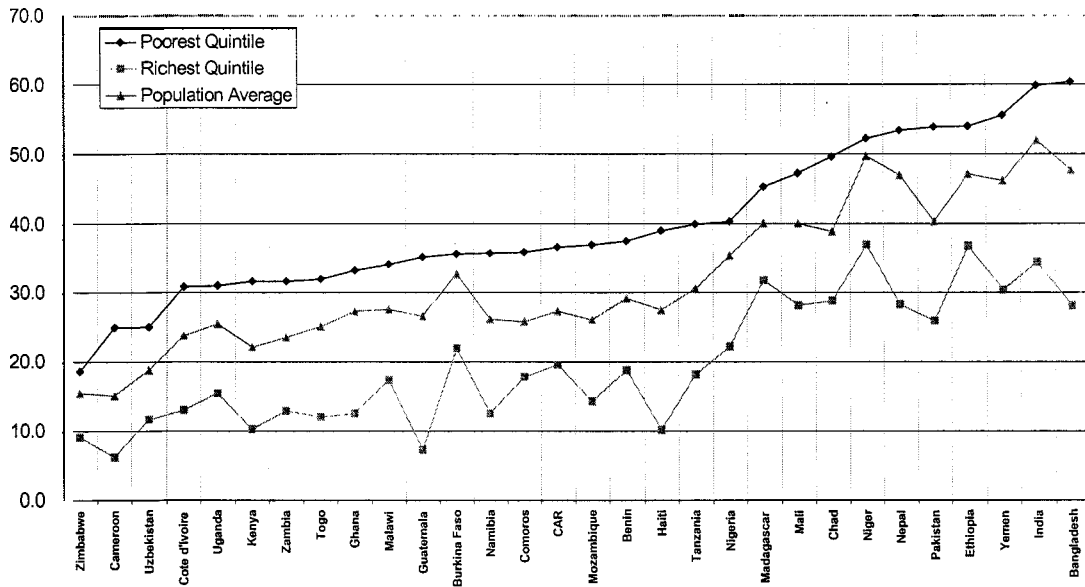
Source: Gwatkin et al. 2002, World Bank

Figure 2-9: Regional Differences in Child Malnutrition Rates in Ethiopia
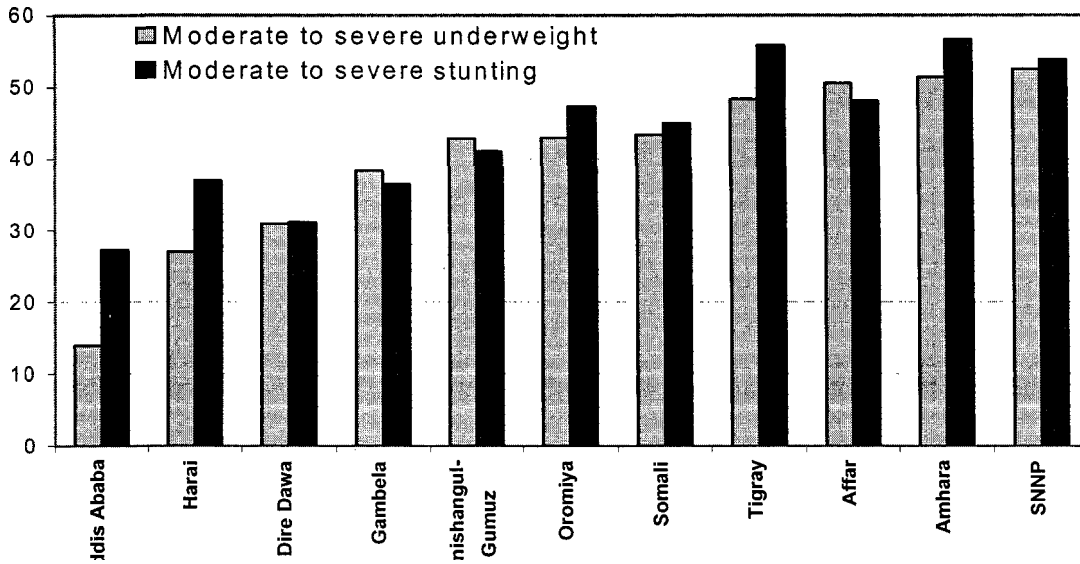
Source: DHS 2000

2.18 Regional and urban/rural differences in child malnutrition are prominent in Ethiopia. Regional differentials are illustrated in Figure 2-9. Prevalence of underweight is more than three times higher in Tigray, Afar, Amhara and SNNPR than in Addis Ababa. Stunting is almost twice as high in SNNPR and Amhara compared to Addis Ababa. Urban/rural differences exist, which are as marked as regional differences. Severe to moderate underweight is 15 percentage points higher in rural areas than in urban areas, and moderate to severe stunting is ten percentage points higher in rural areas compared to urban areas.

MATERNAL MORTALITY RATES (MMR) AND MDG TARGETS

2.19 Information on maternal mortality is scarce but the available evidence suggests that the rate is very high. Based on 1995 World Health Organization WHO estimates that are comparable across the selected countries, the MMR of Ethiopia is 1,800.[10] This estimate, however, has a very large confidence interval that ranges from 790 to 3,200. Table 2-8 shows the comparative position of Ethiopia relative to selected countries in sub-Saharan Africa regarding MMR in 1995. Figure 2-10 shows the scatter plots of selected country MMR vis-à-vis per capita GDP. Among the SSA countries, Ethiopia's MMR is higher than other countries with comparable GDPs. Among the countries of the world, Ethiopia belongs to the cluster of sub-Saharan countries with high MMR and low per capita GDP.

Table 2-8: Maternal Mortality in Ethiopia and Other Countries in sub-Saharan Africa

Country	Maternal Deaths	Life Time risk	Maternal Mortality	Range of Uncertainty	
Congo, Dem Rep	20000	13	940	390	1800
Eritrea	1600	12	1100	830	1400
Ethiopia	46000	7	1800	790	3200
Kenya	13000	13	1300	1000	1700
Malawi	2800	21	580	410	750
Sudan	13000	12	1500	1000	1900
Uganda	10000	11	1100	900	1200
Somalia	7100	7	1600	770	2400
Tanzania, UR	13000	14	11000	800	1300
Source: UNICEF, 2002					

2.20 MMR is high and reaching MDG targets is daunting. The MMR MDG is to reduce MMR by three quarters between 1990 and 2015. For Ethiopia, this would translate into a reduction of MMR, or annual number of maternal deaths per 1,000 women from 15-49 years of age from 1994-2000 from 1,800/100,000 live births to approximately 450/100,000 between 1990 and the year 2015. DHS 2000 MMR estimates for 1994-2000 are 871/100,000 births or approximately 9 deaths per 1,000 births (HSDP estimates for

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[10] The maternal mortality ratio (MMR) is obtained by dividing age-standardized maternal mortality rate by the age-standardized fertility rate. It measures the obstetric risk associated with each live birth.

2001/02 are lower, ranging from 500 to 700/100,000 births), which is less than 50 percent of the estimated MMR for 1990-1995. At present, almost all other countries with a GDP per capita twice as high as Ethiopia's have not been able to decrease MMR below 400/100,000. Achieving the MMR-related MDG of 450/100,000 by 2015 will thus be particularly challenging for Ethiopia.

Figure 2-10: Estimated MMR for Selected Countries in SSA and the World, 1995
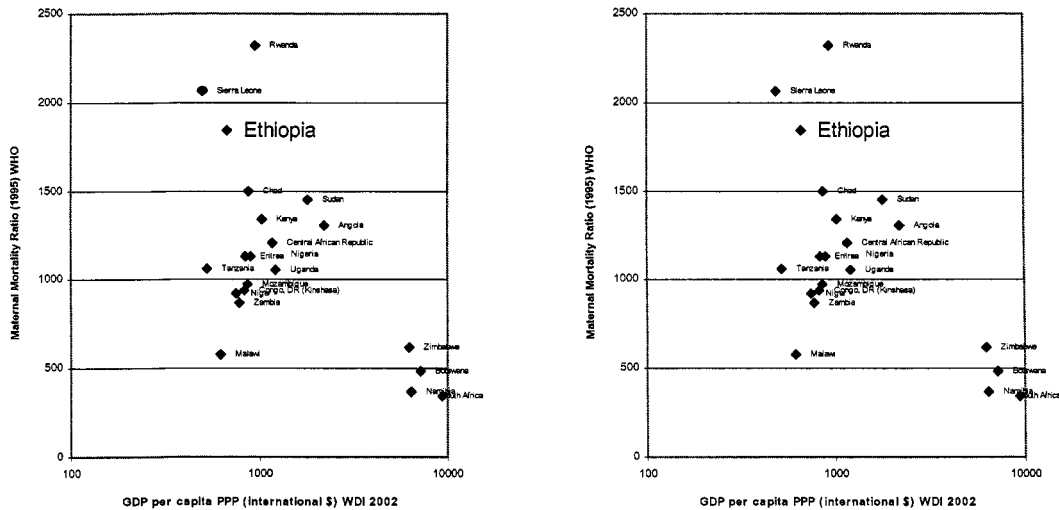
Source: MMR from WHO, 2000; GDP from WDI, 2002; and World Bank

2.21   MMR is one of the most difficult health outcomes to measure because it requires a comprehensive and accurate reporting of maternal deaths.[11] Therefore, it would be practical to use another indicator that could assess progress towards achieving this outcome and lessening the obstetric risk associated with each live birth. In this report, the percentage of deliveries attended by skilled professionals, which this report examines further in Chapter 3, is examined as an indicator of MMR.

2.22   The MMR in Ethiopia from 1994-2000 was 1.68. One out of 4 Ethiopian women (25 percent) died from pregnancy or pregnancy related causes during the seven years prior to the DHS 2000. The major causes of maternal death are related to emergency obstetric care and complications from unsafe abortions. Abortions account for about 50 percent of total gynecological and obstetric admissions. Other potential factors contribute to childbirth and pregnancy related risks. The first is the low percentage of pregnant women who receive antenatal care from trained professionals (only 26 percent nationwide). Secondly, very few births are attended by skilled professionals (5.6 percent). Female genital mutilation (FGM) is also widely practiced, which creates

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[11]MMR estimates can be obtained from vital registration, longitudinal studies of pregnant women or repeated household surveys. Ethiopia has no vital registration system nor has there been a national household survey carried out that estimates maternal mortality. There is also the need for large sample sizes to calculate the point estimates with a reasonable degree of confidence.   The DHS 2000 is the first population based national survey in Ethiopia to incorporate questions on maternal mortality.

greater health risks for women.[12] Four out of five women (80 percent) between the ages of 15-49 have been circumcised.

MATERNAL MALNUTRITION

2.23   A woman's nutritional status is both an important indicator of a woman's overall health and a predictor of pregnancy outcome.[13] The average height of Ethiopian women is about 156 centimeters. Approximately two percent of mothers of children under three years of age are shorter than 145 centimeters[14]. Ethiopia has the second highest level of stunting among mothers of children less than three years old of 17 SSA countries surveyed from 1998 to 2002. About one out of four mothers in Ethiopia have a body mass index (BMI) of 18.5, indicating a relatively high level of chronic energy deficiency.

Figure 2-11: Malnutrition Among Mothers of Children less than 3 years old in 17 SSA Countries
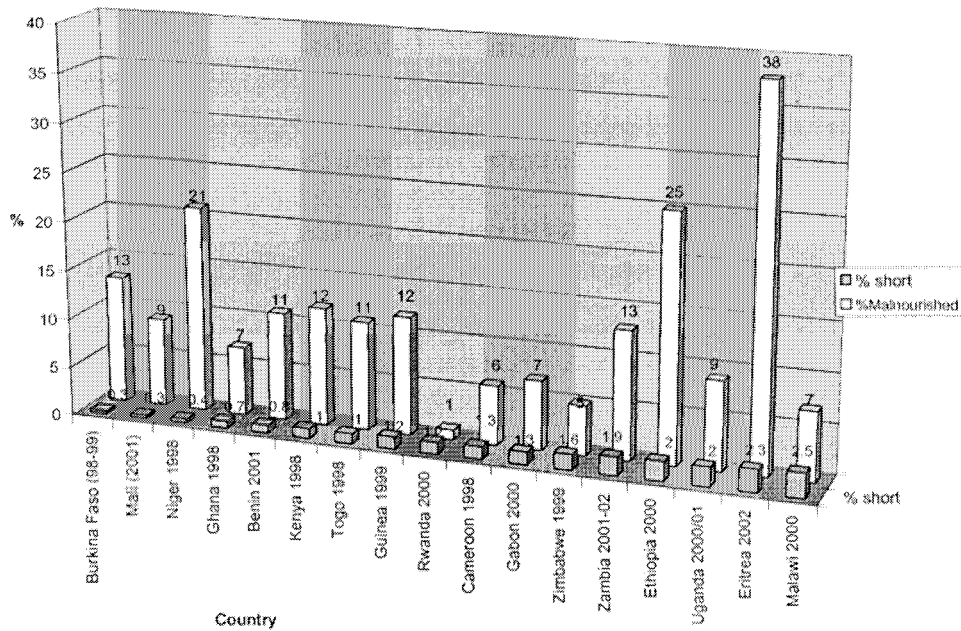
Source: DHS 2002

FERTILITY

2.24   The current total fertility rate (TFR) in Ethiopia is 5.9. This means that on average an Ethiopian woman will give birth to approximately six children during her lifetime. At its current TFR, Ethiopia has already achieved some progress in decreasing

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[12] The consequences of FGM on a woman's physical health can include tetanus, infection, hemorrhage, long term pain, scarring, urinary tract infections, urinary incontinence, painful intercourse, and pregnancy complications (Tinker et al 2000).
[13] Aside from the consequences on their own health, such as difficult deliveries due to their small stature, malnourished women also bear increased risks of having low birth-weight babies, still birth, and miscarriage.
[14] A women is considered at nutritional risk if her height is less than 145 cm and her BMI (weight/height squared) is below 18.5.

its previous high fertility levels. Figure 2-12 shows the TFR of selected African countries in 1990 and 2000. Between 1990 and 2000, fertility has declined on average of 0.6 percent per woman in Ethiopia, which is now comparable to the SSA average. Congo (DRC), Uganda and Somalia also have high fertility like Ethiopia, although their respective TFRs have remained unchanged in the past ten years. On the other hand, Sudan, Tanzania and Kenya have shown more significant reductions in TFR compared to Ethiopia. Despite the declining fertility levels in Ethiopia, the current rate of change is insufficient to achieve the National Population Policy targets of 4 children per women by 2015.

2.25   However, some encouraging trends are emerging. Fertility rates have decreased dramatically in urban areas (even though the rural areas have seen a much slower decline). As shown in Table 2-8, the TFR (3.3) in urban areas is much lower than in the rural areas (6.4). Table 2-9 shows that Addis Ababa is a particularly special case in SSA, with a TFR of 1.95 children per woman, which is at the same level as developed countries. The decline in TFR has been extremely slow in rural areas. TFR is also very high (6.4) in the poorest quintile compared to rates in the richest quintile (3.9). Age specific fertility rates (ASFR) indicate that fertility rates are high in all age groups. However, the high fertility rate in the 15-19 age group in rural areas and the significant differentials in TFR and ASFR among regions are two areas of particular concern. Addis Ababa has near replacement level of TFR of 1.95, while Oromiya has a TFR level of 6.4.

Table 2-9: TFR and ASFR by Residence and Wealth

	Age	Overall	Urban/rural		Wealth	
			Urban	Rural	Poorest Quintile	Richest Quintile
ASFR						
	15-19	109.6	60.2	122.8	127.3	70.3
	20-24	244.2	148.8	266.1	273.7	160.7
	25-29	264.1	156.4	289	295.7	192.4
	30-34	248	160.1	264.1	251.1	191.6
	35-39	182.9	97.1	198.8	194.8	111.6
	40-44	99.9	33.2	109.3	110.9	54.5
	45-49	24.1	4.2	27	23.8	0.7
TFR		**5.86**	**3.3**	**6.39**	**6.39**	**3.91**

2.26   It is crucial to address high fertility levels in Ethiopia because there is a strong link between poverty and high fertility. As stated above, within Ethiopia, the TFR in the poorest quintile is 6.4 compared with 3.9 in the richest quintile. An ILO study (2003) confirmed that a strong relationship exists in Ethiopia between demographics and the wealth of a household. Households with larger family size and older heads of family are more likely to fall into poverty than households with smaller family size and younger heads. The addition of each additional child increases the incidence of poverty.

Table 2-10: TFR and ASFR by region

	Tigray	Afar	Amhara	Oromiya	Somali	Ben-Gumz	SNNPR	Gambela	Harari	Addis Ababa	Dire Dawa
ASFR											
15-19	123.8	140.8	152.5	111.4	70.2	121.7	73.2	99.1	97.3	23.1	45.8
20-24	230.6	238.6	249	271.8	220.8	271.8	230.8	198.9	180.8	90.8	131
25-29	243.3	217.4	256.9	289.6	252.2	254.4	272.4	217.1	202.7	116.2	188.6
30-34	263.5	198	236.4	272.1	241.0	235.3	251.7	184.8	197.3	96.7	195
35-39	188.4	99.2	173.7	206.7	177.2	163.8	187.4	139.9	132.6	50.7	105.2
40-44	101.2	69.3	107	97.7	122	83.7	112	43.1	41.9	8.7	50.2
45-49	15.2	16.5	14.3	22.7	43.4	0	49.4	13.4	28.7	3.3	0
TFR	**5.83**	**4.9**	**5.95**	**6.36**	**5.7**	**5.38**	**5.88**	**4.48**	**4.41**	**1.95**	**3.58**

Figure 2-12: Changes in TFR in sub-Saharan African countries including Ethiopia
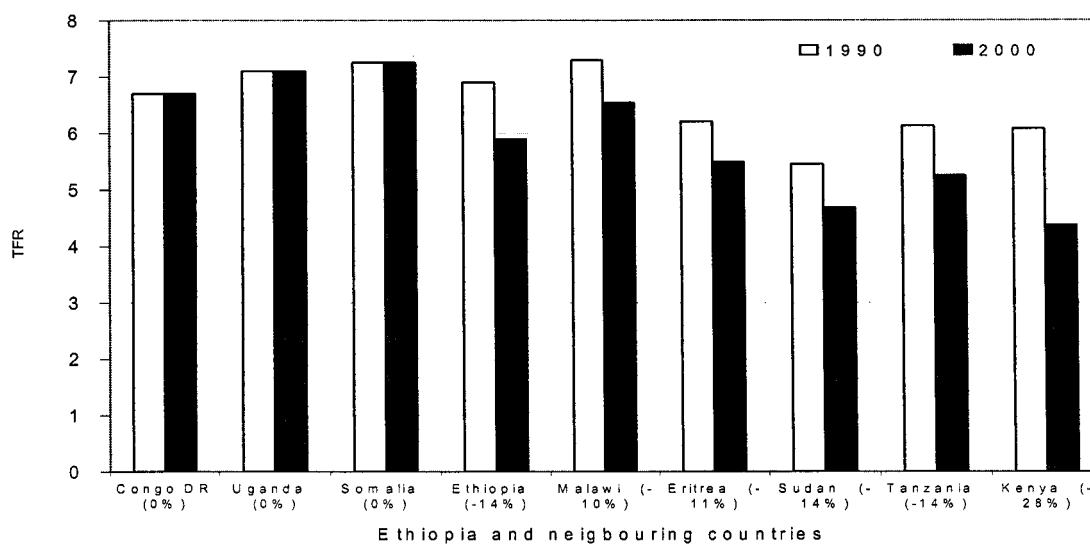
Source: UNICEF, 2002
Note: 2000 data for Ethiopia was updated using DHS 2000. Source: UNICEF, 2002

2.27   Women in Ethiopia bear children at relatively young ages. Ethiopian women have more than 50 percent of their lifetime births (3.1) by age 30 and nearly 75 percent of the total number of children they will have (about 4.3) by age 35. About 16 percent of Ethiopian women ages 15-19 are already mothers or are currently pregnant with their first child. Slightly more than twice as many women in this age group who are either already mothers or currently pregnant reside in rural areas rather than urban areas. There are slightly more than twice as many uneducated mothers and pregnant women in this age group than those with at least primary schooling (DHS 2000).

HIV/AIDS

2.28   The HIV/AIDS epidemic has spread rapidly during the past years. Currently, Ethiopia is classified as a country with a generalized[15] HIV/AIDS epidemic. The first evidence of HIV in Ethiopia was found in 1984, and the first AIDS case was detected in 1986. Although HIV prevalence in the 1980s was low, it has spread quite rapidly during the 1990s. MOH estimates that about 2.2 million people in Ethiopia are infected with HIV/AIDS (two million adults and about 200,000 children). The adult HIV/AIDS prevalence rate was 6.6 percent in 2001 (MOH, 2002).[16] While this is lower than the 2000 estimate of 7.3 percent, it should not be automatically interpreted that the HIV/AIDS epidemic is on the decline in Ethiopia. The current estimate could be a result of a stabilization of the epidemic, more extensive surveillance data, and/or the reclassification of Estie as an urban site.

2.29   HIV/AIDS prevalence rates in urban areas are significantly higher than in rural areas. The average prevalence rate for pregnant women for all urban sentinel sites is 13.2 percent, while the rural prevalence rate is 2.3 percent. Even when using the extrapolated prevalence rate of 3.7 percent from both rural sentinel survey sites and the army recruits data (this separate rural prevalence study for army recruits ages 18 to 25 indicates a prevalence rate of 3.9 percent (MOH))[17], the urban prevalence rate is still about 3.5 times greater than the prevalence rates in rural areas. Addis Ababa has a current prevalence rate of 15.6 percent. Among the urban sites surveyed, Bahir Dar in Amhara has the highest HIV prevalence rate (23.4 percent), followed by Jijiga in Somali (19 percent), and Nazareth in Oromia (18.7 percent).

2.30   Based on the sentinel surveillance data, pregnant women in the 15-24 year age group make up the demographic group with the highest average HIV prevalence (12.1 percent). This statistic represents the number of recent infections. In terms of absolute numbers for both males and females, the largest number of HIV-infected people is in the 20-29 year age group.

2.31   In terms of number of HIV/AIDS and tuberculosis cases, Ethiopia is one of the most heavily affected countries in the world. Although Ethiopia constitutes only one percent of the world's population, it claims seven percent of the world's HIV/AIDS cases. In terms of the number of infected persons, Ethiopia ranks fifth after South Africa, Nigeria, Kenya and Zimbabwe in SSA. The country ranks second to Nigeria in terms of the number of orphans who are 14 years of age or younger.

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[15] A generalized HIV/AIDS epidemic refers to a situation where HIV has spread far beyond the original high-risk subpopulations, which are already infected. Prevalence among women attending antenatal clinics is five % or more.

[16] MOH estimates are slightly higher than UNAIDS and estimates that 2.1 million children and adults in Ethiopia are living with HIV/AIDS (UNAIDS, 2002). UNAIDS December 2001 data also indicate a slightly lower national adult (15-49 yrs) prevalence of 6.4 % in Ethiopia.

[17] In general, there is underreporting of HIV/AIDS from rural areas due to lower rates of access to healthcare services as well as the lack of continuous data from sentinel surveillance sites. Therefore, it is possible that HIV prevalence in rural areas is higher. In 2001, there was an additional cause for concern because of the reclassification of Estie (a town in South Gonder zone) in the 2001 survey from a rural to an urban site. This reclassification is the main reason why there is a difference in the prevalence rates between 2001 and 2000. In order to address this potential underestimation issue, a separate survey was undertaken to provide additional evidence for rural areas.

2.32   The relative situation of HIV/AIDS in Ethiopia compared to other countries in SSA is given in Table 2-11.

Table 2-11: The Burden of HIV/AIDS in African Countries

	Number of people living with HIV/AIDS	Adult prevalence, 15 to 49 years	Orphans (0-14 years old)	AIDS deaths, 2001
South Africa	5,000,000	20.1	660,000	360,000
Nigeria	3,500,000	5.8	1,000,000	170,000
Kenya	2,500,000	15.0	890,000	190,000
Zimbabwe	2,300,000	33.7	780,000	200,000
Ethiopia	2,100,000	6.4	990,000	160,000
Tanzania	1,500,000	7.8	810,000	140,000
DRC	1,300,000	4.9	930,000	120,000
Zambia	1,200,000	21.5	570,000	120,000
Mozambique	1,100,000	13.0	420,000	60,000
Cameroon	920,000	11.8	210,000	53,000
China	850,000	0.1	76,000	30,000
Malawi	850,000	15.0	470,000	80,000
Cote d'Ivoire	770,000	9.7	420,000	75,000
Sub-Saharan Africa	28,500,000	9.0	11,000,000	2,200,000
Source: UNAIDS 2002				

2.33   Aside from the negative emotional and social impact of HIV/AIDS on households and communities, the disease also creates adverse economic conditions. Based on the data collected by the MOH, about 91 percent of infections occur among adults between 15-49 years old, generally the most economically productive segment of the population. Illness and death in this age group have negative effects on labor productivity and output, thereby increasing the likelihood of lower economic growth. Higher death rates in this particular age group also increase the dependency ratio because a smaller number of young adults must support large numbers of children and the elderly.

TUBERCULOSIS

2.34   The incidence ratio of all forms of TB in 2000 was 397/100,000 persons. This ratio is higher than the SSA average of 354/100,000 and significantly greater than the average for low-income countries of 233/100,000. Based on Federal Ministry of Health (FMOH) 2002 estimates, the TB incidence ratio has declined to 292/100,000 (Table 2-12). Reported TB accounts for 3.1 percent of all deaths. There are no reliable estimates on the real incidence of TB, and the reported notification rates may seriously underestimate the actual burden. About 30 percent of all TB cases also are HIV positive.

Table 2-12: TB Incidence Ratio

Indicator	FMOH estimates 2002	Population: 65,3 m.
Incidence ratio of all forms of TB	292/100,000 persons	196,000 cases
Incidence ratio of smear-positive TB	123/100,000 persons	82,000 cases
Proportion of all estimated incident TB cases that are also HIV-positive	30%	59,000 cases
Proportion of general population having both latent TB and HIV infection together	1.5% of the population	one million persons
Source: FMOH 2002 cited in HSDP I Evaluation (2003)		

3. HOUSEHOLD AND COMMUNITY FACTORS AFFECTING HEALTH: KNOWLEDGE, ATTITUDE AND PRACTICES

3.1   This chapter analyzes (to the extent that data allow) the determinants of health outcomes in Ethiopia with a focus on factors at the household and community levels. This section shares information about health issues including statistics on nutritional practices for infants; health-seeking behavior; and utilization of both preventive health and reproductive health services and basic services of curative care for child and maternal health care. Household analysis is important because households produce health outcomes based on the resources they have, their socio-economic characteristics, and their surrounding environment.

CHILD SURVIVAL

3.2   Ethiopia has IMR and U5MR rates that are comparable to the sub-Saharan African average. However, as discussed in Chapter 2, wealth-based differentials are relatively lower in Ethiopia for IMR and U5MR.

3.3   Figure 3-1 shows the IMR and U5MR across different wealth quintiles, and Figure 3-2 illustrates the concentration curves. IMR and U5MR by wealth quintile do not demonstrate a monotonic relationship. The rates are highest in the second poorest quintile as opposed to the poorest quintile. The concentration curves show that wealth-based differentials for U5MR are much higher than for IMR.

3.4   Table 3-1 provides adjusted hazard ratios for child mortality obtained using the Weibull Analysis. Three different models are used: the first model has only the proximate determinants; the second model uses only the underlying determinants; and the third model applies both the proximate and the underlying determinants of childhood mortality.[18]

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[18] Proximate variables are intermediate variables that directly influence the risk of mortality. All social and economic determinants operate through these variables (e.g. maternal factors such as age, parity and birth interval) to affect child survival. An example of a distal or underlying determinant is poverty, which can lead to child death through malnutrition or bad hygiene.

Figure 3-1: IMR and U5MR by Wealth Quintiles in Ethiopia
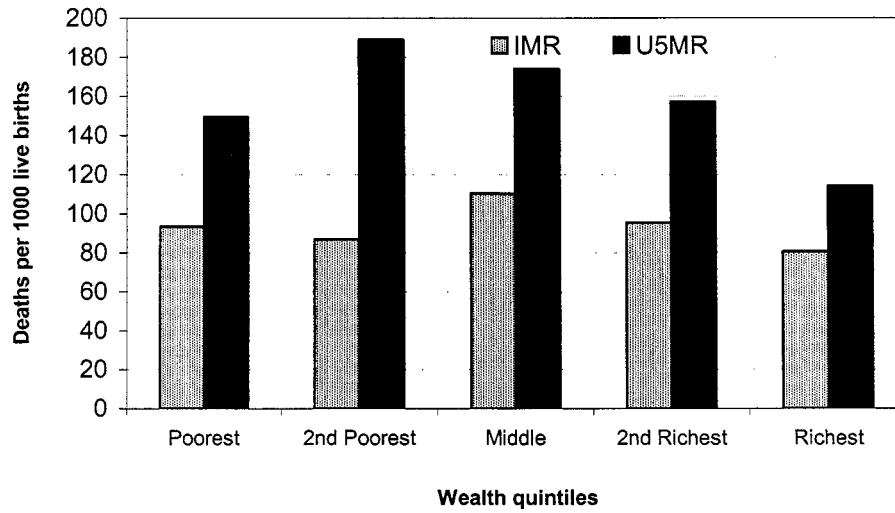
Source: DHS 2000

Figure 3-2: Concentration Curves for IMR and U5MR in Ethiopia 2000
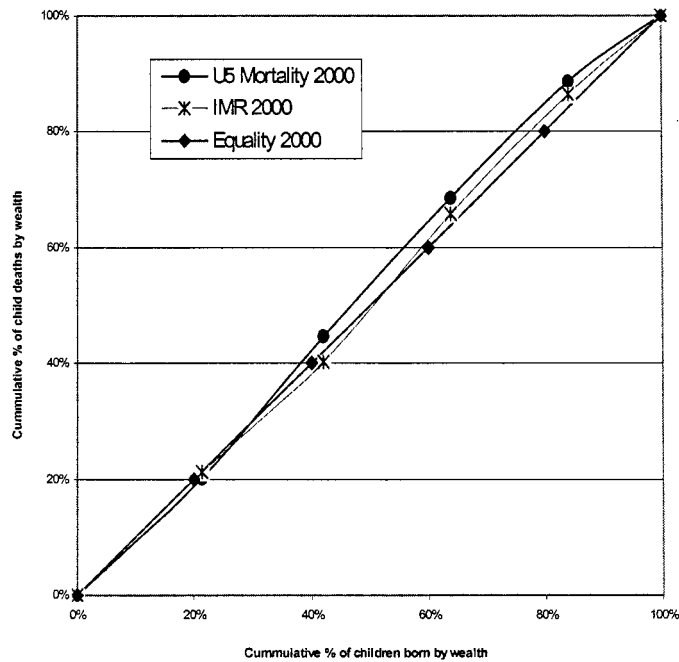
3.5   Results indicate that short birth intervals, high birth order, low birth weight (smaller children), and young age of mothers are strongly linked to high child mortality levels. The analysis emphasizes the strong role fertility plays in determining short birth intervals. Religion leads to lower mortality among Orthodox Christians. Mother's education (secondary and up) and wealth are also associated with infant mortality although the relationship is not as strong as the fertility-related variables.[19] Infants whose mothers received ANC tetanus vaccination have a lower likelihood of dying, while other services such as ANC and delivery by trained professionals do not seem to have any significant association with child mortality when included in this analysis.[20]

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[19] The draft Poverty Assessment (World Bank 2004) finds a highly significant relationship between mother's education and child mortality. It specifies mother's education in years as a continuous variable compared to the specification used in this report, which is based on education categories (no education, primary, secondary or higher).

[20] In Model-1 (using only proximate determinants) only birth order and birth interval are consistently significantly associated with child mortality. In Model-2 using only distal determinants, regional characteristics seem to be weakly associated with child mortality. The most important association factors are religion (lower mortality in Orthodox Christians) and age of mother (lower mortality in children of older women), and size of the child (children who are smaller in size at birth have a higher likelihood of death) for both infant and under-five mortality. Levels of a mother's secondary education and above are negatively associated with IMR. Wealth has a moderate effect on child mortality. In the combined model (Model 3), only birth interval, birth order, and size at birth were strongly associated with both infant and older five mortality. Infants whose mothers receive ANC tetanus vaccination are less likely to die. Gambella region is the only region that has a higher likelihood of under-five mortality compared to Tigray.

Table 3-1: Results of Weibull Hazard Ratios for Infant Mortality and Under Five Mortality

	Infant mortality rate						Under five mortality					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	HR	SE	HR	SE	HR	SE	HR	SE	HR	SE	HR	SE
Drinking water (Piped)												
Well	0.90	0.30			1.04	0.37	0.78	0.27			0.88	0.29
Others	1.02	0.33			1.03	0.37	0.96	0.32			0.99	0.32
Toilet (Flush/pit)												
None	0.88	0.22			0.95	0.28	0.84	0.19			0.90	0.25
ANC trained (No)	0.97	0.22			0.96	0.23	0.89	0.19			0.87	0.20
ANC tetanus (No)	0.67*	0.15			0.64**	0.14	0.70*	0.15			0.69*	0.14
Delivery by trained prof. (No)	0.69	0.22			0.70	0.24	0.66	0.18			0.68	0.20
Birth order/birth interval (first order and/or less than one year)												
2-3 order and years	0.39***	0.09			0.36***	0.09	0.48***	0.10			0.45***	0.10
+4	0.41***	0.08			0.35***	0.09	0.44***	0.08			0.37***	0.08
Urban (rural)			1.39	0.31	1.37	0.58			1.19	0.23	1.44	0.53
Region (Tigray)												
Afar			1.25	0.28	1.34	0.52			1.44*	0.28	1.51	0.55
Amhara			1.23	0.20	1.45	0.41			1.32*	0.19	1.50*	0.36
Oromiya			1.37*	0.24	1.48	0.44			1.38*	0.22	1.47	0.39
Somali			0.76	0.22	0.47	0.25			0.97	0.28	0.83	0.38
Ben-gumz			1.23	0.30	1.50	0.59			1.37	0.29	1.72*	0.55
SNNPR			1.35*	0.24	1.39	0.48			1.40**	0.22	1.69	0.57
Gambela			1.51*	0.35	1.88*	0.70			1.66**	0.33	2.01**	0.68
Harari			1.04	0.27	1.54	0.67			1.06	0.24	1.40	0.58
Addis Ababa			1.03	0.29	1.13	0.55			1.11	0.29	0.97	0.42
Dire Dawa			1.22	0.29	1.88*	0.71			1.41	0.31	1.73	0.64
Wealth Index (Poorest)												
2nd Poorest			0.84	0.13	1.53	0.41			1.03	0.14	1.28	0.30
Middle			1.14	0.15	2.18***	0.62			1.14	0.13	1.66*	0.44
2nd Richest			0.95	0.14	1.54	0.44			1.03	0.13	1.25	0.31
Richest			0.74	0.15	1.67	0.61			0.82	0.14	1.44	0.47
Religion (Others)												
Orthodox			0.75**	0.11	0.73	0.21			0.76**	0.09	0.57*	0.17
Muslims			0.95	0.12	0.85	0.19			1.01	0.11	0.95	0.21
Mother's education (None)												
Primary			0.83	0.14	0.96	0.24			0.84	0.13	0.91	0.24
Secondary or higher			0.59	0.22	0.42*	0.19			0.61	0.19	0.48	0.23
Mass media exposure (No)			1.11	0.23	1.25	0.42			0.99	0.19	0.97	0.33
Mother's age group (<20 years)												
20-29 years			0.72***	0.09	1.28	0.28			0.79**	0.09	1.24	0.27
30-39 years			0.62***	0.08	1.32	0.41			0.72***	0.08	1.38	0.38
40-49 years			0.65***	0.13	0.92	0.67			0.75	0.13	0.98	0.61
Sex of the child (female)			1.14	0.10	1.07	0.17			1.14	0.09	1.19	0.18

Size of the child at birth (small)												
Medium			0.74**	0.09	0.56***	0.11			0.77**	0.07	0.61***	0.11
Large			0.75**	0.09	0.52***	0.10			0.74***	0.08	0.50***	0.10
/ln_p	-0.38***	0.05	-0.47	0.02	-0.38	0.05	-0.59***	0.04	-0.70***	0.02	-0.58***	0.04
P	0.68	0.03	0.63	0.01	0.69	0.03	0.56	0.02	0.50	0.01	0.56	0.02
L/p	1.46	0.07	1.60	0.04	1.46	0.07	1.80	0.07	2.01	0.05	1.79	0.07
Number of failures	301		1120		301		376		1501		376	
Time at risk	51698		12533		51698		109259		336779		109259	
			0									
Log likelihood	-1525		-5346		-1496		-1889		-7007		-1857	
Wald	31.54		54.16		78.27		31.44		59.52		76.05	
Prob	0.00		0.00		0.00		0.00		0.00		0.00	

CHILD MALNUTRITION

3.6   Child malnutrition on the continent and in Ethiopia was discussed in Section 2.3. This section analyzes the predictors of child malnutrition in Ethiopia. Table 3-2 summarizes the adjusted odds for stunting (height-for-age), underweight (weight-for-age) and wasting (weight-for-height).

3.7   Malnutrition is largely associated with low income, mother's education, low birth intervals, and age of children. The children in the richest quintile have the lowest stunting, underweight and wasting rates. Children of educated mothers have a lower likelihood of stunting and underweight, but not wasting. Higher parity children are more likely to be underweight, while children with greater preceding birth intervals are associated with lower stunting, but higher wasting. Child malnutrition is also associated with the age of the child, with older children having a higher likelihood of being underweight and stunted relative to children who are less than a year old. The recent Poverty Assessment (WB 2004) also finds a significant relationship between education and a child's nutritional status. In particular, the impact of female education is about twice as significant as that of male education (though both have a positive effect). These results are similar to those found by Christiaensen and Alderman (2003), indicating that household resources and parental education are the main determinants of child nutrition in Ethiopia.[21] They also found that maternal nutritional knowledge[22] also plays an important role in determining child malnutrition. Therefore, they conclude that enhancing awareness of non-normal growth of children in communities may be an effective and complementary response to addressing child malnutrition.

3.8   Urban/rural differentials are not significant for child malnutrition. However, regional differentials are significant. Tigray has relatively higher stunting and underweight rates than most regions (except for SNNPR which has significantly higher underweight rates), and Somali and Gambella have higher wasting rates. The lowest levels of child malnutrition were seen in Addis Ababa and Dire Dawa, the two most urban regions.

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[21] Christiaensen and Alderman also find that food prices play a significant role in determining child malnutrition.
[22] Proxied by the community's diagnostic capability of abnormal growth.

Table -3-2: Adjusted Odds Ratios for Prevalence of Malnutrition

	Height for age		Weight for age		Weight for height	
	OR	SE	OR	SE	OR	SE
Urban (rural)	1.26	0.33	1.09	0.23	0.83	0.25
Region (Tigray)						
Afar	0.67**	0.12	1.05	0.19	0.95	0.21
Amhara	1.00	0.12	1.08	0.12	0.75*	0.12
Oromiya	0.68***	0.09	0.78**	0.09	0.85	0.15
Somali	0.57**	0.11	0.74	0.14	1.90**	0.56
Ben-gumz	0.52***	0.07	0.80	0.12	1.30	0.32
SNNPR	1.06	0.14	1.39**	0.20	1.13	0.20
Gambela	0.52***	0.10	0.81	0.12	1.77**	0.38
Harari	0.44***	0.07	0.40***	0.07	0.49**	0.14
Addis Ababa	0.43***	0.11	0.28***	0.06	0.59	0.24
Dire Dawa	0.37***	0.08	0.53***	0.10	1.22	0.37
Wealth Index (Poorest)						
2nd Poorest	0.99	0.10	0.81*	0.09	0.65**	0.10
Middle	0.88	0.10	0.82*	0.09	0.79*	0.10
2nd Richest	0.97	0.10	0.78**	0.09	0.80	0.11
Richest	0.69**	0.09	0.73**	0.11	0.54**	0.12
Household member (1-5)						
6-10 member	1.04	0.08	0.93	0.08	1.07	0.12
11+ member	1.09	0.17	1.02	0.17	0.80	0.21
Religion (Others)						
Orthodox	0.87	0.09	0.85	0.09	0.82	0.14
Muslims	1.11	0.12	1.12	0.11	1.17	0.17
Mother's age group (<20 years)						
20-29 years	1.16	0.13	1.14	0.13	0.96	0.17
30-39	1.04	0.15	1.17	0.17	1.05	0.23
40-49 years	0.83	0.16	1.11	0.20	0.98	0.26
Mother's education (None)						
Primary	0.90	0.08	0.74***	0.07	0.90	0.14
Secondary or higher	0.56***	0.11	0.57***	0.11	1.19	0.30
Exposure to mass media (None)						
Yes	1.01	0.17	0.84	0.12	0.69*	0.14
Partner's occupation (Others)						
Agriculturists/unskilled	1.18	0.13	1.17	0.14	1.18	0.22
Parity (0-2)						
3-4 children	1.16	0.11	1.37***	0.13	1.19	0.16
5+ children	1.12	0.14	1.32**	0.17	1.08	0.20
Preceding birth interval (1st or <2 years)						
2-3 years	0.96	0.07	0.99	0.08	1.43***	0.17
4+	0.69***	0.07	0.86	0.09	1.47**	0.24
Sex of the child (Female)						
Male	1.07	0.06	1.06	0.07	1.15	0.10
Age of the child(<1 year)						
1 year	5.40***	0.59	4.43***	0.46	2.60***	0.34
2 years	5.06***	0.55	4.21***	0.42	1.09	0.16
3 years	6.22***	0.69	3.20***	0.30	0.73**	0.11
4 years	5.88***	0.65	3.21***	0.32	0.91	0.14
Number of obs	8437		8437		9379	
Number of strata	1		1		1	
Number of PSUs	539		539		539	
Population size	9726		9726		10645	
F(33, 501)	18.43		17.24		5.50	
Prob>F	0.00		0.00		0.00	

BREASTFEEDING

3.9   Infant feeding practices such as early, exclusive breastfeeding for the first six months of a child's life are important determinants of the nutritional status of young children. Compared with selected SSA countries, Ethiopian mothers fare well in terms of breastfeeding indicators (Table 3-3). Fifty percent of Ethiopian children are breastfed within one hour of birth.[23] This rate is significantly lower than in Mozambique (81 percent) and in Malawi (72 percent). Maternal health education is one method to help Ethiopia improve its rates. However, exclusive breastfeeding[24] in children less than four months old is high at 62.3 percent. Timely complementary feeding in 6-9 months old children is 77 percent, which can also be improved to reach the rates seen in Kenya and Malawi (90 percent).

Table 3-3: Breastfeeding Practices in sub-Saharan Africa

	Breast feeding started within 1 hour	Exclusive breastfeeding rate (< 4 mos.)	Timely complementary feeding rate (6-9 mos.)	Continued breastfeeding rate (12-15 mos.)	Continued breastfeeding rate (20-23 mos.)
Chad 1996/97	23.2	2.0	83.3	84.3	54.4
Ethiopia 2000	50.3	62.3	77.5	87.4	75.5
Kenya 1998	58.3	16.8	93.8	85.4	46.2
Malawi 2000	71.9	63.2	97.5	97.7	64.6
Mozambique 1997	81	37.6	87.3	82.1	56.8
Tanzania 1996	59.2	40.3	94.6	90.8	45.6

Source: DHS and UNICEF

3.10   The median duration of exclusive breastfeeding was highest among mothers in Amhara (4.6 months) and Tigray (3.2 months). Mothers in Somali, Afar, Gambella, Harari, Addis and Dire Dawa practiced exclusive breastfeeding for less than one month. However, while exclusive breastfeeding is relatively high, Ethiopian households lag behind in other household practices.

SUPPLEMENTARY FOODS

3.11   Introducing solid foods into an infant's diet is recommended at about six months because at that age breast milk is no longer adequate in meeting a child's nutritional needs to promote optimal growth. Only about one in three children in Ethiopia consumes some type of solid or semi-solid food by six to seven months of age. This percentage increases gradually, as only 54.8 percent of children who are eight to nine months old

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[23] The early initiation of breastfeeding is important because the first breast milk contains colostrum, a nutritious substance with antibodies that protect newborn children from disease. Early suckling also benefits mothers by stimulating breast milk production; releasing a hormone that helps the uterus to contract; and reducing postpartum blood loss.

[24] Exclusive breastfeeding refers to children receiving only breast milk while children who are fully breastfed receive plain water in addition to breast milk. Exclusive breastfeeding is recommended for the first four to six months of a child's life because breast milk contains all the nutrients necessary for children in the first few months of life. Early supplementation is discouraged because it increases the risk of infection for children, especially diarrhea. In a particularly poor environment, supplementary foods tend to be nutritionally inferior to breast milk (DHS 2000).

receive semi-solid or solid food. Almost all two-year-old children (98 percent) are fed solid or semi-solid food. However, only 59.5 percent of children under three years of age consume foods made from grains; and a smaller percentage (28.1 percent) consume vitamin A rich foods. An even smaller percentage (9.3 percent) consumed meat, poultry, fish, eggs, cheese and yogurt 24 hours prior to the DHS 2000 survey.

IODIZED SALT

3.12   Figure 3-3 shows the relative position of Ethiopia vis-à-vis other SSA countries in terms of iodized salt distribution. Less than 30 percent of the households in Ethiopia use iodized salt.[25]

Figure 3-3: Iodized Salt and Vitamin A Supplement Coverage in SSA
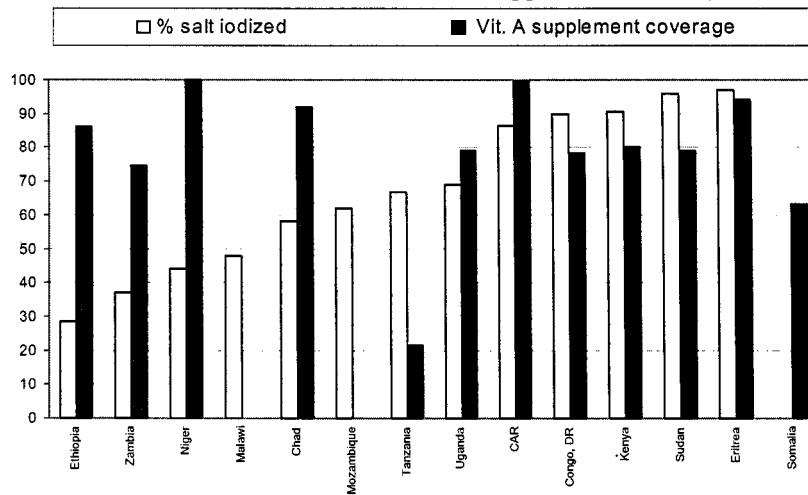
Source: UNICEF 2001

3.13   Table 3-4 summarizes the adjusted odds ratios for use of iodized salt in Ethiopia. Tigray households have a lower probability of using salt relative to households in the other regions. Children from the poorest quintile are also less likely to use iodized salt. Mother's exposure to media and education are positively associated with iodized salt intake.

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[25] Ethiopia used to obtain iodized salt from Assab. Since the Ethio-Eritrean conflict, Ethiopia has obtained its salt from other sources, which are mostly non-iodized. The Ministry of Health tried to address this by recommending that non-iodized salt be banned. However, this ban has not been implemented because importing iodized salt was expensive. Local production of salt in Afar was encouraged, but there was no facility to produce iodized salt. In order to encourage production of iodized salt by local salt producing firms, the MOH has recently bought and distributed nine iodizing machines. Staff in the salt producing firms were also trained on iodization. The effects of these measures are expected to be noticeable in the future.

Table 3-4: Adjusted Odds for Additional Vitamin A Supplementation and Use of Iodized Salts

	Vitamin A in Children > 6 Months in the Last Six Months			Living in Household Using Adequately Iodized Salt		
	Odds Ratio		Std. Err.	Odds Ratio		Std. Err.
Urban (rural)	1.26		0.33	1.34		0.38
Region (Tigray)						
Afar	0.10	***	0.03	6.51	***	2.55
Amhara	1.10		0.20	4.76	***	1.41
Oromiya	0.51	***	0.09	7.49	***	2.19
Somali	0.24	***	0.08	3.30	**	1.53
Ben-gumuz	0.45	***	0.09	13.14	***	4.70
SNNPR	0.39	***	0.09	3.46	***	1.20
Gambela	0.56	*	0.18	11.39	***	4.88
Harari	1.15		0.32	5.32	***	2.33
Addis Ababa	0.93		0.33	3.14	***	1.23
Dire Dawa	1.62	*	0.45	4.05	***	1.51
Wealth Index (Poorest)						
2nd Poorest	1.16		0.15	1.55	***	0.23
Middle	1.41	**	0.19	1.14		0.18
2nd Richest	1.32	**	0.17	1.24		0.19
Richest	1.49	**	0.29	1.47	*	0.30
Household member (1-5)						
6-10 member	0.92		0.09	1.04		0.10
11+ member	1.06		0.23	1.45		0.40
Religion (Others)						
Orthodox	0.70	*	0.14	0.39	***	0.08
Muslims	1.49	***	0.20	0.49	***	0.08
Mother's age group (<20 years)						
20-29 years	1.12		0.13	1.01		0.11
30-39 years	1.15		0.17	1.18		0.19
40-49 years	1.07		0.23	1.71	***	0.35
Mother's education (None)						
Primary	1.27	*	0.18	0.97		0.13
Secondary or higher	1.97	***	0.43	1.28		0.31
Exposure to mass media (None)						
Yes	1.78	***	0.28	1.01		0.17
Partner's occupation (Others)						
Agriculturists/unskilled Parity (0-2)	0.85		0.10	0.80		0.12
3-4 children	1.12		0.13	0.92		0.11
5+ children	1.01		0.17	0.79		0.12
Preceding birth interval (1st or <2 yrs)						
2-3 years	0.99		0.08	1.05		0.09
4+	0.85		0.08	0.94		0.11
Sex of the kid (Female)						
Male	1.03		0.06	0.99		0.06
Age of the kid (0-12 months)						
1 year	1.26	*	0.15	1.10	*	0.12
2 years	1.19		0.13	1.18		0.12
3 years	1.13		0.13	1.07		0.10
4 years	1.04		0.11	0.95		0.09
Number of obs	8427.00			9262.00		
F(33, 501)	7.19			4.22		
Prob>F	0.00			0.00		

*p<0.1 **p<0.05 ***p<0.01

USE OF BED NETS

3.14   Malaria is one of the leading causes of inpatient and outpatient visits and deaths, but only one percent of Ethiopian households own bed nets (Table 3-5). The low ownership rates are expected in the highland areas such as Addis Ababa and Amhara where malaria is not endemic. However, even among the malaria-endemic regions, ownership rates are very low, and the percentage of insecticide treated nets is even lower. Only Afar and Gambella have more than ten percent of households (32 percent and 12 percent respectively) using bed nets. Urban households are three times more likely to own bed nets, but the total percentages for both urban and rural households (three percent and one percent, respectively) are extremely low.

Table 3-5: Ethiopia: Percentage of Households Possessing Bed Nets, 2000

Characteristics	With bed nets	Percentage of impregnated bed nets
Residence	3.1	13.5
Urban	0.6	21.6
Rural		
Region		
Tigray	3.1	32.4*
Afar	30,5	2.5
Amhara	0.7	**
Oromiya	0.3	**
Somali	6.2	4.9*
Benshangul-Gumuz	1.9	**
SNNPR	0.2	**
Gambela	11.7	17.9*
Harari	1.2	**
Addis Ababa	0.7	**
Dire Dawa	2.0	**
Total	**1.1**	**17.7**
Note : * Based on 25-49 unweighted cases ; data suppressed in DHS (2000) because the figure is based on less then 25 unweighted cases ***include data on wealth quintiles		

USE OF ORAL REHYDRATION SOLUTION (ORS)

3.15   Compared to other low-income countries, Ethiopia has one of the lowest percentages of children with diarrhea who receive ORS (Table 3-6). Forty percent of women in the poorest quintile and 13 percent of women in the richest quintile in Ethiopia have not heard about ORS. Use of ORS for a recent diarrhea episode is about four times higher in households in the richest quintile than in the poorest quintile. Sixty-two percent of households in the poorest quintile and only 36 percent in the richest quintile did not obtain any home-based treatment. Overall, ORS is significantly underutilized in

Ethiopia, and the potential for improving its use as an inexpensive and effective way to reduce diarrhea-related disease problems such as dehydration is very high.

IMMUNIZATION

3.16   Immunization levels remain low and Ethiopia's immunization performance is mixed. The percentage of 12-23 month-old children who have received one or more of the Expanded Program on Immunization (EPI) vaccines is high at 83 percent. However this percentage largely reflects coverage resulting from the polio eradication program. With regard to other important immunization indicators contributing to child survival, Ethiopia's performance is poor compared to other countries in Africa and other parts of the world. Figure 3-4 shows the international comparison of three doses of Diphtheria, Pertussis and Tetanus (DPT 3) immunizations in the poorest and richest wealth quintiles in different countries of Africa and elsewhere. Ethiopia's DPT 3 coverage of 21 percent is one of the lowest, and the difference between the country's richest and poorest quintile is 30 percentage points. Countries like Malawi, Zambia and Zimbabwe with DPT 3 rates of more than 80 percent are some of the highest achievers in Sub-Saharan Africa. In these countries, the differences between wealth quintiles is also low.

3.17   HMIS (facility-based) data for Ethiopia for 2002/03 indicate that the DPT 3 coverage has increased to 50.4 percent, more than twice the DHS 2000 results. However, even if this higher figure is used, Ethiopia still ranks among the lowest-performing countries in the world.

Figure 3-4: International Comparison of DPT 3 by Wealth Quintiles

Source: Gwatkin et al. 2002, World Bank
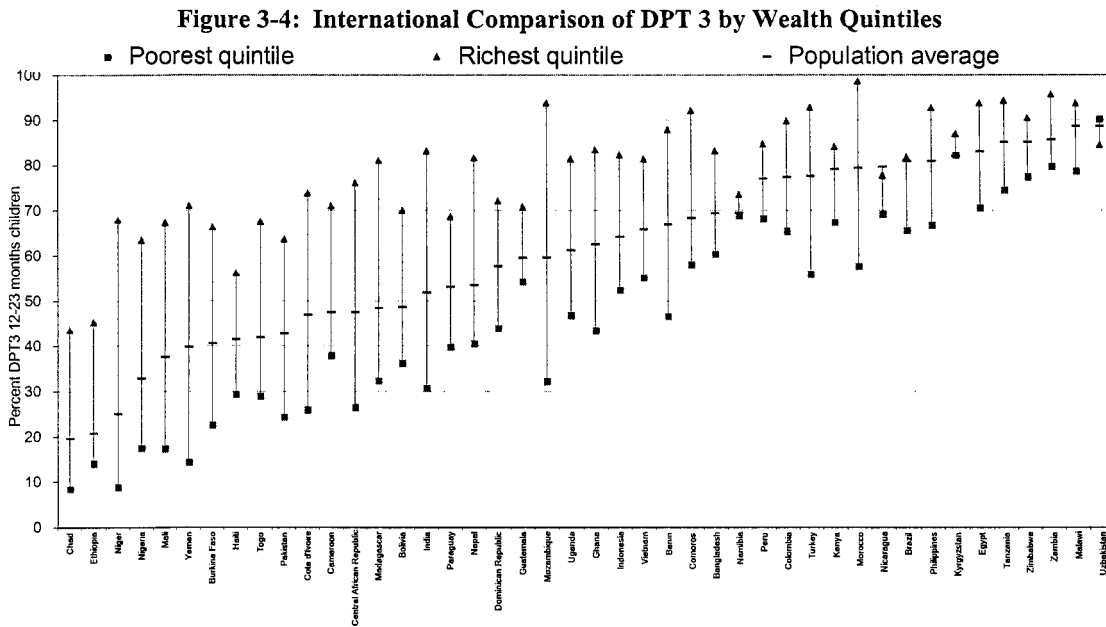
3.18   The DPT 1 coverage is approximately 44 percent in Ethiopia, which means that the drop-out rate between DPT 1 and DPT 3 is 23 percentage points.[26] DPT 1 gives some indication of the reach of public health services, but the DPT 1 rate is still lower than the potential health service coverage rate of about 51.8 percent (for health centers and health clinics). The difference in percentage points between DPT 1 and DPT 3 indicates the failure of health services to capitalize on opportunities provided by available initial outreach activities. Based on the DHS, the bacillus calmette guerin (BCG) coverage is around 46 percent while HMIS data estimate a higher percentage of 60.8 percent in 2002/03.[27] Only 14.4 percent of children 12-23 months old have received all EPI vaccines or were fully immunized in 2000 (DHS). Once again, HMIS data indicate higher estimates, from 21.1 percent in 2000/01 to 32.6 percent in 2002/03.

3.19   Table 3-6 provides the results of bivariate[28] analysis of childhood immunization taking into account various socio-economic and demographic variables. Significant differentials by residence (urban/rural), birth order of the child, mother's education, wealth quintiles, and region are observed. The difference between urban and rural areas is around 30 percentage points, except for children receiving any single vaccine because of the fairly wide polio vaccination coverage. Immunization levels are significantly lower in children with higher birth orders. Immunization levels are higher among children whose mothers are educated and highest among children with mothers having at least secondary or higher education. Children from poorer households have lower immunization coverage. Regional differences in immunization coverage are wide-spread with Tigray and Addis emerging as the best performers. In particular, Addis Ababa has around 90 percent coverage for BCG, while Afar has only 16 percent. For three doses of DPT, the regional differences were more striking. For example, Afar has only one percent DPT 3 coverage compared to 80 percent in Addis Ababa. No child in Afar has received all of the EPI vaccines. Around 17 percent of the children from the poorest quintile have no childhood immunizations compared to only six percent of children in the richest quintile.

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[26]HMIS data for DPT1 are not readily available. National level DPT1-DPT3 drop-out rates are not available for both 2001/02 and 2000/01. Available data for seven out of 11 regions in 2000/01 indicate DPT1-DPT3 drop-out rates ranging from 5% in Tigray to 43% in Afar.

[27] MOH BCG coverage estimate is 56 % in 2000/01 and 58.6 % in 2001/02.

[28] Analysis of two data sets that determines whether or not the data are related and describes the best relationship between them. Cross plots are often used to "visualize" potential bivariate relationships.

Table 3-6 : Bivariate Analysis: Vaccination by Background Characteristics among Children 12-23 Months Old (percentage that received specific vaccines by the time of the survey)

	BCG		DP T 1		DPT 3		Any Vaccine		All EPI vaccines	
Total	45.6		44.1		20.7		83.3		14.3	
Residence										
Rural	42.6	***	41.0	***	17.5	***	82.4	***	11.00	***
Urban	71.1		69.8		51.4		96.3		42.0	
Sex of the child										
Female	42.8	*	41.6		19.4		82.8		13.8	
Male	48.3		46.4		22.6		84.7		14.8	
Birth order of the child		***		***		***		***		***
First	52.5		49.4		22.4		88.0		17.7	
2-3 child	46.1		47.2		24.6		86.2		15.6	
4-5 child	46.0		41.4		16.6		83.2		12.0	
7+	38.2		38.4		21.0		77.0		12.7	
Mother's education		***		***		***		***		***
None	41.1		39.9		16.2		82.2		10.2	
Primary	56.5		56.1		35.0		87.3		24.8	
Secondary	80.7		71.6		53.9		97.9		45.0	
Wealth quintile		***		***		***		***		***
Poorest	40.3		39.5		14.1		83.0		6.7	
2nd Poorest	32.8		29.9		8.6		77.1		5.6	
Middle	44.7		42.7		20.9		83.7		15.4	
2nd Richest	45.4		43.5		22.0		83.4		15.1	
Richest	70.0		69.9		45.2		93.6		33.3	
Region		***		***		***		***		***
Tigray	79.6		83.5		56.8		96.6		43.5	
Afar	16.1		17.3		1.1		89.1		0.0	
Amhara	45.9		43.0		20.6		88.8		14.4	
Oromiya	41.6		39.3		16.5		85.7		9.8	
Somali	45.9		46.4		24.5		69.5		22.2	
Ben-gumuz	40.5		35.8		16.7		79.3		12.2	
SEP	41.5		41.3		16.9		69.5		10.5	
Gambela	40.1		36.1		12.7		77.3		10.8	
Harari	83.4		83.1		51.4		97.5		36.4	
Addis Ababa	90.2		92.6		80.9		97.8		73.8	
Dire Dawa	69.1		73.9		52.4		97.5		35.3	
Religion								***		
Traditional	45.3		43.6		22.9		85.0		16.3	
Orthodox Christian	40.0		39.1		16.8		74.4		10.4	
Vaccinations compared to 73 percent in Addis Ababa										

3.20   Table 3-7 provides adjusted odds ratios[29] for immunization among children 12-23 months old. Compared to the bivariate analysis results, the effect of urban residence on immunization is reduced significantly, perhaps because of other related factors such as wealth, which is higher in urban areas. However, regional differentials remain significant. Children in Tigray and Addis have a higher probability of being

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[29] The odds ratio compares the likelihood of observing an outcome among persons exposed to the factor of interest compared with those not exposed. In this case, what is the likelihood of a child being immunized based on the various socioeconomic/household factors listed. Results are presented as values above 1, equal to 1 or below 1. The ratios express how many more times one group is likely to be immunized than the reference group, providing a measure of the strength of the relationship.

immunized after controlling for other factors in the model. Wealth, mother's education, and partner's employment status remain significantly associated with childhood immunization although mother's exposure to media appears to have limited impact on the likelihood of being immunized. Based on the analysis, Muslim children have a greater likelihood of being immunized compared to children from other religions. Age of the child also has significant association, with two-year-old children having a lower probability of immunization than one-year-old children. Boys have a higher probability of getting one and three doses of DPT compared to girls.

USE OF VITAMIN A SUPPLEMENTATION

3.21   Ethiopia's performance in terms of vitamin A supplementation is among the highest in SSA countries (refer back to Figure 3-3). Approximately 86 percent of children are covered (UNICEF)[30]. The high coverage of vitamin A is a result of a linkage between vitamin A supplementation campaigns and polio eradication campaigns.

3.22   Households in Tigray have a higher likelihood of vitamin A supplementation compared to six regions (Afar, Oromiya, Somali, Benshangul-Gumuz, SNNPR and Gambella). The children from the poorest quintile have a lower likelihood of vitamin A supplementation. Mother's exposure to media and education is positively linked with vitamin A supplementation.

ANTENATAL CARE AND DELIVERY CARE

3.23   The healthcare that a mother receives during her pregnancy and at the time of delivery is essential for her survival and well-being, as well as for that of her child. However, utilization of antenatal and delivery care is minimal even among richer groups in Ethiopia. Figure 3-5 shows the relative standing of Ethiopia (among the poorest and richest quintiles of women) compared with other countries in terms of antenatal care (ANC), while Figure 3-6 shows the relative standing of Ethiopia in terms of delivery care. Based on the 2000 DHS, Ethiopia has one of the lowest levels of ANC (26 percent nation-wide) and delivery care by a trained health professional (five percent) in sub-Saharan Africa. Delivery care is almost negligible in the poorest quintile, and ANC is just over ten percent among the poor. Only one out of ten women make four or more ANC visits during their pregnancy. The median number of visits (2.5) made is about five times less than the recommended number of 12 or 13 visits (DHS 2000). Only one in four women who received antenatal care reported that they were informed about pregnancy complications during their visits. MOH HMIS data also present low figures: antenatal coverage rates of 34.7 percent in 2000/01, 34.1 percent in 2001/02, and 27.4 percent in 2002/03. Attended delivery rates, while higher than those cited by the DHS, are still very low at ten percent in 2000/01, declining to around 9 percent in 2002/03.

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[30] DHS data indicate that about 56 % of children under five years of age received vitamin A supplements in the six months prior to the survey while about 38 % of them consumed vitamin A rich foods seven days prior to the survey.

Figure 3-5: ANC in the Poorest Quintile by a Medically Trained Person (ranked by country)
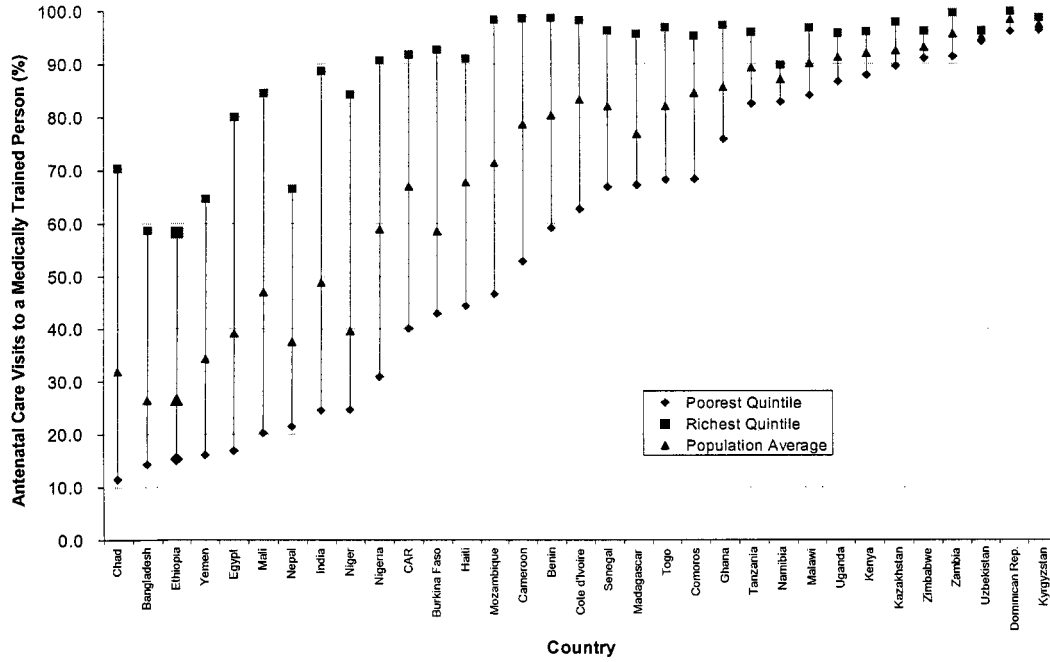
Source: Gwatkin et al. (2002), World Bank

Figure 3-6: Delivery in the Poorest Quintile Attended by a Medically Trained Person (ranked by country)
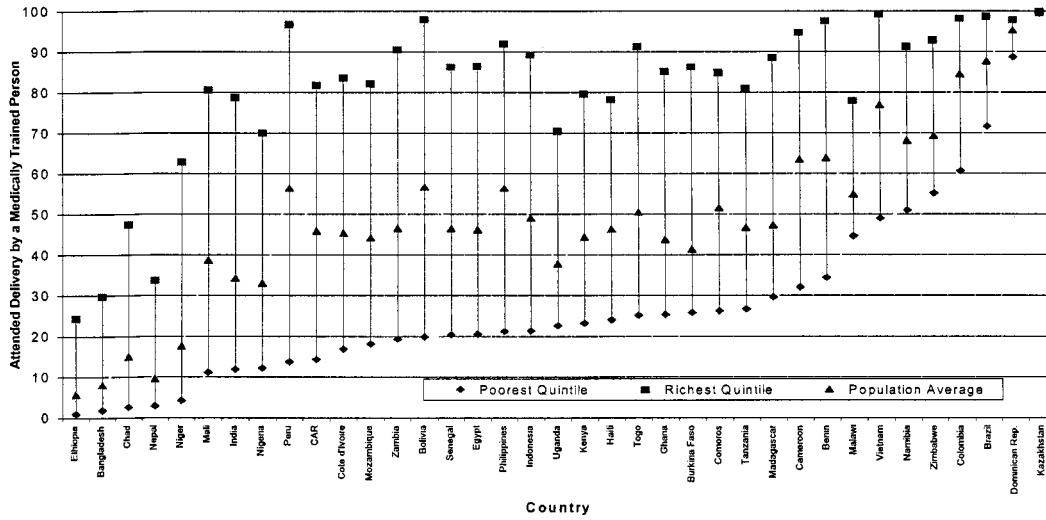
Source: Gwatkin et al. (2002), World Bank

3.24   Table 3-7 shows the bivariate results of at least one dose of tetanus, ANC by trained professionals and delivery assisted by a medically trained person. The regional differences in maternal care are significant. About 74 percent of women in Addis had received one dose of tetanus toxoid during ANC compared to only 16 percent in Afar. The same differentials by regions are found in delivery care. Delivery care in Addis is the highest (69 percent) while in Amhara it is only three percent. Rural/urban differences are also more than 20 percentage points for tetanus toxoid, ANC and delivery care. Religion-based differences are minimal, and significant only for delivery care. Wealth-based differentials are again very high, and the maximum differentials are seen in delivery care. Less than one percent of the women in the poorest quintile have deliveries attended by trained professional, compared to about 24 percent of the women in the richest quintiles. Women experiencing a first birth had the highest probability of obtaining various preventive maternal care services, including tetanus injection, ANC and assisted delivery. Maternal health care increased with higher education of the women and decreased with the age of the women.

Table 3-7: Bivariate Analysis: Percentage Distribution of Women with a Live Birth in the Five Years Preceding the Survey that received at least One Dose of Tetanus Toxoid Injection, ANC by a Trained Professional and Delivery Assistance by a Medically Trained Person[31]

	At least one dose of tetanus		ANC by trained professional		Delivery assistance by trained professional	
Total	26.3[32]		26.5		5.65	
Region		***		***		***
Tigray	27.35		36.25		4.832	
Afar	15.59		26.46		5.458	
Amhara	24.53		18.22		3.083	
Oromiya	23.8		26.95		4.917	
Somali	25.34		14.17		7.211	
Ben-gumuz	20.74		25.68		9.091	
SEP	28.69		28.33		4.946	
Gambella	37.99		49.01		23.76	
Harari	47.12		49.97		26	
Dais Ababa	74.48		83.06		69.13	
Dire Dawa	52.52		57.55		33.49	
Residence		***		***		***
Rural	22.17		21.54		2.295	
Urban	58.48		65.35		34.5	
Religion						**
Traditional	25.03		26.04		6.955	
Orthodox	27.2		25.35		4.37	
Muslims	28.16		28.08		4.065	
Wealth quintile		***		***		***
Poorest	17.38		15.32		`0.8962	
2nd Poorest	18.95		16.42		1.496	
Middle	23.08		20.55		1.449	
2nd Richest	25.99		28.71		4.844	
Richest	51.17		58.2		24.26	
Birth order of the child		***		***		***
First	30.26		31.56		12.13	
2-3 child	28.45		29.09		5.235	
4-5 child	25.98		25.91		3.614	
7+	20.86		20.13		3.245	
Mother's education		**		**		**
None	21.36		20.81		2.549	
Primary	43.74		44.88		10.39	
Secondary	61.14		71.18		44.98	
Mother's age category		**		**		**
<20	26.86		28.27		6.002	
20-29	27.94		28.07		6.338	
30-39	25.01		24.79		4.687	
40-49	20.25		20.98		3.513	

*p<0.1   **p<0.05   ***p<0.01

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[31] DHS defines trained professionals as doctors, nurses, and midwives
[32] The HMIS TT2+ estimate for 2002/03 is only marginally higher at 28 %.

3.25   Table 3-8 shows the multivariate analysis for the likelihood for women of receiving ANC care, tetanus shots and assisted delivery services. The analysis indicates that women in urban areas have a significantly higher probability of obtaining comprehensive maternal care. Maternal health care also increases with the level of female education. In particular, women with secondary education have a higher likelihood of receiving at least one tetanus injection. Muslim women have a higher probability of obtaining tetanus shots and ANC, but have a lower probability of obtaining assisted delivery services relative to women belonging to other (non-Christian orthodox) religions. Women having their first child have the highest probability of obtaining various preventive maternal care services. Women exposed to mass media have a higher probability of obtaining of at least one tetanus injection than women who have not been exposed to mass media. On the other hand, women with higher parity have a lower probability of assisted delivery care.

Table 3-8: Adjusted Odds Ratios for Maternal Health Services

	ANC tetanus (at least one dose)			ANC by trained professionals			Assistance during delivery by trained professionals		
	Odds Ratio		Std. Err.	Odds Ratio		Std. Err.	Odds Ratio		Std. Err.
Urban (rural)	2.15	***	0.37	1.82	**	0.47	2.63	***	0.65
Region (Tigray)									
Afar	0.35	***	0.09	0.53	**	0.13	1.89	**	0.57
Amhara	1.09		0.19	0.46	***	0.09	1.03	***	0.32
Oromiya	073	*	0.13	0.61	**	0.11	1.45	**	0.36
Somali	0.53	**	0.14	0.17	***	0.05	1.70	***	1.00
Ben-gumuz	0.66	*	0.14	0.60	**	0.11	3.96	**	1.07
SNNPR	1.09		0.20	0.79		0.15	1.42		0.39
Gambela	1.07		0.28	1.14		0.25	5.60	***	2.11
Harari	0.98		0.22	0.73		0.15	4.32	***	1.32
Addis Ababa	1.54	*	0.34	1.39		0.39	5.64	***	1.56
Dire Dawa	1.00		0.22	0.76		0.17	4.04	***	1.21
Wealth index (Poorest)									
2nd Poorest	1.14		0.18	1.09		0.18	1.61		0.62
Middle	1.49	**	0.23	1.35	*	0.22	1.40		0.55
2nd Richest	1.48	**	0.23	1.79	***	0.29	3.71	***	1.30
Richest	2.19	***	0.44	2.89	***	0.56	3.87	***	1.35
Household member (1-5)									
6-10 member	1.02		0.09	1.15		0.11	1.43	*	0.27
11 + member	1.01		0.22	1.58	*	0.36	1.74		0.85
Religion (Others)									
Orthodox Christian	1.20		0.19	0.86		0.14	0.66		0.19
Muslims	1.60	***	0.20	1.36	**	0.19	0.77	**	0.17
Mother's age group (<20 years)									
20-29 years	1.09		0.17	0.97		0.14	1.38		0.30
30-39 years	1.11		0.19	1.00		0.17	2.36	**	0.78
40-49 years	1.05		0.25	1.02		0.24	3.38	**	1.63
Mother's education (none)									
Primary	2.17	***	0.27	2.17	***	0.27	2.23	***	0.43
Secondary or higher	2.23	***	0.41	3.06	***	0.68	5.42	***	1.20
Exposure to mass media (none)									
Yes	1.42	**	0.18	1.28	*	0.16	1.03	*	0.20
Number of children <5 years	1.00		0.06	0.91		0.05	0.78	**	0.08
Partner's occupation (others)	0.93		0.12	0.76	**	0.09	0.35	***	0.07
Agriculturists/unskilled									
Parity (0-2)									
3-4 children	1.10		0.12	1.22	*	0.14	0.60	**	0.12
5+ children	0.97		0.13	0.86		0.14	0.40	***	0.10
Preceding birth interval (1st or <2 yrs)									
2-3 years	0.89		0.09	0.91		0.10	0.57	***	0.09
4+	0.84		0.10	1.01		0.13	0.70		0.16
Number of obs	7058.00			7065.00			10661.00		
Number of strata	1.00			1.00			1.00		
Number of PSUs	539.00			539.00			539.00		
Population size	7855.23			7860.51			12121.57		
F(31, 508)	16.82			18.56			28.65		
Prob>F	0.00			0.00			0.00		

*p<0.1   **p<0.05   ***p<0.01

WOMEN'S NUTRITIONAL STATUS

3.26   About four percent of all women and two percent of mothers of children below
three years of age have heights less than 145 cm. About one out of every three women
and one out of four mothers of children less than three-years-old have body mass indices
(BMI) less than 18.5, indicating that the level of chronic energy deficiency among adult
women is relatively high in Ethiopia compared to other SSA countries. Among
17 countries surveyed by DHS from 1998-2002, Ethiopia performs poorly, reporting the
second highest percentage of mothers who fall below the BMI cut-off of 18.5.

3.27   In general, rural women with little or no education are shorter and have lower
BMIs than those in urban areas. The percentage of women whose height is below
145 cm is highest in Tigray (4.8 percent) and lowest in Dire Dawa (1.4 percent). On the
other hand, the percentage of women with low BMIs is highest in Somali (48 percent)
and lowest in Addis Ababa (18 percent). A greater percentage of young women
(ages 15-19) have chronic energy deficiency (Table 3-9).

Table 3-9: Nutritional Status of Women in Ethiopia (2000)

Background	Height, % less<145 cm	Body Mass Index (kg/m^2), %<18.5
Age		
15-19	7	384
20-24	2.2	23.4
25-29	2.8	24.1
30-34	2.2	23.7
40-44	2.5	32.7
45-49		
Residence		
Urban	2.5	24.2
Rural	3.8	31.8
Region		
Tigray	4.8	34.9
Afar	4.3	42
Amhara	4.1	31.4
Oromiya	3	28.7
Somali	1.5	48.3
Ben-gumuz	2.7	38.1
SNNPR	3.9	30.7
Gambela	3.9	38.7
Harari	2.4	25.2
Addis	2.9	17.9
Dire Dawa	1.4	27.2
Education		
No education	3.7	30.9
Primary	4.4	30.5
Secondary	0.7	23.8
Total	**3.6**	**30.1**
Source: DHS 2000		

FEMALE CIRCUMCISION (FC)

3.28   Female circumcision is widely practiced: about 80 percent of Ethiopian women having been circumcised. Table 3-10 shows that there is no difference between rural and urban women (79.9 and 78.8 percent, respectively). Tigray and Gambella have the lowest percentages of women who have undergone female circumcision (36 percent and 43 percent respectively). The rest of the regions have FC rates of more than 70 percent with four regions (Harari, Somali, Afar and Dire Dawa) having rates of at least 94 percent, and Somali almost reaching 100 percent. Support for the practice is lower among educated women. Only 19 percent of Ethiopian women who have had at least a secondary level of education tend to support the practice compared to women who have no education (67 percent).

Table 3-10: Prevalence of Female Circumcision

Background	Percentage of women circumcised	Percentage who support practice
Age	70.7	53.4
15-19	78.3	57
20-24	81.4	58.5
25-29	86.1	65.2
30-34	83.6	63.6
40-44	85.8	66.3
45-49	86.8	66.7
Residence		
Urban	79.8	31
Rural	79.9	66.1
Region		
Tigray	35.7	25.3
Afar	98.6	76.5
Amhara	79.7	60.3
Oromiya	89.8	69.6
Somali	99.7	77.3
Ben-gumuz	73.7	53.8
SNNPR	73.5	59.8
Gambela	42.9	26.8
Harare	94.3	51.3
Addis	79.8	16.2
Dire Dawa	95.1	45.5
Education		
No education	80.4	67
Primary	78.4	48.5
Secondary	78.2	18.6
Total	79.9	59.7
Source: DHS 2000		

FAMILY PLANNING

3.29   The Ethiopian contraceptive prevalence rate has increased from four percent to eight percent among married women between 1990 and 2000, and HMIS data for 2002/03 indicates a higher contraceptive prevalence rate (CPR) of 21.4 percent. Based on available comparable data, Ethiopia still has one of the lowest CPRs in the world (Figure 3-7) although it has a relatively comparable total fertility rate to the global average. More specific to Ethiopia and along the findings regarding fertility, the urban-rural gap is striking. The urban CPR (36 percent) is nine times higher than the rural rate (4 percent). The poor-rich differential is also very marked as 29 percent of the richest women and only two percent of poorest women use any method of contraception. Despite these differences, the poor-to-rich differentials are still relatively lower in Ethiopia (in terms of modern contraceptives use) compared to other countries in the region (Figure 3-8).

3.30   Some regions (Amhara, SNNPR and Tigray) have higher levels of family planning intake. According to a 2004 report this is mainly due to the important role of development associations, including the use of community-based distribution agents.

3.31   Figure 3-9 shows the knowledge, attitude and practices of Ethiopian women by different wealth quintiles. Knowledge of a modern method of contraception is high (about 81 percent), followed by women's approval of family planning. However, knowledge of the source of modern methods and women's perception about husband's approval are low and may act as barriers to use at this level. The importance of a husband or partner's approval was emphasized by the survey. Roughly 66 percent of all women state that their decision to use contraception is based primarily on a joint decision with their husband or partner. Another ten percent state that their husband or partner is the main decision-maker. Only about one in four women (23.6 percent) make the decision to use contraception on their own.

3.32   The pill and injectables are the most widely known modern methods among all females (77.5 percent and 65.3 percent, respectively) and among all males (84.7 percent and 62.2 percent, respectively). However, while condoms are also widely recognized among males (65 percent), only about 33 percent of all females are familiar with this modern method.

3.33   Despite the relatively high knowledge of contraceptive methods, the actual use of modern contraceptives[33] is very low, even among the richest households (12.8 percent). Actual usage for all types of contraceptives is only 13 percent for females and 17 percent for males. About 11 percent of all females use modern contraceptives.

3.34   The pill is the most popular method ever-used by all females (8.6 percent), while periodic abstinence is the most common practice ever-used among all males (9.7 percent). However, there is a discrepancy between ever-use and current use of

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[33] DHS collected information on 8 modern methods (Pill, IUS, injectables, implants, vaginal methods such as diaphragm, foam, jelly, cream, condoms, female and male sterilization), as well as 2 traditional methods (abstinence and withdrawal)

family planning methods. For example, while about 13.4 percent of all women have used a family planning method at some point in time, only 5.9 percent of them are currently using a method. The pill has the highest discontinuation rate among females: only 8.6 percent of all females have reported ever using it, while only 1.9 percent of them report currently using it. In terms of current usage, the most widely used contraceptives among married females and males are the pill and injectables, and the pill and condom are the most widely used methods among sexually active unmarried females and males.

3.35   About 77.5 percent of current users obtain information on family planning and contraceptives from the public sector, 16 percent from the private medical sector, and six percent from other private sources. The major sources of contraceptives for women in the public sector are the government health center and the rural health center (serving 36 percent and 26 percent, respectively). Both the government and rural health centers are the leading sources of injectables (49.6 percent and 31.5 percent, respectively) and the pill (32.3 and 26.1 percent, respectively). On the other hand, female sterilization is mainly performed in government hospitals (85 percent), while about 59.3 percent of condom users obtain their supply from private sources, predominantly shops (23 percent).

3.36   There is a high unmet need for contraception in urban and rural areas (Table 3-11). The majority of Ethiopian women and men (98 percent) prefer to space or limit the number of children they have. However, about 36 percent of currently married women are not using contraception even though they either do not want to have more children (14 percent) or they would like to space them by about 2 years (22 percent). Unmet need is even higher in rural areas (37.3 percent) compared to urban areas (25 percent). This statistic suggests a failure on the supply side to respond to a demand for family planning even in rural areas. Large variations can be found between regions. Unmet need is largest in Amhara (41 percent), followed by Oromia (36.4 percent), SNNPR(35.5 percent), Gambella (34.4 percent), Harari (30 percent), and Tigray (28 percent). If all currently married women who would like to space or limit the number of their children were to use family planning, the contraceptive prevalence rate in Ethiopia would increase from 8 percent to about 44 percent (DHS 2000).

3.37   Levels of demand also play an important role in family planning. As can be seen in the multivariate analysis in Table 3-12, in rural areas among the poor in large households, women are less likely to approve of family planning and prefer to have more than five children. Moreover, women who are more educated and exposed to media sources are more likely to be familiar with a modern method and a modern method source; approve of family planning; and apply family planning methods in their homes.

3.38   Results also indicate religion-based differences. Knowledge of modern methods is more predominant among Orthodox Christians than in other religions. Muslims are more likely to be familiar with a modern method source, but adhere to the muslim "ideal" family size of five children.

Figure 3-7: Average Use of Modern Contraceptives by Women in the Richest and Poorest Quintiles

× Poorest quintile ▲ Richest quintile — Average
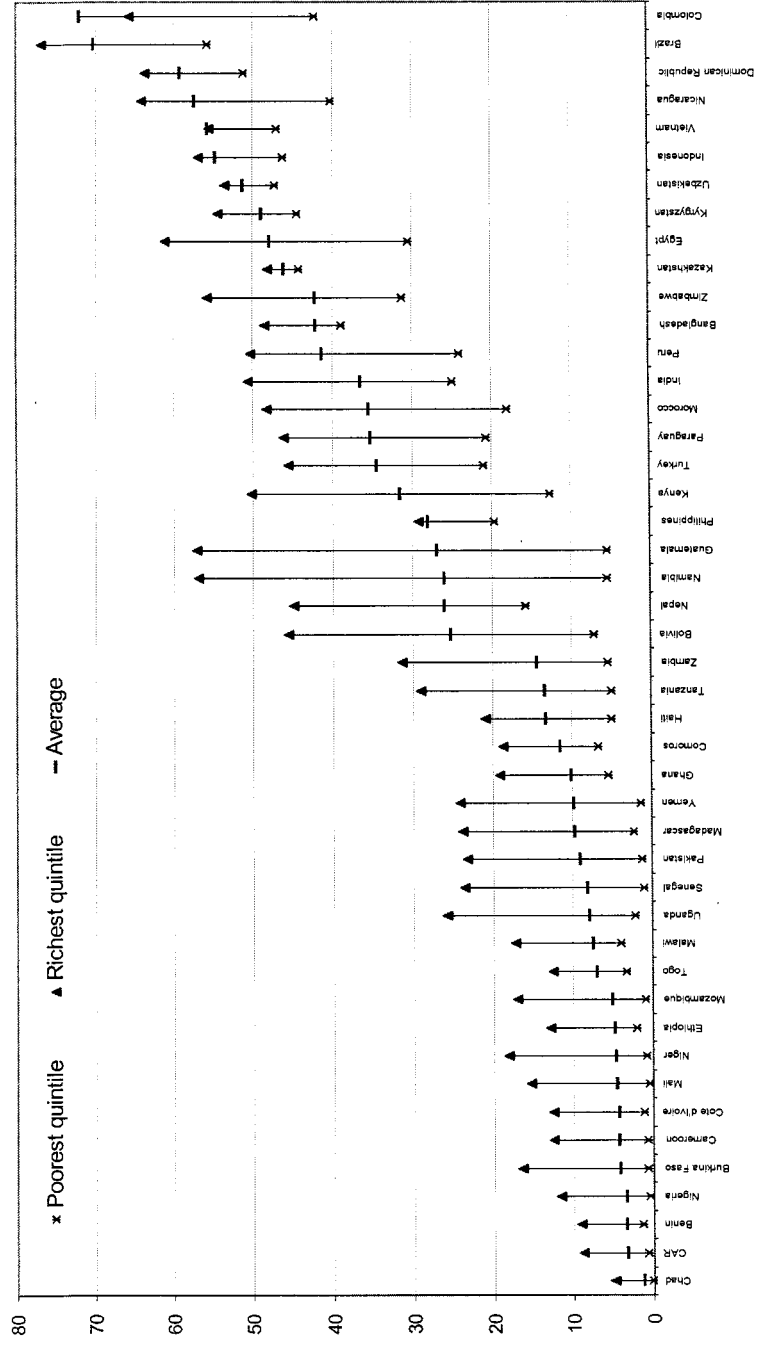
Figure 3-8: CPR and TFR in sub-Saharan African Countries
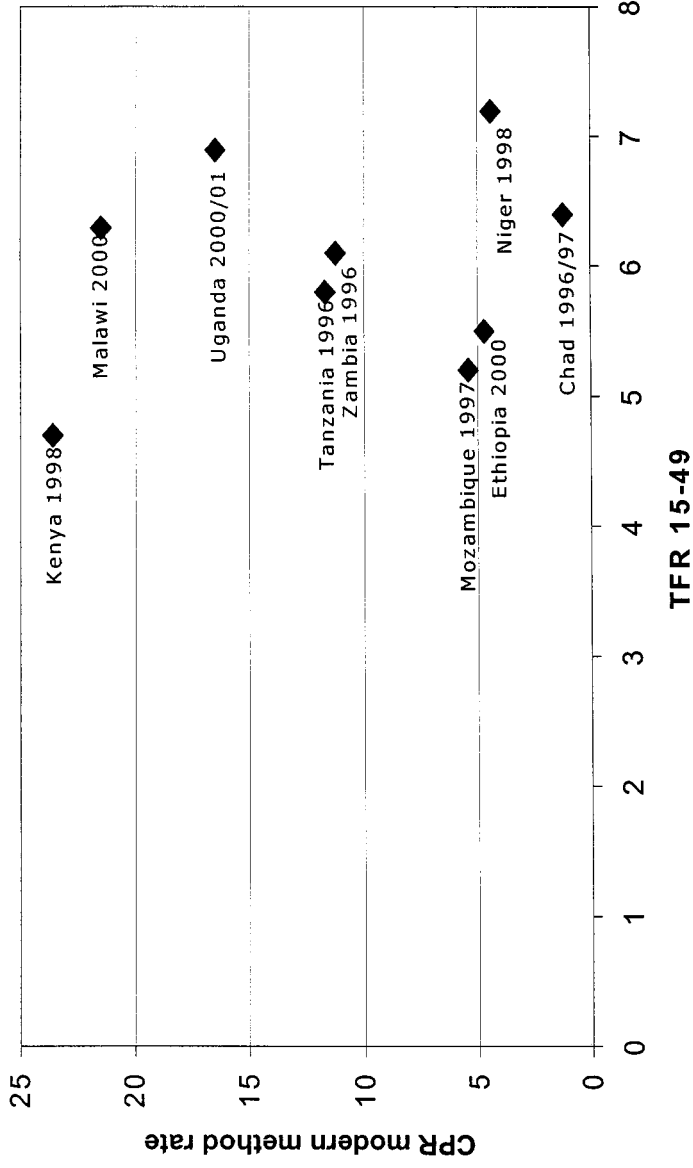
3.39   Significant regional variations are also seen regarding family planning.
Compared to Tigray, women in other regions are less likely to know about modern
methods and modern method sources; approve of family planning (except for women in
Addis), and perceive husband's approval as being low. However, actual use of modern
methods is more likely in Gambella than Tigray. Compared to Tigray women, Benshagul
women are more likely to consider the ideal number of children to be more than five.
The opposite is true for women in Amhara, Oromiya, SNNPR, Gambella and Addis.

Figure 3-9: Various Family Planning Indicators by Wealth Quintiles in Ethiopia
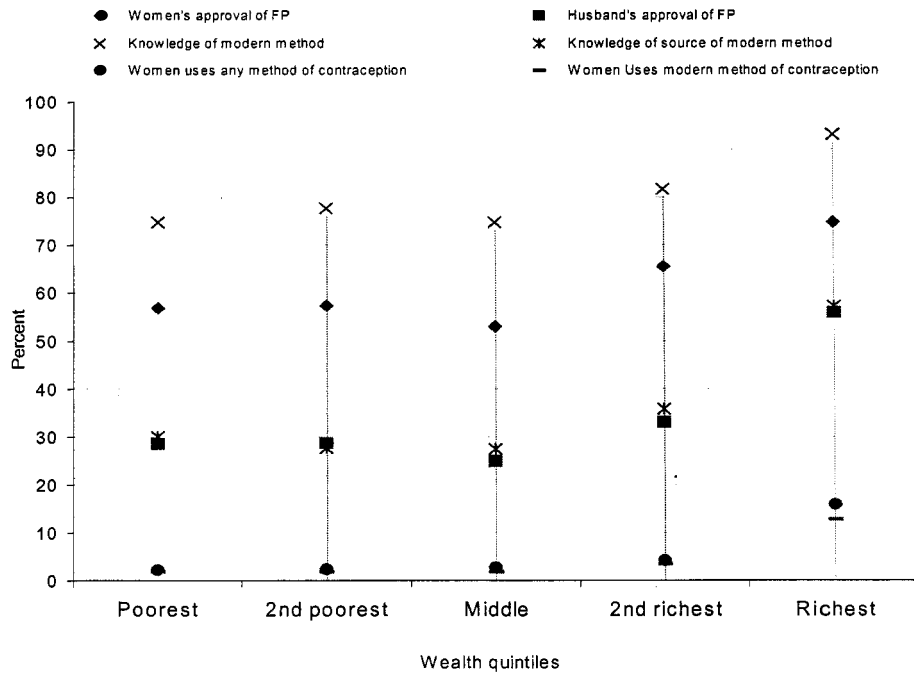
Source: DHS

3.40   Obtaining the husband's approval seems to be a major restraint. Only in the
richest 20 percent of the population can we find a significantly higher proportion of men
approving family planning methodology (60 percent). The involvement of
husbands/partners is clearly needed to address demand side issues.

Table 3-11: Need for Family Planning (FP) for Currently Married Women in Ethiopia (2000)

Background	Unmet need for FP	Met need for FP (currently using FP)	Total demand for FP	Percentage of demand satisfied
Age				
15-19	40.4	3.9	44.3	8.8
20-24	37.8	7.5	45.3	16.5
25-29	37.2	9.6	46.8	20.6
30-34	38.8	9	47.7	18.8
35-39	35.8	10.9	46.7	23.3
40-44	37.2	7.9	45.1	17.6
45-49	18.1	4.1	22.3	18.6
Residence				
Urban	25	35.6	60.6	58.8
Rural	37.3	4.3	41.5	10.3
Region				
Tigray	28	10.2	38.1	26.7
Afar	12.3	7.7	20	38.6
Amhara	40.9	7.5	48.3	15.5
Oromiya	36.4	6.6	43	15.4
Somali	14.3	2.6	16.9	15.3
Ben-gumuz	31.9	8.7	40.7	21.5
SNNPR	35.5	6.4	41.9	15.2
Gambela	34.4	13.5	47.9	28.2
Harari	30.1	22	52.1	42.2
Addis	19.2	45.2	64.3	70.2
Dire Dawa	24.5	28.4	53	53.7
Education				
No education	35.3	4.6	39.9	11.5
Primary	41.6	16.4	58	28.3
Secondary	29.1	44.8	73.8	60.6
Total	**35.8**	**8.1**	**43.8**	**18.4**
Source: DHS 2000				

KNOWLEDGE OF HIV/AIDS

3.41 *A very high percentage of Ethiopian women (85 percent) and men (96 percent) are familiar withHIV/AIDS*. A majority (80 percent of women and 71 percent of men) cite community meetings as their source of information on HIV/AIDS.

3.42 Multivariate results shown in Table 3-12 indicate that women from richer, larger households and urban areas are more knowledgeable about HIV/AIDS prevention. In addition, educated women and those exposed to media are more aware of HIV/AIDS prevention methods. Higher parity women are more likely to know how to prevent HIV. Younger women are less likely to know about HIV/AIDS intervention. It is important to intensify information campaign efforts to reach women in their teens and early twenties as the MOH (2002) sentinel survey findings indicate that the highest percentage of recent HIV/AIDS infections among women is found in the 15 to 25 years age group.

3.43   Compared to women in most other regions, women in Tigray have a better understanding of HIV/AIDS prevention.

KNOWLEDGE OF SEXUALLY TRANSMITTED ILLNESSES (STIs)

3.44   *In Ethiopia, while knowledge of HIV/AIDS is very high, knowledge of STIs and their symptoms is much lower.* Only 63 percent of women and 81 percent of men have knowledge about STIs. About 25 percent of women and 14 percent of men did not know of any male STI symptom. A similar pattern is observed in the case of STI detection for females: 27 percent of women and 41 percent of men have no knowledge of any female symptom. Lack of knowledge about STIs is especially high among the 15-19 year old age group (54.3 percent for women and 43.5 percent for men); those who have never married (50.5 percent for women and 33.6 percent for men); those who have never had intercourse (52.3 percent for women and 41.4 percent for men); and those who live in rural areas (41 percent for females and 21.6 percent for males). Among regions, lack of STI knowledge is highest in Afar and Gambella (over 60 percent) compared to Addis (14 percent) and Dire Dawa (16.7 percent).

3.45   Among men who have had intercourse, about three percent reported an STI or experienced physical symptoms. Of the men who had an STI or associated symptoms, only half sought medical advice or treatment. It is worrisome that 54 percent of these men did not inform their partners, and 58 percent did not take any action to protect their partners (DHS 2000).

Table 3-12 : Adjusted Odds for Knowledge, Attitude and Practices Relating to Family Planning and Knowledge of HIV/AIDS Prevention Morbidity and Care Seeking Behavior

	Knows modern method		Knows source of modern method		Husband approves FP		Woman approves FP		Uses modern FP		Ideal number of children>5		Does not know any method to prevent HIV/AIDS	
	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
Urban (rural)	2.35***	0.48	1.17	0.25	1.61	0.39	1.21	0.21	2.30***	0.61	0.65**	0.10	0.56***	0.10
Region (Tigray)														
Afar	0.12***	0.03	0.11***	0.03	0.09***	0.02	0.08***	0.02	1.73	0.56	0.94	0.21	8.26***	2.03
Amhara	0.56**	0.13	0.33***	0.06	0.48***	0.09	0.38***	0.06	1.28	0.29	0.51***	0.07	1.36	0.28
Oromiya	0.39***	0.08	0.18***	0.03	0.31***	0.06	0.41***	0.06	0.52***	0.12	0.66***	0.08	3.10***	0.63
Somali	0.09***	0.02	0.08***	0.02	0.03***	0.01	0.03***	0.01	0.42	0.33	5.02***	1.79	11.04***	2.74
Ben-gumz	0.14***	0.04	0.18***	0.04	0.26***	0.06	0.20***	0.04	1.55*	0.36	0.59***	0.12	4.72***	1.31
SNNPR	0.19***	0.04	0.14***	0.03	0.23***	0.05	0.30***	0.05	0.89	0.26	1.17	0.17	5.62***	1.23
Gambela	0.09***	0.03	0.24***	0.06	0.12***	0.03	0.16***	0.04	1.83**	0.53	0.58***	0.09	11.26***	3.17
Harari	0.34***	0.09	0.19***	0.04	0.39***	0.10	0.30***	0.07	0.96	0.23	1.17	0.19	5.92***	1.43
Addis Ababa	0.47**	0.14	0.21***	0.05	0.44***	0.12	0.53	0.12	0.83	0.17	0.63***	0.10	2.83***	0.75
Dire Dawa	0.38***	0.11	0.23***	0.05	0.36***	0.10	0.36***	0.08	0.98	0.22	1.02	0.17	6.84***	1.89
Wealth Index (Poorest)														
2nd Poorest	1.09	0.11	0.85	0.11	0.89	0.11	0.95	0.10	0.64	0.22	1.02	0.12	0.91	0.11
Middle	1.07	0.12	0.87	0.11	0.83	0.09	0.86	0.08	0.99	0.27	1.05	0.13	0.90	0.11
2nd Richest	1.54***	0.18	1.20	0.16	0.85	0.10	1.23	0.13	1.59*	0.41	0.88	0.11	0.55***	0.07
Richest	1.72***	0.30	1.86***	0.32	0.88	0.15	1.28	0.17	3.72***	1.14	0.67**	0.11	0.37***	0.06
Religion (Others)														
Orthodox	1.34**	0.18	1.16	0.15	0.99	0.11	1.12	0.13	0.61*	0.16	1.01	0.15	0.55***	0.07
Muslims	1.13	0.13	1.41***	0.16	0.77	0.09	1.01	0.10	0.93	0.19	1.91***	0.23	0.97	0.11
Household member (1-5)														
6-10 member	0.71***	0.05	0.88*	0.06	1.01	0.09	1.05	0.06	0.88	0.11	1.02	0.06	1.20***	0.07
11+ member	0.94	0.16	0.83	0.13	1.09	0.24	1.49	0.23	0.98	0.26	0.90	0.13	1.29	0.22
Mother's age group (<20 years)														
20-29 years	2.68***	0.21	2.22***	0.18	0.86	0.11	1.43***	0.09	4.45***	1.17	1.29***	0.09	0.53***	0.04
30-39 years	3.36***	0.39	2.46***	0.30	0.76	0.12	1.08	0.10	3.78***	1.20	1.39***	0.13	0.51***	0.05
40-49 years	1.92***	0.25	1.86***	0.24	0.68	0.11	0.73***	0.07	1.84*	0.59	1.74***	0.20	0.56***	0.06
Mother's education (None)														
Primary	2.67***	0.32	2.34***	0.22	1.10	0.12	2.23***	0.18	2.23***	0.33	0.48***	0.04	0.26***	0.03
Secondary or higher	14.89***	6.17	3.49***	0.41	4.48	1.13	3.83***	1.04	2.38***	0.40	0.28***	0.04	0.04***	0.02
Exposure to mass media (None)														
Yes	2.44***	0.43	1.47***	0.14	0.97	0.15	1.48***	0.14	1.04	0.16	0.99	0.09	0.48***	0.08
Parity (0-2)														
3-4 children	1.80***	0.17	1.46***	0.11	1.27	0.12	1.40***	0.10	3.00***	0.50	1.91***	0.15	0.83**	0.07
5+ children	2.27***	0.29	1.59***	0.17	1.49***	0.18	1.55***	0.14	4.39***	0.97	2.57***	0.27	0.78***	0.08
Number of obs	15367		15345		9376		15357		15367		15367		15367	
Number of strata	1		1		1		1		1		1		1	
Number of PSUs	539		539		539		539		539		539		539	
Population size	15367		15362		9786		15362		15367		15367		15367	
F(31, 508)	32.96		28.35		17.26		23.74		21.62		45.08		33.30	
Prob>F	000		0.00		0.00		0.00		0.00		0.00		0.00	

Figure 3-10: Percentage of those Ill in the Last Two Months Seeking Care by Gender Illness in the Last Two Months, and seeking percent of those ill seeking care by gender

Source: WMS 2000

3.46   The Welfare Monitoring Survey 2000 (WMS 2000) asked questions about illness/injury during a two month period prior to the survey. Figures 3-10 and 3-11, and Tables 3-13 to 3-16 summarize the results. About 27 percent of respondents reported having one or more health problems over the past two months with the incident being 28 percent among rural populations and 19.5 percent among urban ones. About one out of three children in the 0-4 year old age group experienced health problems. On average, reported morbidity is highest in the five and under age group and in the 50 years and greater age group. Morbidity is highest in Benshangul-Gumuz and lowest in Dire Dawa. The poor-to-rich ratio for morbidity is highest in Dire Dawa and Addis Ababa.

3.47   On average, out of the 27 percent reported cases of injury or illness, Ethiopian households sought care for 41 percent of these cases (38 percent in rural areas and 66.6percent in urban areas). While there is no variation of reported incidence of injury or illness between rich and poor households, the national level poor-to-rich ratio for seeking care is 0.68, ranging from 0.54 in Afar to 1.12 in Tigray (Table 3-15). While females reported slightly higher levels of morbidity than males, a lower percentage of ill females sought healthcare (Figure 3-11). The likelihood of a person seeking care is highest in the under five age group and lowest in the 50 years and greater age group (Table 3-16).

Figure 3-11: Rate of Ill People Seeking Consultation in the Last Two Months by Gender and Age
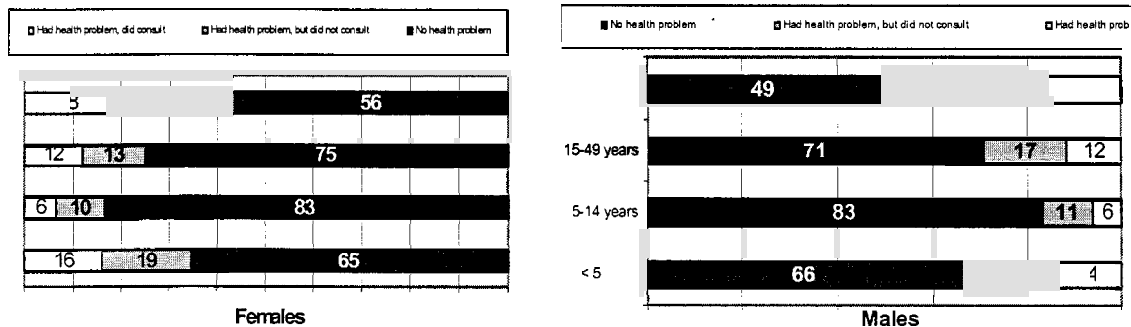
Source: WMS 2000

Table 3-13: Reported IllnessIinjury during the Two Months prior to Survey by Wealth Quintiles in Different Regions of Ethiopia

Region	Poorest	2nd Poorest	Middle	2nd Richest	Richest	Average	Poor to rich ratio
Tigray	33	34	30	31	29	31	1
Afar	27	17	23	30	30	25	0.90
Amhara	28	27	29	31	31	29	0.90
Oromiya	26	26	25	27	26	26	1.01
Somali	27	32	38	37	31	33	0.87
Benshangul	37	41	35	38	40	38	0.92
SNNPR	27	24	24	26	27	26	1.02
Gambella	33	29	29	30	41	33	0.81
Harari	19	26	28	24	25	25	0.78
Addis Abba	22	18	16	17	17	17	1.32
Dire Dawa	49	39	30	35	35	36	1.42
Total	**27**	**26**	**27**	**29**	**27**	**27**	**1.01**

Source: WMS 2000

Table 3-14: Reported illness/injury during the Two Months prior to Survey in Different Age Categories by Wealth Quintiles

Age category	Overall	Poorest	2nd Poorest	Middle	2nd Richest	Richest
<5 yrs	34.35	33.06	33	34.18	36.42	36.14
5-14 yrs	16.71	16.7	15.12	17.2	17.92	17.12
15-49 yr	27.24	29.35	27.4	26.69	28.14	24.65
>50 yrs	47.28	47.43	47.59	44.66	47.6	48.28

Source: WMS 2000

Table 3-15: Distribution of Individuals with a Health Problem that Consulted for Treatement by Region

Region	Poorest	2nd poorest	Middle	2nd richest	Richest	Overall average	Poor-to-rich ratio
Tigray	51	43	43	46	45	45	1.12
Afar	33	38	46	51	62	48	0.54
Amhara	20	23	26	31	31	27	0.65
Oromiya	46	46	48	48	49	47	0.94
Somali	46	46	48	48	49	40	0.94
Benshangul	55	61	60	65	78	60	0.71
SNNPR	36	39	47	47	53	43	0.68
Gambella	36	39	47	47	53	75	0.68
Harari	36	39	47	47	53	51	0.68
Addis Abba	36	39	47	47	53	64	0.68
Dire Dawa	36	39	47	47	53	46	0.68
Total	**36**	**39**	**47**	**47**	**53**	**41**	**0.68**

Source: WMS 2000

Table 3-16: Distribution of Individuals with a Health Problem that Consulted for Treatement by Age and Income Quintile

	Poorest	2nd Poorest	Middle	2nd Richest	Richest	Overall
<5 yrs	42.43	41.28	41.81	45.93	50.42	44.03
5-14 yrs	37.79	36.68	36.14	38.56	39.5	37.62
15-49 yr	39.39	40.54	42.91	43.51	50.93	43.37
>50 yrs	36.46	32.56	35.63	36.91	35.34	35.41
Total	**39.35**	**38.71**	**40.11**	**42**	**45.76**	**41.1**

3.48   Compared to other countries, Ethiopia has one of the lowest levels of care-seeking for Acute Respiratory Infection (ARI) and one of the lowest percentages of children with diarrhea who have received ORS (Table 3-17). Figure 3-12 shows the care-seeking behavior for ARI among the richest and poorest quintiles in different countries. The rate of ARI care-seeking among the wealthiest segment of Ethiopia's population is lower than the rate in the poorest populations in many SSA countries.

Figure 3-12: Poor-to-rich Care-seeking rates for ARI in selected sub-Saharan African Countries
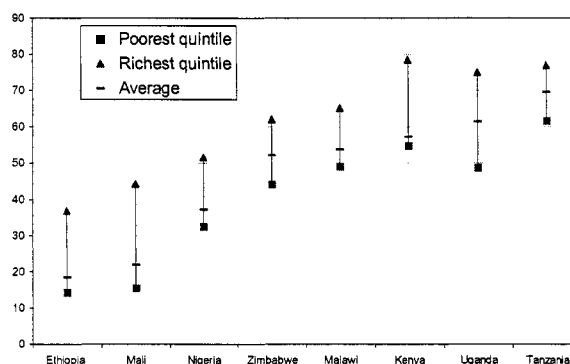
Source: Gwatkin et al., 2002

Table 3-17: ARI and Diarrhea Incidence and Care-seeking Behavior in Ethiopia (2000)

Country	Percent with ARI taken to a health provider	Percent with diarrhea that received ORS packet
CAR	41.2	24.0
Chad	21.7	15.6
Nigeria	49.7	34.3
Ethiopia	15.8	13.1
Kenya	57.3	36.9
Malawi	46.1	49.7
Mozambique	38.5	41.9
Tanzania	67.5	54.9
Uganda	61.4	48.2
Zambia	70.7	53.9

3.49   Table 3-18 provides information on the care-seeking rates for diarrhea across wealth quintiles. Seventy-nine percent of the children in the poorest quintile and 57 percent in the richest quintile did not seek any treatment for diarrhea. Sixty-two percent in the poorest quintile and 36 percent in the richest quintile did not receive any home-based treatment. Forty percent of people in the poorest quintile (compared to only 13 percent in the richest) were not familiar with ORS.

3.50   Table 3-19 summarizes the results of multivariate logistic regression used to assess the independent effects of various socio-economic and demographic variables on prevalence and care-seeking rates for diarrhea and ARI. Prevalence of ARI is lower in urban areas; households with more than five members' agriculturist/unskilled families; and among older children. Significant regional differences are seen in the prevalence of ARI rates with Tigray having a significantly higher prevalence rate relative than seven other regions.

Table 3-18: Diarrhea: Household Care-seeking Behavior in Ethiopia by Income Quintile

	Poorest Quintile	Richest Quintile	Below poverty line	Above poverty line	Average
No treatment sought	79.1	56.8	79.8	67.2	74.2
Treatment sought					
Public sector					
Hospital	0.7	9.8	0.8	4.8	2.6
Health center	2.6	9.3	2.4	6.2	4.1
Health post	0.4	0.3	0.3	1.0	0.7
Community health worker	0.0	0.0	0.1	0.0	0.1
Other public sector including health station	7.7	9.1	7.0	8.7	7.8
Private sector					
Private Doctor/hospital	0.9	5.3	0.8	3.1	1.9
Pharmacy/shop	4.2	6.0	4.9	5.7	5.3
Other private sector	4.6	3.5	3.7	3.2	3.5
Treatment given					
ORS	7.8	33.2	8.5	19.72	13.1
RHF at home	1.4	9.4	3.131	9.082	5.5
Home remedy/others	7.8	3.9	6.69	7.997	7.2
Others (Injection/pills/syrup)	21.2	18.0	20.28	18.38	19.5
None of the above	61.9	35.5	61.4	44.82	54.7
Knowledge of ORS					
Never heard of ORS	39.6	13.1	42.3	21.7	33.5
Used ORS	2.5	9.3	3.0	6.1	4.3
Heard of ORS	57.9	77.6	54.7	72.3	62.2

Source: DHS 2000

3.51   Care-seeking rates for ARI are higher in other regions (Somali, Benshangul-Gumuz, Gambella, Harari, Addis and Dire Dawa) compared to Tigray. ARI care is more likely to be sought for male children and less likely to be sought for children of high parity and older children. Mothers who are exposed to mass media are more likely to seek care for ARI.

3.52   The prevalence of diarrhea is lower in urban areas; among children with educated mothers; and among older children. Compared to Tigray, children in SNNPR, Oromia, Benshangul Gumuz and Gambella have a higher prevalence of diarrhea. Compared to other religions, children who are Orthodox Christians or Muslims have a higher prevalence of diarrhea. ORS use during diarrhea is lower in Amhara compared to Tigray, but higher in Somali. People in rich quintiles and mothers who are exposed to mass media are more likely to use ORS.

Table 3-19 : Adjusted Odds Ratios for Prevalence and Care-seeking/giving for ARI and Diarrhea

	Prevalence		Seeking Treatment		Prevalence		ORT use during diarrhea	
	Odds Ratio	Std. Err.	Odds Ratio	Std. Err.	Odds Ratio	Std. Err.	Odds Ratio	Std. Err.
Urban (rural)	0.48***	0.09	1.40	0.59	0.60*	0.15	3..15**	1.43
Region (Tigray)								
Afar	0.69*	0.14·	2.37*	1.09	0.72	0.15	0.70	0.35
Amhara	0.66***	0.10	1.12	0.41	1.09	0.17	0.49**	0.15
Oromiya	0.99	0.14	1.61	0.55	1.38**	0.20	0.69	0.22
Somali	0.80	0.16	5.84***	3.55	1.08	0.25	2.87**	1.19
Ben-gumuz	1.07	0.19	2.59**	0.92	1.50*	0.32	0.99	0.35
SNNPR	0.69**	0.10	1.95*	0.75	1.58**	0.26	0.75	0.25
Gambela	0.70*	0.14	7.53***	3.28	1.49*	0.30	1.53	0.72
Harari	0.60***	0.12	2.68**	1.15	1.27	0.26	0.75	0.30
Addis Ababa	0.46***	0.11	2.66*	1.55	0.82	0.22	0.63	0.35
Dire Dawa	0.52***	0.12	2.49*	1.17	1.16	0.24	0.43	0.22
Wealth Index (Poorest)								
2nd Poorest	1.23*	0.14	0.87	0.25	1.24*	0.16	1.42	0.42
Middle	1.25*	0.16	1.18	0.32	1.26*	0.15	2.37***	0.70
2nd Richest	1.21	0.16	1.06	0.29	1.08	0.14	1.92**	0.58
Richest	1.15	0.18	1.74	0.60	1.15	0.17	2.36**	0.86
Household member (1-5)								
6-10 member	0.86*	0.08	1.41	0.30	0.85*	0.07	0.97	0.20
11 + member	0.59*	0.14	1.72	0.81	0.89	0.18	0.46	0.22
Religion (Others)								
Orthodox	0.95	0.13	0.95	0.32	1.53***	0.22	0.62*	0.18
Muslims	0.94	0.11	1.16	0.31	1.34**	0.14	1.02	0.20
Mother's age group (<20 years)								
20-29 years	1.02	0.12	1.08	0.34	1.11	0.13	0.68	0.17
30-39 years	1.06	0.17	1.13	0.39	1.00	0.14	0.64	0.21
40-49 years	1.37	0.27	1.43	0.58	1.13	0.22	0.84	0.34
Mother's education (None)								
Primary	0.90	0.10	0.99	0.21	0.77**	0.08	1.35	0.33
Secondary or higher	0.88	0.18	1.54	0.54	0.68*	0.15	1.48	0.81
Exposure to mass media (None)								
Yes	1.01	0.15	1.95**	0.49	1.09	0.15	3.16***	0.84
Partner's occupation (Others)								
Agriculturists/unskilled	0.68***	0.09	0.75	0.19	0.84	0.11	0.71	0.20
Parity (0-2)								
3-4 children	0.97	0.11	0.69*	0.15	1.13	0.10	1.28	0.26
5+ children	0.96	0.15	0.45**	0.14	1.09	0.14	1.24	0.36
Preceding birth interval (1st or <2 years)								
2-3 years	1.08	0.09	0.91	0.17	0.95	0.09	0.88	0.16
4+	1.05	0.13	0.93	0.21	1.15	0.13	0.75	0.20
Sex of the kid (Female)								
Male	1.03	0.07	1.28*	0.18	1.07	0.08	0.99	0.15
Age of kid (<1 year)								
1 year	1.05	0.11	1.27	0.29	1.63***	0.17	0.86	0.18
2 years	0.89	0.09	0.99	0.23	0.96	0.10	1.00	0.23
3 years	0.68***	0.07	0.71	0.16	0.51***	0.06	0.76	0.22
4 years	0.62***	0.06	0.56**	0.16	0.35***	0.05	0.92	0.29
Number of observations	9368		2160		9368		2113	
Number of strata	1		1		1		1	
Number of PSUs	539		480		539		478	
Population size	10631		2599		10631		2517	
F(33, 501)	5.11		4.07		10.79		5.67	
Prob>F	0.00		0.00		0.00		0.00	

HOUSEHOLD UTILIZATION OF SERVICES

3.53 Figure 3-13 shows that among those households that seek treatment, about 45 percent seek care from a public facility, while the rest obtains care from a private or other type of facility (15.5 percent go to private pharmacies; 27.6 percent seek care from private facilities or private personnel; 12.4 percent go to other types of facilities; and only 3.3 percent utilize NGOs). The WMS 2000 states that only 0.9 percent of seek out traditional medicine.[34]

3.54 Other than in Addis, Oromiya, SNNPR and Dire Dawa, more than 50 percent of consultations take place in a public facility.

Figure 3-13: Use of Public or Private Facility for Last Consultation by Region
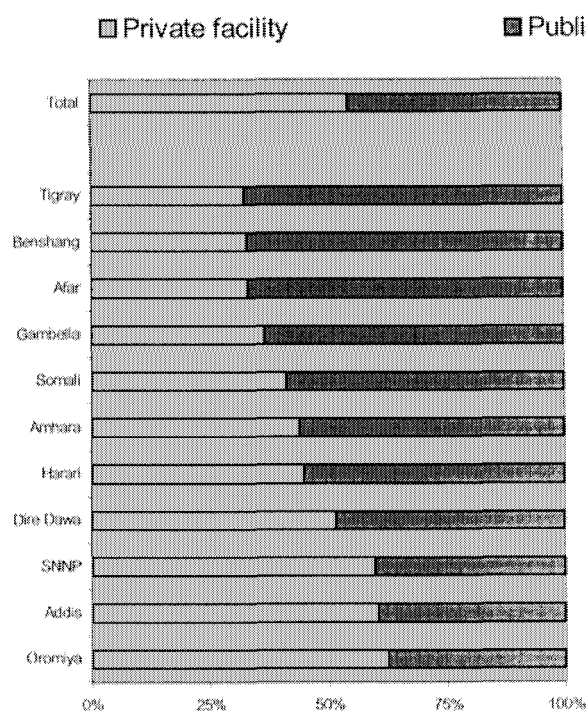
3.55 Figure 3-14 shows the distribution of clients seeking curative care from different levels of health facilities by wealth quintiles. While public and private facilities are used almost equally, both are principally utilized by the richest households. Except in the richest quintile, health stations/clinics seem to be the main providers of care, followed by health centers. Health posts constitute only five percent of total service provision.[35]

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[34] This is, however, in contrast to the information provided by the Ethiopia Health & Nutrition Research Institute and WHO, which estimates that 90% of the population consults traditional medicine practitioners.

[35] While this number may seem very low, it is also to be expected because health posts are responsible for providing preventive care and not curative care.

Both health posts and health stations provide a greater amount of services to the poor than to the rich (Figure 3-14 and Table 3-20).

3.56   Public hospitals and private hospitals are utilized more by the richest quintile of households, while public clinics, pharmacies and other trained private providers are frequented more by those from poorest quintile. The households from the poorest quintile utilize public hospitals the least. The rich-to-poor ratio is lowest for health post and health station/clinics and highest for government hospitals.

Figure 3-14 Health Facility Utilization in Different Wealth Quintiles
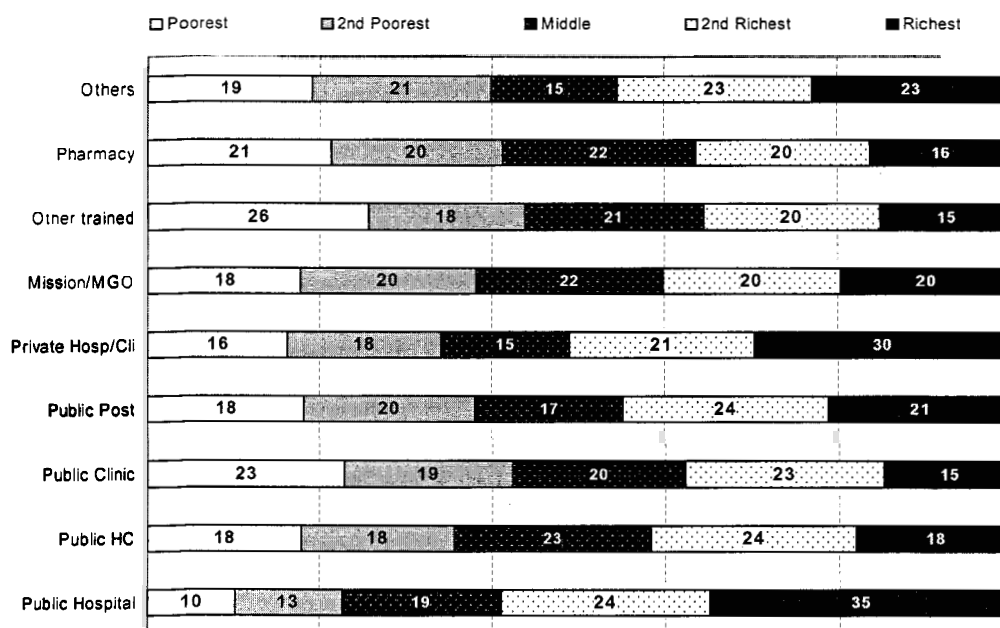
Table 3-20: Use of Public and Private Facilities by Income Quintile

	Poorest	2nd Poorest	Middle	2nd Richest	Richest	Average	Rich-to-poor ratio
Government							
Hospital	3.2	5.2	6.7	4.9	18.4	8.5	5.7
Health center	26.3	20.3	23.4	28.5	41.9	29.5	1.6
Health station/clinic	49.5	53.3	44.5	45.9	26.2	42.3	0.5
Health post	4.8	5.1	10.0	5.2	0.9	4.9	0.2
Community-based outlet	0.2	0.8	1.0	1.4	1.7	1.1	10.3
Other facilities							
NGO	0.4	0.3	0.0	0.1	0.8	0.4	2.0
Private hospital/doctor/clinic	11.4	12.0	10.0	10.9	8.6	10.4	0.8
Kebele (during campaign)	3.7	2.3	3.2	2.1	0.8	2.3	0.2
Others	0.6	0.7	1.2	0.9	0.6	0.8	1.0

REASONS FOR CHOOSING A HEALTH FACILITY

3.57   Different reasons seem to motivate clients to use different types of health facilities. Positive previous experience seems to motivate clients to go to all hospitals (public hospital, mission/NGO and private). Use of private hospitals, NGO/mission and public hospitals seem to be based more on recommendations. Public clinics and public health posts appear to be utilized because of their proximity, while public health centers, public hospitals and NGOs are used because they are less expensive. Pharmacies are favored because the waiting time is less in these facilities (Figure 3-15). Public hospitals, private hospitals, and mission/NGO facilities are utilized because of their high quality of care (Figure 3-15).

3.58   Among all the reasons cited, proximity (38 percent) and quality of care (23 percent) emerge as the two most important reasons for selecting a facility. Poorer clients are more likely to mention proximity as their reason for choosing a facility, while rich clients are more likely to cite quality of care (Table 3-21). The different reasons for selecting a health facility by region are displayed in Table 3-22.

3.59   In the DHS 2000, women were asked whether or not they sought care during illness, and if not, their reason for not seeking care; Table 3-23 summarizes the results by wealth quintiles. Overall, 66 percent of women sought care when ill (ranging between 56 percent among the poorest to 86 percent among the richest). Among the various reasons cited for not seeking care, the most important reason was "no money for treatment" (56 percent) followed by "no health facility nearby" (27 percent) and "non-serious nature of sickness" (ten percent).

Table 3-21: Reasons for Choosing a Particular Health Facility by Wealth Quintile

	Positive experience from previous consultations	Recommendation from other person	Available nearby/proximity	Cheaper than other / free of charge	Better quality than other	Short time of waiting	Other	Not stated
Poorest	5	7	42	12	20	5	8	1
2nd Poorest	5	9	38	10	22	6	8	1
Middle	6	8	39	10	23	7	6	0
2nd Richest	8	9	38	9	23	6	6	1
Richest	8	9	34	9	27	7	6	1
Total	**6**	**8**	**38**	**10**	**23**	**6**	**7**	**1**

Table 3-22: Reasons for Choosing a Health Facility by Region

	Positive Experience from previous consultations	Recommendation from other person	Available nearby	Cheaper than other/free of charge	Better quality than other	Short time of waiting	Other	Not stated
Tigray	8	7	46	10	16	8	4	1
Afar	7	6	42	8	26	4	5	2
Amhara	5	8	43	7	20	8	7	1
Oromiva	7	10	34	11	24	6	8	1
Somalia	6	6	45	14	16	8	3	1
Benshangul	4	3	56	6	18	7	6	0
SNNPR	6	7	39	8	28	5	5	1
Gambela	4	3	45	16	19	4	7	2
Harari	8	14	29	17	16	5	11	0
Addis	7	9	26	23	20	5	9	1
Dire Dawa	9	6	28	23	21	7	6	1
Total	6	8	38	10	23	6	7	1

Figure 3-15: Distribution of Reasons for Facility Choice
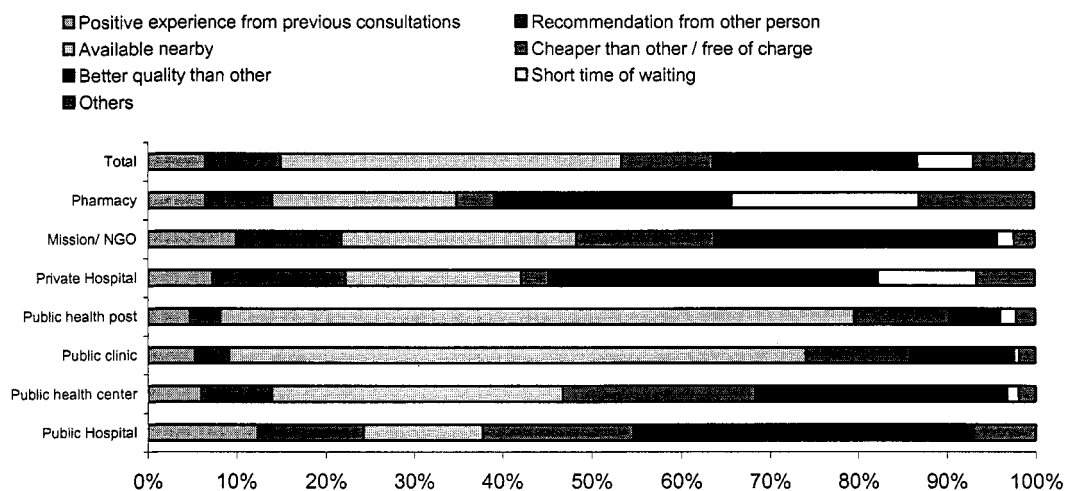
Figure 3-16: Proportion of Responses Citing Quality as Reason for Selecting a Particular Facility
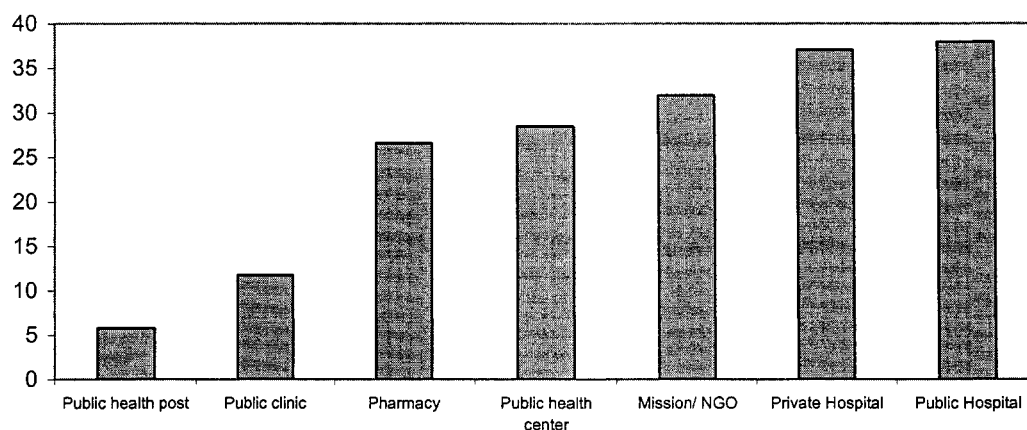
Source: WMS 2000

Table 3-23: Reasons for Women Seeking or Not Seeking Care by Wealth Quintile

	Poorest	2nd Poorest	Middle	2nd Richest	Richest	Average
Sought medical treatment when women was sick	57.8	57.7	59.0	67.8	85.6	65.8
Concern no female health worker is available	0.3	0.0	0.4	0.3	0.0	0.2
Used traditional medicine	1.8	1.4	1.3	1.9	1.2	1.6
Does not know where to go	3.2	1.3	1.6	1.1	0.3	1.8
Scared of modern treatment	2.3	3.2	1.4	2.8	0.3	2.1
Did not want to go alone	3.2	2.2	3.8	4.1	2.4	3.3
Did not get permission to go	3.5	3.2	3.7	6.0	3.0	3.9
No transport	6.6	6.8	13.1	6.4	4.8	8.4
Believe that recovery would be soon	7.2	8.4	6.9	13.2	13.6	8.9
Sickness was not serious	9.5	10.3	6.4	9.0	27.3	10.2
No health facility nearby	24.0	29.5	37.6	21.1	5.8	26.8
No money for treatment	58.2	55.3	61.5	48.3	44.9	55.8

Source: DHS 2000

3.60   In Tables 3-24 to 3-27, households were asked why they obtained healthcare (treatment of sick child, immunization, maternal services), and the type of facility where care was sought.

Table 3-24: Reasons Mentioned for Use of Health Facility for Various Services by Wealth Quintile

	Poorest	2nd Poorest	Middle	2nd Richest	Richest	Average	Rich-to-
Treatment of sick child	26.4	24.0	29.2	37.3	38.4	30.9	1.5
Immunization	19.8	18.5	21.6	30.1	32.1	24.3	1.6
Family planning	6.4	5.1	8.9	11.6	19.0	10.2	3.0
Prenatal, postnatal, and delivery care	4.1	4.1	6.5	7.0	12.1	6.7	2.9
Information on STI prevention	4.5	4.3	7.8	9.8	19.2	9.1	4.3
Information on breastfeeding and infant feeding	4.1	3.2	6.4	6.9	14.3	7.0	3.5
Any service	37.4	35.0	41.9	52.6	56.3	44.4	1.5

3.61   The principle motivation for seeking care was either child or reproductive health-related (Table 3-24). Large differences exist in utilization rates between urban and rural areas (urban populations seek healthcare ten percent more often than rural areas). A large gap also exists among income quintiles: exist the wealthiest seek care more often than the poor, particularly for counseling and preventive services (Table 3-24). The poor-to-rich ratio is lowest for seeking immunization and the treatment of a sick child and highest for obtaining information about sexually transmitted illness.

Table 3-25: Use of Public and Private Health Facilities for Treatment of a Sick Child by Wealth Quintile

	Poorest	2nd Poorest	Middle	2nd Richest	Richest	Average	Rich-to-poor ratio
Government							
Hospital	3.8	7.1	8.2	5.5	21.6	10.0	5.8
Health center	24.1	19.7	23.0	28.2	37.9	27.7	1.6
Health station/clinic	53.4	51.5	43.8	45.6	26.2	42.7	0.5
Health post	2.3	3.5	9.3	3.6	0.7	3.6	0.3
Community-based outlet	0.0	0.0	0.6	0.3	0.3	0.3	
Other facilities							
NGO	0.0	0.0	0.0	0.1	0.2	0.1	5.8
Private hospital/doctor/clinic	15.1	17.3	14.0	15.4	12.3	14.5	0.8
Kebele (during campaign)	0.5	0.0	0.3	0.4	0.2	0.3	0.3
Others	0.8	1.0	0.8	0.9	0.5	0.8	0.6

Table 3-26: Use of Public and Private Health Facilities for Immunization by Wealth Quintile

	Poorest	2nd Poorest	Middle	2nd Richest	Richest	Average	Rich-to-poor ratio
Government							
Hospital	3.8	2.7	3.8	2.4	19.8	7.8	5.2
Health center	30.1	22.1	23.4	30.1	40.7	30.8	1.4
Health station/clinic	48.8	58.1	48.2	51.1	30.6	45.3	0.6
Health post	6.6	6.4	12.5	7.0	1.4	6.3	0.2
Community-based outlet	0.3	0.9	1.7	2.1	1.9	1.5	6.4
Other facilities							
NGO	0.8	0.5	0.0	0.0	0.5	0.4	0.6
Private hospital/doctor/clinic	2.6	4.6	3.0	3.4	3.8	3.4	1.5
Kebele (during campaign)	7.0	4.4	6.1	3.5	1.3	4.2	0.2
Others	0.0	0.4	1.2	0.5	0.0	0.4	

Source: DHS 2000

**Table 3-27: Use of Public and Private Health Facilities for Maternal Health Services
by Wealth Quintile**

Prenatal, postnatal, and delivery care	Poorest	2nd Poorest	Middle	2nd Richest	Richest	Average	Rich-to-poor
Government							
Hospital	8.8	7.7	9.2	9.4	21.4	13.6	2.4
Health center	26.0	23.0	23.3	26.2	45.9	32.8	1.8
Health station/clinic	60.3	60.7	46.2	56.7	28.7	45.0	0.5
Health post	0.6	6.5	13.2	5.8	0.7	4.6	1.2
Community-based outlet	0.0	0.0	1.8	0.9	0.9	0.9	48.9
Other facilities							
NGO	0.0	0.0	0.0	0.0	0.6	0.2	
Private hospital/doctor/clinic	4.3	2.1	5.4	1.0	1.8	2.8	0.4
Kebele (during campaign)	0.0	0.0	0.0	0.0	0.0	0.0	
Others	0.0	0.0	0.9	0.0	0.0	0.2	

Source: DHS 2000

3.62 As shown in Tables 3-25 to 3-27, health stations/clinics are the major providers of care for child immunization and maternal health services, especially among the poor. Health centers are the next main provider of care for these services.

4. HOUSEHOLD HEALTH EXPENDITURES IN ETHIOPIA

HOUSEHOLD EXPENDITURES ON HEALTH COMPARED TO FOOD AND OTHER EXPENDITURES[36]

4.1   Table 4-1 summarizes household expenditures across regions and expenditure quintiles. In 2000, Ethiopia's average annual household expenditure amounts to Birr 5,309. Addis Ababa's mean household expenditure (Birr 11,027) is almost twice that of the overall country average. Two other urbanized regions have significantly higher than average expenditures: Harari (Birr 9,490.7) and Dire Dawa (Birr 7,421). The regions with less than average expenditures are Amhara, Benshangul, SNNPR and Tigray.

4.2   Food expenditures (an average of Birr 2,435) constitute six percent of total household expenditures. Regional disparities exist: the share of food expenditures to total household expenditures ranges from 30 percent in Addis Ababa to 60 percent in Somali.

4.3   There are wide variations in household expenditures by income quintile. The richest quintiles spend more than five times as much compared to the poorest quintiles. Households from the poorest quintile spend 51 percent of household expenditure on food, while the households from the richest quintile spend 37 percent on food.

4.4   The average Ethiopian household spends only 0.9 percent (Birr 50) of their total household expenditures on medical and healthcare. This percentage is small compared to food expenditure shares and especially considering that on average, Ethiopian households spend 0.5 percent of household expenditure on tobacco products and 0.2 percent on alcoholic beverages. Health expenditures represent close to two percent of total household non-food expenditures. As shown in Table 4-1, this percentage also varies across income levels: the poorest households spend less (1.4 percent) than the richest (1.7 percent).

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[36] The data for this section came from Welfare Monitoring Surveys (WMS), 2000 and 1995/96 as well as Household Income, Consumption and Expenditure Surveys (HICES), 2000 and 1995/96[36]. HICES collected expenditure data on food, durable goods, and non-durable goods. Though HICES has limited data on healthcare expenditures, it enables comparison of the relative levels of expenditure on medical services and health compared to expenditure on food, tobacco and alcohol etc. across different regions and income quintiles. The WMS 2000 asked the following questions to elicit information: have you faced any health problems during the preceding two month period? ;if you have faced health problems, have you consulted anyone about your health?; if you obtained medical assistance, from where did you receive it?; why did you choose the health facility?; who was the person last consulted?; and what was the cost of your last consultation during the past two months? From the above information, the authors were able to compute private health expenditures for consultation in different regions and by different providers. However, even after pooling the data from WMS and HICES, the authors could assemble only limited information on household private expenditures on healthcare. The main gaps in the information relate to prevalence of inpatient care, cost of inpatient care, cost incurred on different aspects of care (x-ray, other consultations, travel, cost of staying in hospital, etc.), costs incurred vis-à-vis severity of illness, etc.

**Figure 4-1: Total Health Expenditure as a Percentage of Non-Food Expenditure
by Income Quintiles**
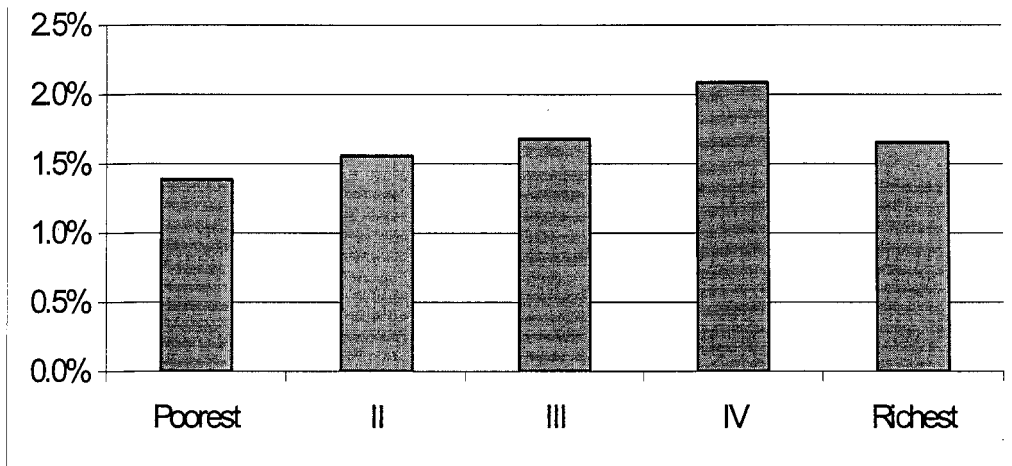
Source: HICES 2000 (based on Table 4-1 in this report).

4.5 Expenditures on medical and health care vary widely among different regions: Annually, households in Harari and Addis spend more than Birr 100, those in Tigray and Amhara spend less than Birr 30.

4.6 Households in the richest quintile spend about nine times more on medical and healthcare (Birr 128) compared to the poorest quintile households (Birr 14). The poorest households spend around 0.7 percent of their total household expenditures on medical and healthcare, compared to the richest quintile's spendings of 1.0 percent.

4.7 Pharmaceutical products comprise about 60 percent (close to Birr 30) of household health expenditures. Household expenditure on pharmaceuticals ranged from Birr 20 in Tigray to about Birr 69 in Afar.

Table 4-1: Annual Household Expenditures on Medical Care and Health in Comparison to other Household Expenditures

Region	Mean household expenditure (Birr)	Expenditure on food (Birr)	Food (%)	Cigarettes and tobacco (Birr)	Cigarettes and tobacco (%)	Alcohol beverages (Birr)	Alcohol beverages (%)	Total medical care and health (Birr)	Total medical care and health (%)	Pharmaceutical products (Birr)	Pharmaceutical products (%)
Tigray	5143.2	2534.7	49.3	0.9	0.0	7.9	0.2	29.1	0.6	20.2	0.4
Afar	6844.6	2840.0	41.5	55.9	0.8	0.2	0.0	91.9	1.3	68.8	1.0
Amhara	4116.4	2105.7	51.2	2.7	0.1	12.2	0.3	23.6	0.6	15.2	0.4
Oromiya	6102.1	2747.1	45.0	31.2	0.5	17.0	0.3	60.5	1.0	39.2	0.6
Somali	7285.6	4402.5	60.4	121.2	1.7	0.9	0.0	73.7	1.0	31.1	0.4
Benshangul	4680.6	2118.9	45.3	24.6	0.5	13.7	0.3	50.6	1.1	39.5	0.8
SNNPR	4631.6	1976.1	42.7	16.3	0.4	24.7	0.5	56.5	1.2	31.9	0.7
Gambella	6343.0	2913.1	45.9	121.0	1.9	204.8	3.2	69.8	1.1	62.6	1.0
Harari	9490.7	4796.1	50.5	132.5	1.4	3.4	0.0	113.8	1.2	43.7	0.5
Addis Ababa	11026.9	3331.0	30.2	16.7	0.2	9.2	0.1	154.1	1.4	62.2	0.6
Dire Dawa	7421.8	3587.6	48.3	60.5	0.8	7.8	0.1	64.3	0.9	34.9	0.5
Average	**5309.1**	**2434.7**	**45.9**	**19.4**	**0.4**	**16.2**	**0.3**	**49.5**	**0.9**	**29.8**	**0.6**
Quintile											
Poorest	2069.6	1060.2	51.2	5.2	0.3	8.7	0.4	14.0	0.7	9.2	0.4
2nd Poorest	3630.5	1820.3	50.1	8.4	0.2	15.6	0.4	28.2	0.8	19.3	0.5
Middle	5027.9	2501.9	49.8	16.2	0.3	15.4	0.3	42.4	0.8	26.2	0.5
2nd Richest	6916.3	3326.4	48.1	29.2	0.4	21.0	0.3	74.9	1.1	46.6	0.7
Richest	12372.7	4630.4	37.4	56.1	0.5	25.4	0.2	128.0	1.0	67.5	0.5

Source: HICES 2000

EXPENDITURES ON LAST CONSULTATION

4.8   Table 4-2 summarizes average expenditure for the last consultation prior to the survey by different regions and by wealth quintiles. The average expenditure for a consultation is Birr 23.5 (about US$2.7). Expenditures range from Birr 15.3 in Benshangul to nearly Birr 95 in Addis. Average expenditures for the richest quintile (Birr 37) are slightly more than twice that of the poorest (Birr 15.8). Across the regions, the range between the poorest and richest quintiles is Birr 50.9 to Birr 131 in Addis to only Birr 9 to Birr 23 in Amhara. The poorest quintile in Addis spent twice as much (Birr 51) as the richest quintile (Birr 23) for a consultation in Amhara.

4.9   Table 4-3 summarizes the amount spent for the last consultation by the type of facility and income quintiles. The cost of health care is highest in public hospitals and lowest in health posts. Average expenditures for consultation are highest in government hospitals (Birr 70), which are followed by expenditure in private hospitals (Birr 43). It is lowest in government health posts and government health clinics (around Birr 10). The amount spent on consultation in NGO and private clinics are higher than in public clinics.

**Table 4-2: Average Amount Spent (Birr) for Last Consultation by
Region and Income Quintile**

	Overall		Poorest Quintile		2nd Poorest		Middle		2nd Richest		Richest	
Region	Mean	Std. Dev	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Tigray	20.5	84.5	28.8	127	12.6	16.3	22.1	105	12.4	18.9	26.5	98.2
Afar	29	103	11.8	21.4	30.8	31.7	43.1	226	21.4	46	32.2	81.1
Amhara	15.7	58.4	9.13	11.3	11.3	21.5	14.4	63.5	15.3	32.7	22.9	93.1
Oromiya	22.6	57.3	17	41.3	22.6	82.6	22.3	43.5	24.7	44.1	28.8	66.6
Somali	30.7	56.1	11.2	9.05	16.7	24.9	22.8	36.8	29	55.1	44.4	72.2
Benshangul	15.3	56.6	11.7	20.1	12.3	20.2	13.6	22.6	29.2	136	16.6	40.3
SNNPR	22.2	89	13.4	27.1	16.3	24.8	23.1	110	31.2	156	31.3	92.5
Gambella	38	167	25	48.4	25.5	44.6	46.3	86.4	59.2	228	45.9	264
Harari	38.7	66	33.6	43	51.8	112	30.4	57	34.9	57.5	41	59.9
Addis Ababa	95.3	396	50.9	89.9	25.6	27	28.7	30.7	59.4	84.5	131	509
Dire Dawa	29.2	37.6	18.9	23.4	22.4	23.8	30.8	40.7	22.4	16.8	34.2	44.6
Average	**23.5**	**98.1**	**15.8**	**42.4**	**18.6**	**60.4**	**20.9**	**72.2**	**23.5**	**75.8**	**37**	**171**
Source: WMS 2000												

**Table 4-3: Average Amount Spent (Birr) on Last Consultation
by Type of Facility and Income Quintile**

	Aggregate		Poorest Quintile		2nd Poorest		Middle		2nd Richest		Richest	
Facility	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Hospital (Govt)	70.5	152	50.5	73.1	50.3	89.5	51.1	94.8	74.7	134	89.7	203
Health Center (Govt.)	23.2	96.2	17.8	29.9	31.9	145	25	138	19.7	32.7	21.2	30
Clinic (Govt)	13.9	41.2	13.1	48.8	12.8	17.5	14.4	52.6	13.5	22.4	16.3	47.7
Health post (Govt)	10.5	15.5	7.85	6.79	11	21	12.6	17.9	9.36	8.92	11.9	17.2
Private hospital/clinic	43.2	182	23.1	38.5	24.1	28	36.5	69	38.8	51.8	71.6	321
Mission/ NGO	28.7	71.2	44.9	155	21.2	26.7	20.4	17.2	39.5	48.7	20.9	18.5
Other trained health staff	14.1	22.2	10.9	12	12.7	12.9	14	19.1	15.1	18.9	19.4	41
Pharmacy	15.8	67.4	12.6	13	13.1	16.9	14.4	17.8	22.2	157	18.2	33.4
Others	10.2	26.9	7.79	14.1	9.27	17.7	9.23	26.6	8.5	11.7	14.7	43.8
Average	23.5	98.2	15.8	42.3	18.7	60.6	20.9	72.3	23.6	75.9	37.1	171
Source: WMS 2000												

4.10   The poorest quintile pays less (Birr 50) than the richest quintile (Birr 90) in government hospitals. This may be due to the exemption system, which waives fees for persons who are certified as too poor to pay. The cost of consultation at a pharmacy is Birr 16, ranging between Birr 13 to Birr 18 for the poorest and the richest quintiles. The cost of consultation at a mission/NGO facility is Birr 29, ranging from Birr 45 for the poorest quintile and Birr 21 for the richest quintile.

EXPENDITURES ON TRANSPORTATION FOR LAST CONSULTATION

4.11   Transportation costs represent an important part of out-of-pocket expenditures for healthcare in Ethiopian households. Table 4-4 summarizes transportation costs for the last consultation by region, type of facility and income quintile. The average cost of transportation for a consultation is Birr 15. Transportation cost is highest for government hospitals (Birr 22) and lowest for health posts (Birr 5). Costs also vary widely in different regions—as high as Birr 73 in Gambella and Birr 51 in Somali, and as low as Birr 4 in Dire Dawa and Birr 5 in Harari (the latter two areas are small, relatively urbanized regions).

4.12   Out-of-pocket expenditures are mostly self-paid. The source of payment by wealth quintile is given in Table 4-5, source of payment by regions is shown in Figure 4-2. Self payment of out-of-pocket expenditure was lowest in Addis and Tigray, while it was highest in SNNPR and Benshangul. Free treatment was highest in Addis, Tigray, Dire Dawa, Harari and Gambella. Overall, the source of out-of-pocket expenditure varies more significantly by region than by income quintile.

Table 4-4 : Cost of Transportation for Last Consultation (Birr)

Type of facility	Mean	Std. Dev.	Region	Mean	Std. Dev.	Quintile	Mean	Std. Dev.
Hospital (Govt.)	22.0	78.3	Tigray	9.2	31.9	Poorest	11.0	20.6
Health center (Govt.)	9.9	56.0	Afar	15.4	33.8	2nd Poorest	15.1	79.5
Clinic (Govt)	13.8	56.7	Amhara	14.2	33.8	Middle	15.4	67.1
Health post (Govt)	4.6	8.7	Oromiya	16.0	66.0	2nd Richest	18.7	76.7
Private hospital/clinic	17.0	66.3	Somali	50.7	270.7	Richest	11.3	44.9
Mission/NGO	19.3	62.7	Benshangul	17.7	34.7			
Other trained health staff	7.7	9.9	SNNPR	13.2	33.5			
Pharmacy	11.1	68.9	Gambella	73.0	199.9			
Others	13.5	73.3	Harari	4.9	4.5			
			Addis Ababa	9.5	20.3			
Average	14.6	63.0	Dire Dawa	4.3	4.8			

Table 4-5: Source of Out-of-pocket Expenditure by Income Quintile

Income quintile	Paid by self	Paid by others	Free treatment	Paid only for medicines
Poorest	82	3	8	6
2nd poorest	82	3	7	7
Middle	84	2	8	5
2nd richest	84	2	9	3
Richest	82	3	8	5

Figure 4-2: Source of Out-of-pocket Expenditure by Region
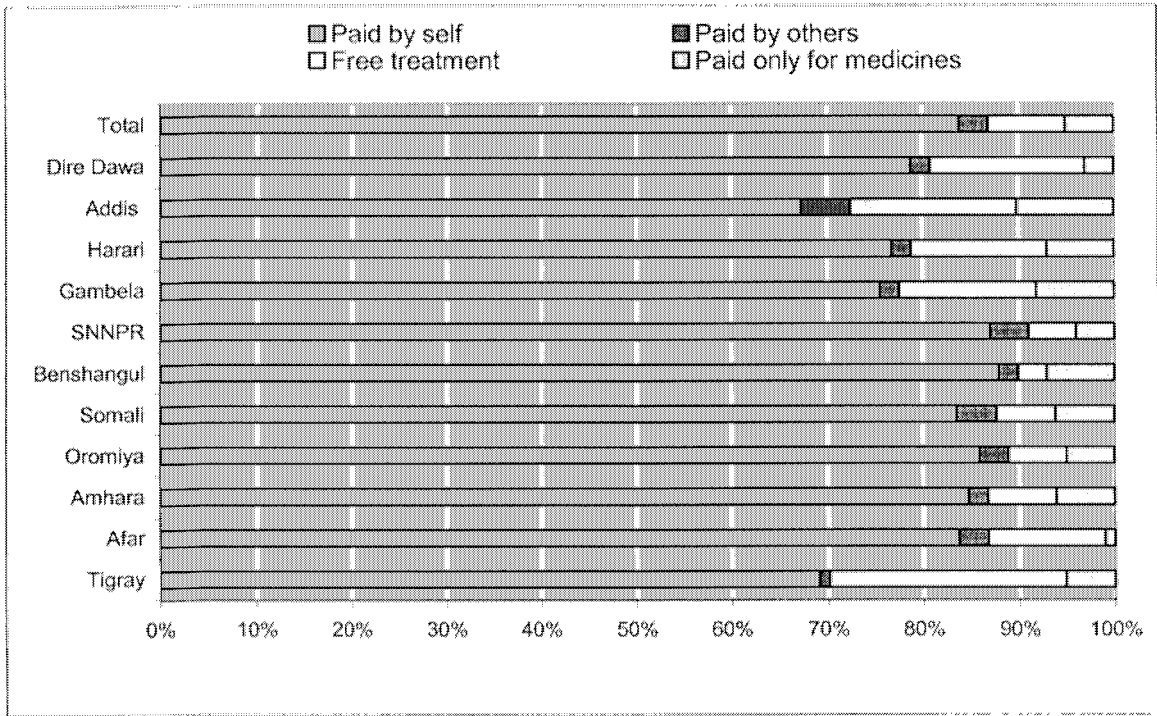
5. HEALTH SERVICE DELIVERY SYSTEM

5.1   This chapter reviews the performance of the Ethiopian healthcare system: its ability and effectiveness to meet the basic needs of the population with a core set of healthcare services. The focus is on the supply side of healthcare service delivery to the poor, particularly in the rural areas.

POLICY AND INSTITUTIONAL FRAMEWORK

5.2   Ethiopia's National Health Policy was approved by the Council of Ministers in September 1993. This policy is based on ten principles:

- Democratization and decentralization of the health system;
- Development of the preventive and promotive components of health care;
- Development of an equitable and acceptable standard of health service system that will reach all segments of the population within the limits of resources.
- Promoting and strengthening of intersectoral activities.
- Promotion of attitudes and practices conducive to the strengthening of national self-reliance in health development by mobilizing and maximally utilizing internal and external resources.
- Assurance of accessibility of health care for all segments of the population.
- Working closely with neighboring countries, regional and international organizations to share information and strengthen collaboration in all activities contributing to health development, including the control of factors detrimental to health.
- Development of appropriate capacity, based on assessed needs.
- Provision of health care for the population on a scheme of payment according to ability, with special assistance mechanisms for those who cannot afford to pay.
- Promotion of the participation of the private sector and non-governmental organizations in health care.

5.3   To achieve the objectives outlined in this policy, the health care delivery system is being reorganized from the six-tier system into a four tier system (discussed below).

5.4   Figure 5-1 presents the organizational structure of the Ministry of Health. The managerial set up of Ethiopian health services has historically been centralized. A new Health Policy and Health Sector Strategy was adopted in the mid-1990s by the Government, which involves the move towards democratizing and decentralizing the health system and strengthening the regional, zonal and district/woreda health departments. The roles and responsibilities of the Federal Ministry of Health (FMOH) and Regional Health Bureaus (RHBs) are defined by the national and regional constitutions.

Figure 5-1: Ministry of Health: Organizational Structure

Minister

Legal & Medico Legal Service

Audit Service

Public Relations Service

Organization & Management Service

Plan & Program Department

Women's Affairs Department

–Planning & Budget Team
–Program Co-ordination & Monitoring Team

–Health Information Processing & Documentation Team
–Finance & Procurement Team

Vice Minister

Pharmaceutical Supply & Administration Service

Administration & Finance Service

–Drug Supply Team
–Drug Storage & Distribution Team
  –Drug Storage & Distribution Monitoring Team

–Personnel Administration and Archives Service Division
–Finance and Budget Division
–General Service Division

Disease Prevention & Control Department

Family Health Department

Hygiene& Environmental Health Department

Health Service & Training Department

–*Malaria & other Vector Born Diseases Prevention & Control Team*
–Aids & Other Sexually Transmitted Diseases Prevention & Control Team
–TB & Leprosy Diseases Prevention & Control Team
–Other Diseases Prevention & Control Team
–Integrated Diseases Surveillance Team

–Babies', Children, & Youth Health Team
–Mothers' Health Care Team
–Family Planning Team
–Adolescent Reproductive Health Team

–Water Quality, Sewage, & Sanitary Control Team
–Food, Drink, & Hotel Pension Organization Control Team
–Industrial & Other Institution Health Control Team
–Quarantine Service Team

–Health Service Team
–Health Professional Education & Training Team
–Panel of Assessors Team

Health & Nutrition Research Institute

Central Referral (Specialized) Hospitals

Health Education Center

5.5   *Public services are going through a deep decentralization process.* Ethiopia has gone through two stages of decentralization; the first stage of which involves the decentralization of functions from the Center to the regions. Since July 2002, public services have been undergoing a deeper decentralization process as the primary responsibility for service delivery and management of government services are further devolved to the woredas.[37] The primary objectives of the political, administrative and economic decentralization policy are to increase local participation aimed at strengthening ownership in the planning and management of government services; to improve efficiency in resource allocation; and to improve accountability of government and public service to the population.

5.6   Under the new system, the woredas receive block grants and are responsible for setting priorities, delivering services, and determining budget allocations at the local level within the framework of broad national policies (HSDP Final Evaluation, 2003). The woreda council is responsible for the planning and implementation of all woreda development programs including health services. For example, the woreda is responsible for construction of health centers (HCs) and health posts (HPs) and for the procurement of drugs and equipment. However, in actual practice, this process is still evolving because woredas still depend on regional and central levels for a number of health system related services such as the recruitment and allocation of health personnel and the procurement and distribution of supplies.

5.7   The rapid decentralization has also resulted in some transitional issues, mostly related to rebalancing allocations; lack of clarity on responsibilities and expenditure assignments; and some disruption in budget formulation and reporting. These issues are being handled pragmatically by the regions (PER 2003) and will be discussed further in Chapter 6.

5.8   In general, institutional capacity at the woreda level for planning and implementation of health programs and other programs is a concern. Even prior to decentralization to the woredas, HSDP I Evaluation data show that half of the regions have budget execution rates below 70 percent. Problems in the planning and implementation of investment plans and difficulties in utilizing donor funds are cited as the main reasons for low execution. Capacity constraints can also exacerbate reporting lags. Improvement of planning and budgeting skills and acquiring the necessary trained staff to execute these plans in the woredas are essential steps in moving implementation forward.

5.9   In the new organizational framework of the health sector, the FMOH's responsibilities comprise policy formulation, standard-setting, issuance of licenses and qualification of professionals, establishment of standards for research and training, and coordination of external loans and grants.

5.10   Government policy also envisages a greater role for the private sector in health service delivery and financing. The enhanced participation of the private sector will be encouraged (within an appropriate regulatory and monitoring framework) to ensure coordination of public and private sector activities.

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[37] The Ethiopian Federal Constitution of 1994EC established a four-tier system of government. The regions are divided into 66 zones, 6 special Woredas, and 550 Woredas. The average population size of a woreda is around 100,000.

5.11   In terms of regulatory mechanisms, the Health Policy documents recognize the involvement of NGOs in the Ethiopian healthcare system. Regulatory provisions have been made to encourage the activities of NGOs although there are still some issues regarding length of NGO appraisal and licensing (discussed below). The Department of the Ministry of Justice (MOJ) and Commission for Disaster Prevention and Preparedness (DPPC) are responsible for registering all NGOs wishing to operate in Ethiopia.

5.12   Certificates for the operation of private hospitals are issued only by the MOH of the Federal Government of Ethiopia, while certificates for clinics at all levels are issued by the concerned RHBs on the basis of the rules and regulations of the MOH.

5.13   According to the guidelines of the MOH, the RHBs have the responsibility for supervising, monitoring and evaluating the activities of all clinics. The supervision of the operation of private hospitals is the responsibility of the MOH (Makuria, G and Mengiste, L,1996).

5.14   Another major initiative that has an impact on the implementation of health activities is the Civil Service Reform Program (CSRP), which was introduced in February 2002. Its aim is to create a civil service which is both efficient and sufficiently competent to achieve the economic, social and political goals of the government and to promote a participatory culture. The CSRP has five subprograms: (1) expenditure management and control; (2) human resource management; (3) service delivery; (d) management systems; and (5) ethics. Reforms introduced under the Expenditure Management and Control sub-Program are expected to improve budgetary processes and financial management, thereby addressing some of the issues raised during HSDP I (HSDP Review 2003).

5.15   One of the important policy measures recently taken by the MOH in 2002/03 was the development of the Health Services Extension Package (HSEP) Initiative which seeks to provide health promotion and extension services to communities. The HSEP intends to provide communities with essential packages of services in the following four areas:

(a)   *Hygiene and environmental sanitation:* excreta disposal, solid and liquid waste disposal, water quality control, food hygiene, proper housing, arthropod and rodent control, and personal hygiene;

(b)   *Disease prevention and control:* HIV/AIDS and other STD prevention and control, TB prevention and control, malaria prevention, and first aid;

(c)   *Family health services:* maternal and child health, family planning, immunization, adolescent reproductive health, and nutrition; and

(d)   *Health education.*

5.16   For a poor country like Ethiopia, where only about 52 percent of the population has physical access to primary healthcare (PHC), and where unfavorable health staff-to-population ratios exist, the move towards complementing facility-based care with outreach services such as the HSEP is strategically important.

5.17   The HSEP is being piloted in five regions. The original MOH design for health outreach was based solely on prevention, hygiene and sanitation education. This design has since been amended to ensure that the two health extension workers (HEWs) who will be assigned to each

kebele are also trained to provide reproductive health information and services. The HEWs will also liaise with PHC facilities for patient referrals (particularly for high risk pregnancies and emergency obstetric care). While there is a clear need to expand coverage of both preventive and curative care, especially in rural areas, the MOH has expressed concerns that it might not be realistic to expect two HEW per kebele to be able to effectively provide both preventive care and some curative-based services. Thus, it would also be important for curative care services to be provided by properly trained health staff. This policy has experienced some degree of resistance at the local level, and HPs in some regions are providing curative care. Discussions are ongoing regarding whether anti-malaria drugs and antibiotics for child acute respiratory infections (ARI) could be provided as part of the family/community-based package of HSEP services (these are oral medications that could be provided by HEWs or community health agents (CHAs). These issues, as well as the potential contributions of the HSEP to the realization of the child and maternal MDGs, are discussed in detail in Chapter 7.

5.18   There appear to be some differences, if not contradictions, between what was intended and described in various HSEP concept and/or briefing papers and what was piloted in the five regions. The pilot started using existing junior public health nurses and junior environmental health technicians who had already been trained at certificate or diploma level. These health workers (HWs) were not necessarily local residents of the Kebele. The majority were men (even though the plan specified female HEWs), and the two cadres were trained for different purposes (most probably to divide areas of responsibilities although this would need to be clarified) although both were dealing with primary health care.

5.19   Preparations are underway in order to fully launch the program, and training and implementation packages have been developed. To implement the HSEP, the government plans to upgrade the existing HPs and construct new ones in 10,000 rural kebeles in the next five years. During this period, 20,000 HEWs will be trained and deployed to HPs.

5.20   In moving forward with the HSEP and prior to expanding its coverage, it is essential to learn from the experiences of the pilot programs and integrate lessons learned in the planning and implementation of future activities.

POLICY AND PROGRAM REFORMS

Health Sector Development Program (HSDP)

5.21   The initial Health Sector Development Program (HSDP), which was drafted in 1993/94, was designed for a period of 20 years, with a rolling five-year program period. It has three main goals: (1) build basic infrastructure; (2) provide standard facilities and supplies; and (3) develop and deploy appropriate health personnel for realistic and equitable primary health delivery at the grassroots level. The first phase, HSDP I, was implemented from 1997 to 2002. It sought to: (a) increase access to health care from 40 percent to 50-55 percent; (b) improve the technical quality of PHC services, including the restructuring of the pharmaceutical sector and expanding the supply and productivity of health personnel; (c) develop an information, education, and communication plan to communicate PHC messages to isolated areas; (d) improve health systems management at federal and regional levels; (e) improve financial sustainability of the health sector; and (f) promote greater private sector investment in the health sector.

Performance of the HSDP I (1997-2002)

5.22   The measures taken thus far have resulted in increasing potential health coverage from 33 percent to 52 percent because of the steady increase in health facilities. However, utilization of the available maternal and children services remains low. Less than ten percent of deliveries are attended by health professionals and trained traditional birth attendants. There has been a very marginal increase in the number of women who receive antenatal care (from 30 percent in 1996/97 to 30.2 percent in 2001/02). EPI coverage rates are below the end of the HSDP I target of 80 percent with Diphtheria, Pertussis and Tetanus (DPT3) at 42 percent for 2001/02. Some improvements such as the increase in the number of health personnel (especially nurses) were also observed. There is also a rising trend in most regions in the use of family planning services, and the national contraceptive prevalence rate rose from nine percent in 1996/97 to 14.6 percent in 2001/02. A multi-sector effort to address the HIV/AIDS pandemic is also underway.

Table 5-1: Overall Health Targets and Goals of the HSDP, PRSP and MDGs

Objective	HSDP Targets/Measures (2002/03-2004/05)	Millennium Development Goals (MDGs)	SDPRP Indicative Target
Increase life expectancy of the population	Increase life expectancy at birth from 52 in2000/01 to 58 years		85/1000 by 2004/5 50/1000 by 2017
	Reduce infant mortality from 97 per 1000 live births in 2001/01 to 85	Reduce by two thirds, between 1990 and 2015	160/1000 by 2004/05 300/100,000 by 2017
	Reduce Maternity Mortality 500-700/100,000 live birth in 2000/01 to 400-500	Reduce by three quarters, between 1990 and 2015.	
Increase access for health services	Increase health care coverage from 52% in 2000/01 to 65%		65% by 2004/05 90% by 2017
	Promote contraceptive coverage from 18.7% in 2000/01 to 65%		40% by 2017
	Expand EPI coverage from 41.9% in 2000/01 to 65%. Increase Health Budget Share		90% by 2017 From 5.2% to 8.2% of total budget by 2004/05
Enhance health opportunity and promote disease prevention and control	Reduce malaria prevalence from 7.7/1000 in 2001/02 to 6.2/1000	Halted by 2015 and begun to reverse the incidence	
	Maintain HIV/AIDS prevalence 7.3% in 2001/02 the same 7.3%	Halted by 2015 and begun to reverse the spread of HIV/AIDS	Reduce transmission by 25% by 2004/05. Contain prevalence at 7.3% by 2004/05

HSDP II and III

5.23   HSDP II started in July 2002 and covers a three-year period from July 2002 to July 2005. It follows the same component format as HSDP I. Many stakeholders consider HSDP II to be a transitional plan covering three years prior to the start of HSDP III (2005 – 2010), which will fall in line with the planning process of the Second National Development Plan of the FDRE (NDP II).

SDPRP

5.24   The overall objective of the Ethiopian Government-led Sustainable Development and Poverty Reduction Program (SDPRP) is to reduce poverty by enhancing economic growth while

maintaining macroeconomic stability. It is built on four pillars: (1) Enhanced Rapid Economic Growth (including private and financial sector development, rural development, vulnerability and roads); (2) Improved Human Development (including education, health, HIV/AIDS, water and sanitation); (3) Democratization and Governance (including decentralization, justice system reform, and urban management); and (4) Improved Public Sector Institutional Performance (including civil service reform, tax reform and ICT). In addition, the SDPRP identified key sectoral measures and cross-cutting issues to focus on including education, roads, water and sanitation, HIV/AIDS, health, gender and development. In health, in particular, it seeks to improve the balance between preventive and curative healthcare through a community-based healthcare delivery system aimed at creating a healthy environment and lifestyle.

5.25   Aiming to reach the MDGs, the SDPRP envisages progress in three interrelated areas: (a) expanded coverage of current public sector programs and improvements in the quality of service delivery; (b) faster and more equitable economic growth; and (c) a reduction in Ethiopia's vulnerability to weather, sickness and trade-related shocks. Table 5-1 presents HSDP II, MDG and SDPR targets.

Organization of Health Services Delivery

5.26   Healthcare services are provided through four sectors: public sector, private sector, NGO sector and traditional healers. This report was intended to focus primarily on the first three vehicles of health care delivery - together comprising the "modern healthcare sector." However, apart from information on a small number of facilities, the reviewed literature contain limited statistics on the NGO and private sectors. Literature is increasingly more limited in the case of traditional medicine.

The Public System

5.27   In the mid 1990s, prior to the implementation of HSDP, the public health system was structured into a six-tier system:

Central referral hospitals (covering app. 588,000 persons)
Regional hospitals (N/A)
Rural hospitals (N/A)
Health centers (covering app. 223,000 persons)
Health stations (covering app. 45,000 persons)
Community health posts (Covering app. 21,000 persons)

5.28   A change in the service delivery structure to a simpler four-tier system (Figure 5-2) was planned during HSDP I. The main change was to replace health stations (HSs) (popularly known as clinics) with primary health care units (PHCUs). Each PHCU would have a health center surrounded by ideally five satellite community health clinics (CHC) or health posts, each serving a population of 5,000. Thus each PHCU would serve a total of 25,000 people. The PHCU is expected to provide comprehensive, integrated and community-based preventive and basic curative services, in particular:

- Maternal and child health care, including immunization, family planning advice and services, nutritional health, and micronutrient supplementation;
- Curative services for common ailments such as parasitic infections, diarrhea, acute respiratory infections and tuberculosis;
- Minor surgery and life-saving operations such as appendectomies and caesarean sections;
- Technical assistance in establishing and monitoring environmental and occupational health standards within its catchment areas;
- Record-keeping of basic vital statistics and disease surveillance;
- Training of CHAs and traditional birth attendants (TBAs) who will staff the CHCs or HPs.

5.29   Each district hospital functions as a referral and training center for ten PHCUs. Zonal hospitals (ZHs) provide specialist services and training while specialized hospitals (SHs) provide comprehensive specialist services, and in some instances serve as centers for research and post basic training.

Figure 5-2: Structure of the Public Health Delivery System (make figure larger)
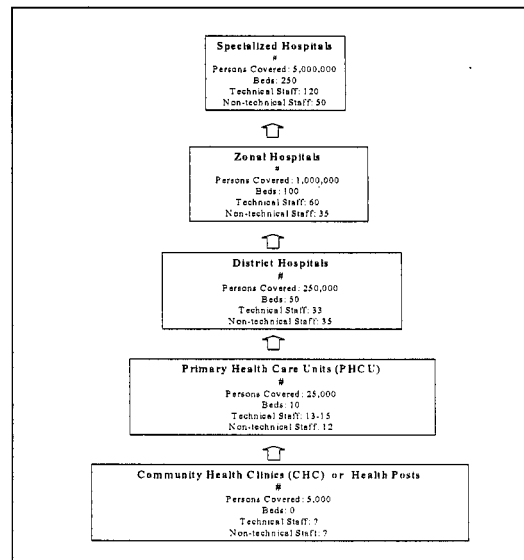
Source: Based on MOH document

5.30   *Restructuring of the public health delivery system is still underway and the new system is not consistently implemented.* This situation exists principally because regions have not fully accepted the proposed concept of replacing health stations by health posts that do not provide both preventive and curative services (HSDP reviews and based on discussions during July CSR 2003 mission). The staffing of HPs with minimally trained staff almost exclusively for preventive purposes has generated substantial debate because of the view that HPs are not meeting the population's basic needs for both preventive and curative care. For this reason, for example, Oromia region expressed its intention not to establish HPs. Nationwide the number of HSs has only marginally decreased by two percent from 1996/97 to 2002/03 (from 2451 to 2,396) (some regions even increased their HS number. It has been generally

difficult to downgrade HSs to HPs, mainly because of popular opposition to having facilities, especially those in remote areas, that only offer preventive services.

5.31   The issue of having the appropriate health service delivery structure is strongly linked to the issue of the core service packages, intended to directly address the most pressing needs of poor rural areas. These have not been finalized and until they are, the staffing and resource allocation issues cannot be adequately addressed. Planning for new facilities and human resource development must be based on the targeted needs and how these needs will be met in terms of packaging of services, types of personnel needed, and service delivery structure. It will be important to have a transitional strategy and guidelines to facilitate the move from the previous service delivery model to the more recent design.

5.32   *The government runs a majority of the formal health facilities* (Table 5-2), and these numbers have increased significantly over recent years. Seventy-one percent of hospitals, 94 percent of HCs, 82 percent of HSs and all of the HPS are run by the government. As shown in Table 5-3 the pharmaceutical sector is dominated by the private sector: 85 percent of pharmacies, 81 percent of drug shops and all rural drug vendors are privately owned. The regional distribution of facilities is uneven: urban areas are better covered than rural areas.

Table 5-2: Distribution of Health Facilities by Ownership and by Region, 2002/03***

Region	Hospitals				Health Centers				Health Stations			Health Posts
	MOH	Others*	Total	Beds	MOH	Others*	Total	Beds	MOH	Others*	Total	
Central	4	1**	5	1,871	0	0	0	0	0	0	0	0
Addis	5	17***	22	2,346	24	4	28	155	9	139	148	46
Harari	3	2	5	440	2	0	2	20	9	10	19	7
Dire Dawa	1	1	2	320	3	0	3	30	4	8	12	20
Gambella	1	0	1	93	4	4	8	0	12	6	18	18
Ben-Gumuz	2	0	2	254	7	0	7	8	110	4	114	42
Tigray	12	2	14	1,127	34	1	35	195	166	17	183	121
Oromia	21	8	29	2,280	135	6	141	0	762	141	903	326
SNNPR	11	3	14	1,260	114	4	118	550	322	49	371	306
Amhara	15	2	17	1,246	81	0	81	318	508	0	508	410
Afar	2	0	2	120	8	0	8	70	45	0	45	56
Somali	6	0	6	436	14	6	20	200	110	4	114	54
National	**83**	**36**	**119**	**11,793**	**426**	**25**	**451**	**1,228**	**2,013**	**383**	**2,396**	**1,432**

Source: PPD, MOH. Health and Health Related Indicators Addis Ababa. 2002/03.
* Facilities owned by NGOs (non-government agencies) and OGA (Other government agencies)
** Includes 5 central hospitals (St. Paul, St. Peter, Amanuel, ALERT, and Black Lion)
*** Includes private hospitals
**** Regions are ranked based on the development index used by the GOE (annex 1.1 explains the criteria and also presents other types of indices such as poverty and revenue/capita). Addis ranks highest in terms of development and Somali the lowest

Table 5-3: Distribution of Pharmaceutical Retail Outlets By Region & Ownership, 1994EC (2001/02)

Region	Pharmacies				Drug Shops				Rural Drug Vendors		
	Public	NGO	Private	Total	Public	NGO	Private	Total	NGO	Private	Total
Tigray	0	1	14	15	14	1	10	25	0	207	207
Afar	0	0	1	1	0	0	4	4	0	45	45
Amhara	8	7	23	38	1	0	38	39	0	251	251
Oromia	16	8	41	65	35	2	105	142	0	813	813
Somali*	0	0	0	0	0	1	4	5	0	20	20
Benishangul	0	0	0	0	0	0	3	3	0	32	32
SNNPR	7	3	23	33	8	1	39	48	0	473	473
Gambella	0	0	0	0	1	0	1	2	0	14	14
Harari	1	0	6	7	0	0	3	3	0	3	3
Addis Ababa	10	0	128	138	1	0	38	39	0	8	8
Dire dawa	2	0	12	14	1	0	3	4	0	10	10
National	**44**	**19**	**248**	**311**	**61**	**5**	**248**	**314**	**0**	**1876**	**1876**

The NGO Sector

5.33   As of December 2002, 508 NGOs were registered with Center for Disaster Preparedness and Prevention (DPPC):[38] 377 indigenous and 131 international NGOs (DPPC 2002). About 77 percent of NGOs are concentrated in Addis, Oromia, SNNPR and Amhara. Regions and areas of intervention are selected by NGOs themselves, although the DPPC, MOJ, DPPBs, and RHBs might set national and regional priorities. The GOE is making efforts to increase the number of NGOs in the emerging regions (Afar, Somali, Gambella and Benshangul-Gumuz).

5.34   The health sector is one of the sectors where faith-based organizations and NGOs started their operations. There are 225 NGO projects in the health sector: the highest number for a single sector (Table 5.4). There are also other NGO projects focused on water supply and sanitation and the environment that have a direct impact on health. Other programs and sectors also have health components.

Table 5-4: Sectoral Distribution of NGO Projects (2001)

Sector	Number of Projects	Percent
Agriculture	87	7.3
Education and training	97	8.1
Health	225	18.8
Environment	55	4.6
Integrated rural development	124	10.4
Water supply and sanitation	101	8.5
Urban development	31	2.6
Others*	475	39.3
Total	**1195**	**100**
Source: DPPC, August 2001 cited in Federal Ministry of Health, HCF Secretariat, 2003. NGOs involvement in the Ethiopian Health Sector: facts, challenges, and suggestions for collaborative environment. *Note: This category includes projects focused on HIV/AIDS, income generation, finding work for orphans, the elderly and the disabled.		

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[38] The role of regulating NGOs was assumed by the DPPC because NGOs in Ethiopia have been traditionally involved in relief and humanitarian activities. Over time, NGOs have increased and diversified their areas of involvement, and more of them are starting to focus on development interventions (FDRE/HCF 2003).

5.35   Despite the government's interest and policy commitment to increasingly involve NGOs in the health sector, **there appears to be *little articulation on how such policy commitments are to be translated into action*.** The absence of NGO guidelines to direct their involvement in the health sector has created problems. There are two standards for health facilities: one for government facilities and another for private facilities (FDRE 1996). NGO facilities are expected to follow the government facility standards based on the understanding that these organizations will be transferred to the government in the future. However, the private hospital guidelines also apply to hospitals constructed by private not-for-profit agencies, including NGOs.

5.36   Legal procedures and guidelines exist for NGO licensing, operation, and follow-up during implementation. However, actual processes are more extensive and vary across regions. As a result, project formulation, appraisal and final agreement take time because of the way the NGO licensing and legal procedures are organized; lack of coordination between various stakeholders; procedural differences across regions; human resource constraints; and bureaucratic red tape (FDRE/HCF, 2003).

5.37   NGOs whose contributions are not channeled through the government budget also represent an important share of the total health expenditure. The exact amount of this expenditure and its impact are not certain. The CSA Survey in 1989EC (1996/97) estimates that NGOs provided fewer than six percent of all outpatient visits. However, many NGOS provide services such as immunization and family planning or nutrition counseling - services that are not accounted for in a survey focusing on coverage of curative care visits.

The Private Sector

5.38   The private sector has expanded but no coherent implementation strategy and guidelines exist to enhance its participation in meeting health sector objectives. Before 1995, private sector involvement in the health sector was negligible because there was no legal framework within which private practices were allowed to operate. Since then, a number of private for-profit hospitals, private for-profit clinics and pharmaceuticals manufacturing firms have opened across the country, mostly in urban areas. The current role and impact of the private sector in Ethiopia is not addressed sufficiently in recent literature. This is worth noting because the HSDP strategy calls for "expanded private sector involvement and the development of innovative strategies and partnerships to leverage the private sector towards public health ends."

5.39   *Private providers are concentrated in urban areas.* In Addis Ababa, in particular, it appears that significant portions of health needs are met by the private sector (for example, as shown in Table 5-5, 50 percent of the hospitals in Addis are privately-owned while Table 5-6 indicates that 27.5 percent of all the private clinics are located in Addis Ababa).

Table 5-5: Distribution of Hospitals By Type and Ownership, 1994EC (2002/03

Region	MOH			OGA	NGO	Private	Total
	Specialized Hospital	Zonal Hospital	District Hospital				
Tigray	0	5	7	0	0	2	14
Afar	0	1	1	0	0	0	2
Amhara	0	6	9	2	0	0	17
Oromia	1	13	7	4	4	0	29
Somali	0	3	3	0	0	0	6
Benishangul	0	1	1	0	0	0	2
SNNPR	0	6	5	0	3	0	14
Gambella	0	0	1	0	0	0	1
Harari	0	2	1	2	0	0	5
Addis Ababa	0	5	0	3	2	12	22
Dire Dawa	0	0	1	1	0	0	2
Central	4	0	0	1	0	0	5
National	**5**	**42**	**36**	**13**	**8**	**14**	**119**

Source: Health and Health Related Indicators, MOH 2002/03

Table 5-6: Distribution of Private Owned Clinics By Type and Region, 1995EC (2002/03)

Region	Types of Clinics				
	Lower	Medium	Higher	Special	Total
Tigray	26	1	1	0	28
Afar	2	0	0	0	2
Amhara	131	38	8	4	178
Oromia*	NA	NA	NA	NA	482
Somali	0	0	0	0	2
Benishangul	3	1	0	0	4
SNNPR	115	31	7	0	154
Gambella	6	1	0	0	7
Harari	5	12	0	0	18
Addis Ababa	103	94	65	74	339
Dire Dawa	4	8	7	0	15
National	**395***	**186***	**88**	**78**	**1229**

Source: MOH/PPD. Health and Health Related Indicators, 2002/03.
*totals exclude Oromia because disaggregated data were not available

5.40   As shown in table 5.3, *the pharmaceutical sector is dominated by the private sector.*
The regional distribution of these facilities is uneven with better coverage in urban areas.

5.41   Apart from drug vendors, there seems to be few private providers outside the towns.
Those that exist may be public HWs providing services on the side, although with the exception
of case studies/anecdotal information, there are no firm data to support this.

Traditional Healers

5.42   In Ethiopia, traditional medicine (TM) includes the use of herbs, the belief in the healing powers possessed by healers, Holy Water and other remedies for addressing both physical and mental illness.

5.43   Little literature exists regarding traditional medicine. While the WMS 2000 pegs the use of TM at 0.9 percent, the Ethiopian Health and Nutrition Research Institute and WHO estimate that the use of TM is 90 percent.[39] From key interviews during the July 2003 site visits, it is clear that TM plays an important role in healthcare for a large majority of the population. It appears that it is fairly common for people to seek TM first and modern medicine (MM) only when TM fails. Interviews during the July 2003 field visits revealed that in the cases where TM was sought first and the patient's health did not improve, patients were delayed in reaching a health facility – sometimes to the point that it was too late. Some HWs expressed frustration with this practice, as it often resulted in the HWs being blamed.

5.44   There is ongoing discussion at the MOH about how to better integrate TM into the healthcare delivery system. A task force has been established to develop policy and guidelines.

5.45   *Number and Distribution of Health Facilities:* There has been a steady increase in the number of health facilities provided nationally with an emphasis on the establishment of Health Posts and Health Centers as shown in Figure 5-3. From 1996/97 to 2002/03, the number of hospitals increased by 36.7 percent (from 87 to 119), health centers have increased by 75.4 percent (from 257 to 412 to 451), and health posts from 0 to 1432. However, it is interesting to note that health stations, which are supposed to be phased out, only marginally decreased by two percent from 1996/97 to 2002/03 (from 2,451 to 2,396) with some regions even increasing the number of their health stations.

5.46   From 1996/97 to 2002/03, the number of private clinics increased by 127 percent (from 541 to 1,229), pharmacies by 53.3 percent (from 197 to 302), drug shops by 101.3 percent (from 148 to 299), and rural drug vendors by 29.3 percent (from 1,460 to 1,888).

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[39] The 1995 Ph.D. dissertation by Dr. Azene estimates the use of TM at 70%.

Figure 5-3: Number of Health Facilities by Type from 1996/97 to 2002/03*
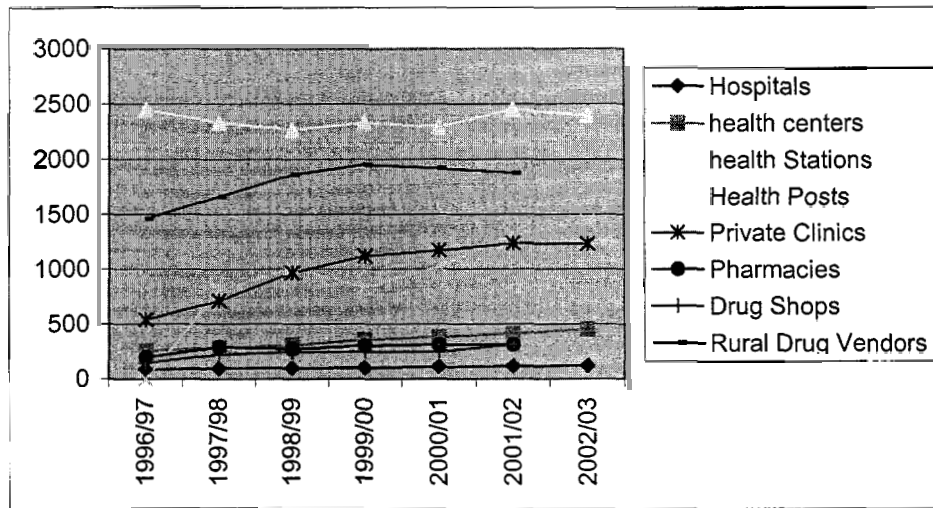
Source: PPD MOH. Health and Health Related Indictors, 2002/03
*Note: 2002/03 data are not available for private clinics, drug shops, and rural drug vendors

Access to Health Services

5.47   Approximately 51 percent of the population has access to clinical services (provided by HSs and HCs). Coverage increases to about 61 percent when HPs are included in the coverage calculation, and to 70.2 percent if private clinics are included. In terms of service delivery, it is estimated that only 75 percent of urban households and about 42 percent of rural households are within ten kilometers of a health facility (Table 5-7).

Table 5-7: Potential Health Service Coverage and Visit Per Capita, 2002/03

Region	Population	Facility Type				Access to health facilities within 10 kms (Potential Health Service Coverage, %)*		
		Health Center (HC)	Health Station (HS)	Health Post (HP)	Private Clinics (PC)	HC, HS	HC, HS, HP	HC, HS, HP, PC
Tigray	4,006,008	35	183	121	28	67.5	82.6	86.1
Afar	1,301,001	8	45	56	2	49.9	71.5	72.2
Amhara	17,669,006	81	508	410	178	40.2	51.8	56.8
Oromia	24,395,000	141	903	326	482	51.4	58.2	68.0
Somali	4,002,000	20	114	54	2	40.9	47.7	47.9
Ben-Gumz	580,000	7	75	44	4	159.5	197.4	200.9
SNNPR	13,686,002	118	371	306	154	48.6	59.8	65.5
Gambella	228,002	8	18	42	7	166.6	258.8	274.1
Harari	178,000	2	19	7	18	134.8	154.5	205.1
Addis Ababa	2,725,002	28	148	46	339	80.0	88.4	150.6
Dire Dawa	357,000	3	12	20	15	54.6	82.6	103.6
National	**69,127,021**	**451**	**2,396**	**1,432**	**1,229**	**50.9**	**61.3**	**70.2**

Source: MOH/PPD. Health and Health Related Indicators, 2002/03
Note: *Population covered in percentage based on existing health facilities (HP,HS,HC,PC) in catchment area. Health Centers, Health Stations, Health Posts &Private Clinics are included in the calculations, serving 25,000, 10,000 & 5,000 patients, respectively.

Geographical Access

5.48   Distances, travel time and availability of public transportation are very important factors in determining access to health facilities for the poor.

5.49   *Despite the increase in the number of facilities, geographical access to health services in Ethiopia remains one of the lowest in the world.* Geographical access has slightly improved over five years with the average distance to the nearest health facility providing curative care (hospitals/health centers/health clinics) decreasing from 8.8 kms in 1995, to 7.7 kms in 2000 (Table 5-8). Large rural to urban differentials exist as the nearest health facility providing curative care is 1.4 kms away in urban areas and 8.8 kms away in rural areas in 2000. Regional differentials are also significant: distances are as low as 1.3 kms in Addis Ababa and as far as 9.8 kms in Afar. The average distance for the poorest quintile of households is 8.8 kms as opposed to 6.1 kms for the richest quintile. Table 5-9 charts access to the nearest hospital/health center/health clinic by income quintile, and and Table 5-10 shows access by regions. Around 30 percent of households live beyond ten kms of the nearest hospital/health center/health clinic, this figure does not differ much across income quintiles.

Table 5-8: Average Distances to Hospitals/Health Centers/Health Clinics (kms)

	1995		2000	
	Mean	Std. Dev.	Mean	Std. Dev.
Total	**8.8**	**9.3**	**7.7**	**8.1**
Region				
Tigray	10.7	10.6	7.6	6.7
Afar	5.1	9.2	9.8	13.1
Amhara	9.2	9.6	8.0	7.0
Oromiya	8.7	8.6	8.3	8.6
Somali	7.6	7.8	6.4	10.0
Benshangul	9.6	8.3	9.6	15.0
SNNPR	9.3	9.6	7.6	8.2
Gambella	5.7	8.1	6.9	8.8
Harari	2.1	2.6	2.2	2.8
Addis Ababa	0.9	3.6	1.3	4.7
Urban rural				
Rural	10.2	9.3	8.8	8.2
Urban	0.9	2.3	1.4	3.4
Income Quintiles				
Poorest	10	10	8.5	9.5
2nd poorest	10.1	10.2	8.1	8
Middle	9.2	9.4	7.6	7.5
2nd richest	8.7	8.8	7.5	7.6
Richest	7.0	8.0	6.1	7.4
Source: WMS, 1995 and 2000				

Table 5-9: Access to Nearest Hospital/Health Center/Health Clinic by Income Quintile

Quintiles	<1 KMS	1-4 kms	5-9 kms	10-14 km	15-19 km	20+ kms
Poorest	6	29	32	17	9	6
2nd Poorest	8	30	33	16	8	6
Middle	8	29	32	15	9	6
2nd Richest	9	31	32	15	9	4
Richest	15	34	26	13	8	4
Total	9	31	31	15	9	5
Source: WMS, 2000						

Table 5-10: Access to Nearest Hospital/Health Center/Health Clinic by Region

Region	<1 kms	1-4 kms	5-9 kms	10-14 km	15-19 km	20+ kms
Tigray	7	31	31	19	9	4
Afar	17	20	13	37	3	9
Amhara	8	26	34	14	11	6
Oromiya	7	30	33	16	9	6
Somali	19	41	15	13	4	7
Benshangul	16	27	27	10	7	13
SNNPR	7	33	31	17	7	4
Gambella	19	36	25	3	11	6
Harari	32	53	12	3	0	0
Addis Ababa	48	48	4	0	0	0
Dire Dawa	23	65	10	2	0	0
Urban/Rural						
Urban	39.8	54.4	5.2	.1	-	0.2
Rural	4.2	26.8	35.3	17.6	10	6.1
Average	9	31	31	15	9	5
Source: WMS, 2000						

5.50   Potential coverage is defined within the Ethiopian context as having access to health facilities that are ten kms away. While this definition may not pose problems with regard to accessing preventive services, the international standard for access to clinical/curative services is a distance of five kms. Adhering to the international standard is particularly important in Ethiopia because the WMS (2000) indicates that most health service users (90 percent) travel by foot to get to the nearest hospital/health center/health clinic (Table 5-11). Traveling a long distance by foot poses major difficulties for those too ill to walk and for parents carrying their sick children. The general condition of roads in Ethiopia is also poor, making travel to these facilities more difficult.[40]

5.51   Access to curative health services in Ethiopia decreases further when the five kms standard is implemented, especially in the case of rural households. Only about 40 percent of all households have access to curative care that is less than five kms away. Only about 30 percent of rural households, compared with 94.2 percent of urban households, live less than five kms from facilities that provide curative care.

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[40] Only about 12 % of the road network is paved. As a result of the road sector development program, the percentage of roads in good condition has increased from 14 % in 1995 to 30 % in 2001. The share of road density has increased from 21 km/1000 sq km in 1994 to 29 km/1000 sq km in 2001. However, it is still about 40% below the average of 50 km/1000 sq km for Africa. It is estimated that 70% of the total area of Ethiopia is more than a half-day's walk from all-weather roads (RSDP PAD 2003).

Table 5-11: Means of Transport to Health facilities

Region	On foot	Bicycle	Motor Bicycle	Own Vehicle	Public Transp	Office Vehicle	Animal	Other	Not Stated
Tigray	97.2	0.1	0.0	0.0	1.8	0.2	0.2	0.1	0.4
Afar	90.9	1.3	0.2	0.0	3.4	0.4	3.6	0.0	0.2
Amhara	95.8	0.0	0.0	0.0	1.1	0.0	2.3	0.4	0.3
Oromiya	84.5	0.2	0.0	0.0	5.9	0.0	9.0	0.4	0.0
Somali	94.2	0.0	0.0	0.0	2.1	0.0	2.3	1.4	0.0
Benshangul	95.6	0.4	0.0	0.0	1.5	0.0	2.1	0.2	0.1
SNNPR	92.1	0.2	0.0	0.1	3.5	0.1	3.6	0.4	0.1
Gambella	96.6	0.0	0.0	0.1	2.8	0.2	0.1	0.0	0.2
Harari	89.9	0.1	0.0	0.0	8.4	0.0	0.0	1.6	0.0
Addis Ababa	81.8	0.0	0.1	1.7	15.2	0.2	0.9	0.1	0.0
Dire Dawa	86.2	0.3	0.0	0.2	10.9	1.2	1.1	0.0	0.2
Average	90.2	0.1	0.0	0.1	4.0	0.1	5.0	0.4	0.1
Income Quintiles									
Poorest	94.0	0.1	0.0	0.1	2.4	0.0	3.2	0.2	0.1
2nd Poorest	92.0	0.0	0.0	0.0	3.3	0.0	3.9	0.5	0.2
Middle	89.5	0.1	0.0	0.0	4.3	0.1	5.5	0.3	0.1
2nd Richest	87.4	0.2	0.0	0.0	4.6	0.1	7.1	0.4	0.2
Richest	84.8	0.2	0.1	0.5	7.4	0.2	6.3	0.5	0.1

Source: WMS 2000

HUMAN RESOURCES

Availability

5.52 **Ethiopia faces serious human resource constraints in the health sector.** For example, even when health officers (HOs) are included in the estimates, the physicians-to-population ratio in Ethiopia is only 1:25,958. While this is an improvement from the previous year's ratio of 1:35,603, Ethiopia has only about .04 physicians per 1,000 people compared to the SSA average of 0.1 per 1,000 people. It has the lowest physician-per-1000-persons ratio in the world (Figure 5-4). One nurse in Ethiopia serves 4,882 persons. This ratio has also improved from the previous year's ratio of 1: 5,236 (Table 5-12). However, this particular figure must be treated with caution because while clinical and staff nurses constitute a large part (79 percent) of the total number of nurses, it is not clear whether these nurses graduated either from the two-year diploma program or the one-year certificate program or whether the figures presented have combined nurses graduating from these programs. The HSDP I Evaluation (2003) states that the largest increase in nursing staff is made up of junior clinical nurses who only one have year of training and who not well prepared for practical work.

Figure 5-4: Physicians per 100,000 Persons vis-à-vis GDP
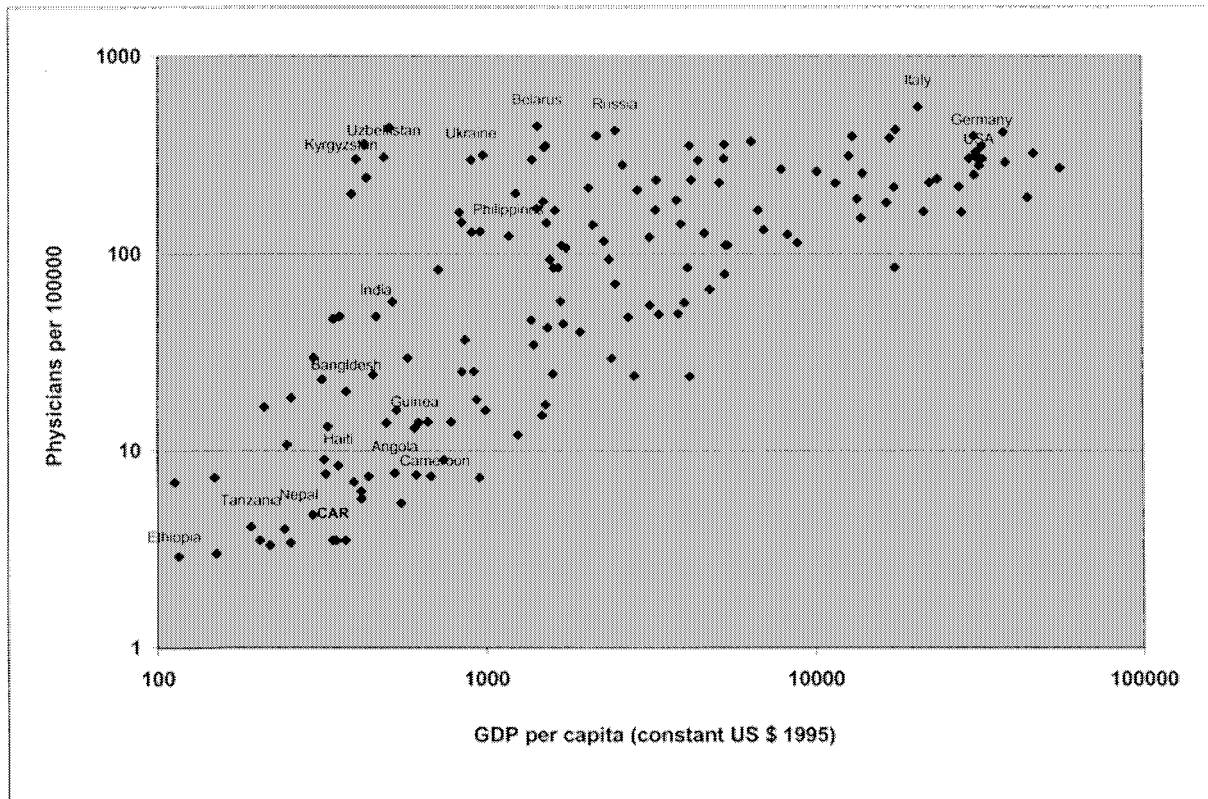
Source: WDI 2002 (incorporating MOH/PPD figures for 2002/03)

5.53   *There are concrete efforts to train more people, and the number of health personnel are increasing.* Figure 5-6 shows that from 1996/97 to 2002/03 there has been a significant increase in the number of health officers, para-medicals and nurses. In particular the number of health officers increased by 2003 percent (from 30 to 631), para-medicals by 159 percent (from 1,788 to 4,641), and nurses by 83 percent (from 7,723 to 14,160).[41] The number of physicians increased by 37 percent (from 1,483 to 2032) but health assistants declined by 35.4 percent (from 10,625 to 6,856) (PPD/MOH. 2001/02 and 2002/03).

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[41] The 14,160 nurses were classified as follows: nurse Bsc (74), midwife nurse (1142), psychiatric nurse (107), Anesthetist nurse (201); MCH nurse (35), dental nurse (33), clinical nurse (9500), public health nurse (798), staff nurse (1633), other nurses (637). (MOH/PPD 2002/03).

Figure 5-5: Trends in Growth of Health Professionals, 1996/97-2002/03
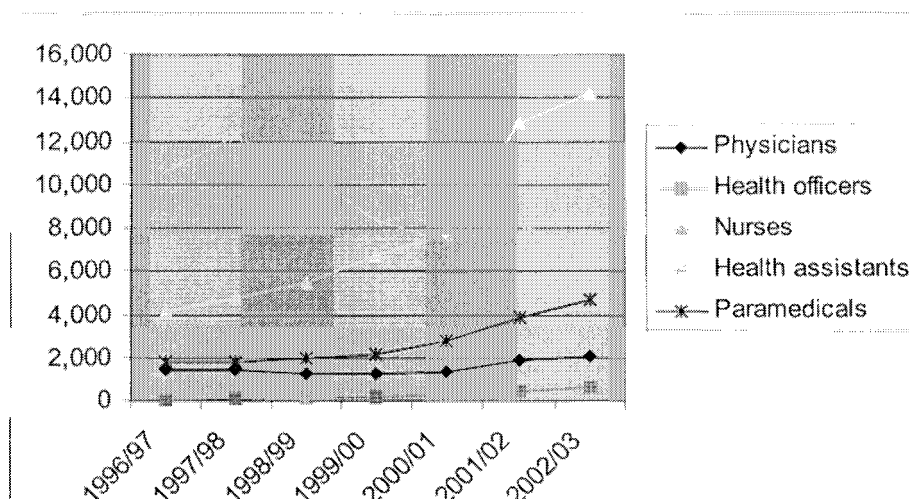
Source: MOH/PPD. Health and Health Related Indicators. FMOH, 2002/03.

Table 5-12: Health Personnel: In-service and Graduates 1997/98-2002/03

Indicator	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03
Total population	59,882,000	61,672,000	63,495,000	65,344,000	67,220,000	69,127,021
Human Resources (in service)						
Physicians	1415	1283	1263	1366	1888	2,032
Health officers	75	144	201	296	484	631
Nurses	4774	5498	6713	7723	12,838	14,160
Health assistants	12521	10641	8330	7386	8149	6,856
Paramedicals	1772	1989	2201	2758	3706	4,641
Human Resources (graduates)						
Physicians	140	136	152	128	152	285
Health officers	83	79	157	181	183	181
Nurses	1129	1416	1399	2164	1437	1465
Paramedicals		613	671	917	656	1054

Source: MOH/PPD Health and Health-Related Indicators, FMOH 2001/02 and 2002/03

Table 5-13: Health Personnel: Number and Personnel to Population Ratio,
National Level 1996/97 and 2002/03

Health personnel	1996/97		2002/2003		1996/97 – 2002/2003
	Number	Ratio	Number	Ratio	% Change
Doctors	1,483	1:39,188.80	2,032	1:34,019	37
Health officers	30	1:1,937,233	631	1:109,551	2003
Doctors + health officers	1,513	1:38,412	2,663	1:25,958	76
Nurses	4,114	1:14,126	14,160	1:4,882	244
Health assistants	10,625	1:5,469	6,856	1:10,083	-35.4
Paramedicals	1,788	1:32,503	4,641	1:14,894	159
Source: PPD,MOH. Health and Health Related Indicators. Addis Ababa. 2002/023 and 2000/01 Note: data may not be directly comparable because 1996/97 data only includes health staff under the MOH while 2002/03 figures include staff from both the public (including other government agencies) and private sector.					

5.54   *Attrition rates for lower and middle level cadres have been steadily decreasing*
(HDSP I Evaluation). Average attrition rates for doctors from 1996/97 to 2000/01 is
15.42 percent. There has been a sharp decline from double digit attrition rates from the period
1996/97 to 1999/2000 (ranging from 10.2 percent to 26 percent) to single digit rates in 2000/01
(only 4.2 percent) (Kebede 2002).

5.55   Based on the annual population growth rate of 2.9 percent; an annual attrition rate of
3 percent among public service health staff; and an assumed continued expansion of output from
health worker training schools of 2.8 percent; the HSDP Mid-Term Review estimates that
adequate staffing levels will not be attained within 25 years. This is based on the following
assumptions: the annual population growth rate is 2.9 percent; the annual attrition rate is three
percent among public sector staff, and output from health worker training schools continue to
increase by 2.8 percent.

Regional Distribution

5.56   The distribution of the healthcare workforce is inequitable. There are significant regional
differences: in general, the urban areas have a better healthcare worker-to-population ratio than
rural areas. The tables show only public health workers. Given that the large majority of private
facilities are located in the urban areas, the coverage there is much better than reflected in this
report; and the difference between urban and rural areas is even greater than these statistics
show. A detailed breakdown by type of health worker, region and gender is provided in
Table 1-2 in Annex 1.

5.57   As indicated in Table 5-14, among the predominantly rural regions, Afar and Somali fare
the worst. These regions are also ranked the lowest in terms of the development indices used by
the FDRE. Even though the most populated regions (Amhara, Oromia and SNNPR) have the
largest number of health personnel, they also have among the lowest health personnel-to-
population ratios, constrained by a limited number of health staff relative to their large
population size. These regions suffer more from extremely low nurse and health assistant-to-
population ratios. Oromia has the lowest frontline health worker (FLHW)-to-population ratio

while Tigray, emphasizing community-based healthcare delivery, has the largest number of FLHW compared to other regions. Afar and Gambella have no specialist physicians, only have general practitioners (MOH/PPD 2002/03). Figures 5-6 and 5-7 illustrate the changes in physicians/population and midwives/population ratios from 1989EC (1996/97) to 1994EC (2001/02). Marginal increases in the number of physicians, including HOs, can be observed in most of the regions; however some declines are seen in SNNPR, Benhangul Gumuz and Harari. As shown in Figure 5-8, the numbers of various categories of midwives relative to population size has increased in all regions, but midwife-to-population ratios (particularly midwife-to-female ratios) remain inequitably distributed.

Table 5-14: Population-to-Physician, Nurse, and Health Assistant Ratios by Region, 2002/03

Region**	Population	Physician	Pop/ physician	Nurses	Pop/ nurse	Health Assistant	Pop/HA	FLHW	Pop/ FLHW
Central	-	252		606		284		0	
Addis	2,727,002	207	13164	781	3303	383	7,115	91	29,967
Harari	178,000	56	3179	129	886	62	2,871	43	4139
Dire Dawa	357,000	47	7596	130	2606	67	5,328	12	29,750
Gambella	228,002	18	12,667	156	1443	39	5,846	39	5846
Ben- Gumuz	580,000	40	14,500	212	2886	97	5,979	88	6591
Tigray	4,006,008	140	28,614	1,008	3278	885	4,527	7070	567
Oromia	24,395,000	401	60,835	2327	9638	2115	11,534	161	151,522
SNNPR	13,686,002	310	44,148	1299	8240	1126	12,155	469	29,181
Amhara	17,669,006	291	60,718	1,553	11,092	1220	14,483	837	21,109
Afar	1,301,001	25	52,040	195	6051	60	21,683	162	8031
Somali	4,002,000	55	72,764	345	12314	114	35,105	837	16,137
NGO	-	51	-	433	-	103	-	360	-
OGA	-	380	-	4,015	-	301	-	4927	-
Private**	-	390	-	37	-	-	-	0	-
Total	69,129,021	2,663	25958	14,160	10,083	6856	10,083	14507	4,765
*Non-public health workers were not categorized by region. **Data for private sector only available for Addis									

Figure 5-6: Public Sector Physicians and Health Officers per 100,000 Population by Region
(EC1989 and EC1994 or 1996/97 and 2001/02)
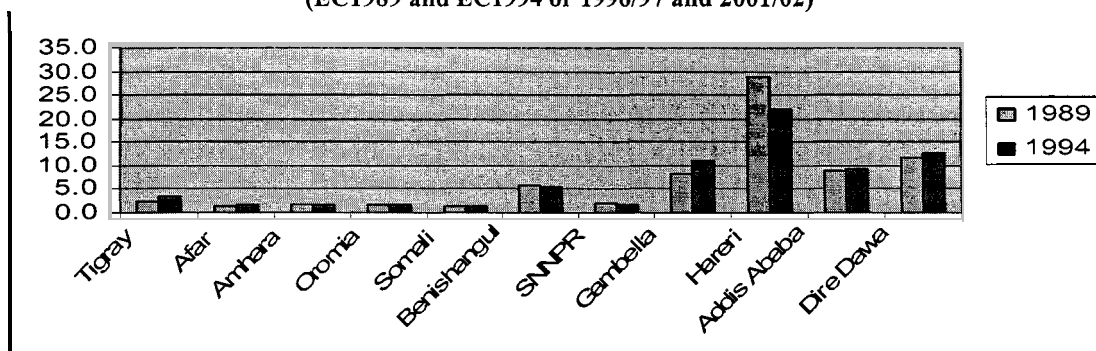
Source: HSDP I Evaluation 2003

Figure 5-7: Distribution of Public Sector Midwives by Region
(EC1989 and EC1994 or 1996/97 and 2001/02)
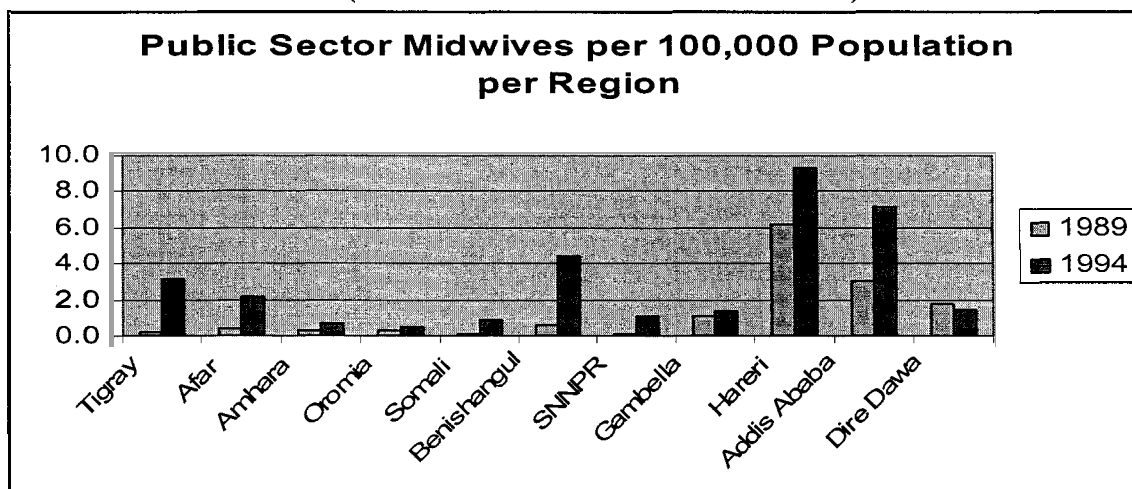
Source: HSDP I evaluation 2 003

Gender

5.58   *The healthcare work force is male-dominated.* As can be seen from Figure 5-8, based on 2002/03 data from the Center and 10 regions (data for Oromia was not available), only about 12 percent of physicians, 13 percent of HOs, and 46 percent of nurses are female. The percentage of FLHWs is only 58 percent. This is worth emphasizing, as a majority of the health issues facing the poor are maternal and child health related issues.

5.59   Looking at the breakdown across regions presented in Annex A-2, *most female health workers are located in urban areas.* This is particularly true for doctors, HOs, pharmacists and even for nurses. Addis and Tigray are the only regions where females comprise more than 50 percent of the total health workforce. On the contrary, Benshangul has the lowest percentage of female health staff (19 percent). Most of the FLHW are located in Tigray and Amhara, yet only 61 percent and 49 percent, respectively, are women.

5.60   At the policy level there are ongoing efforts to develop gender guidelines and perhaps implementing a gender quota (3 females:1 male) for admission to nursing training. However, young women often lack the necessary basic education (ICN 2002) to enter the nursing profession. It will be difficult to significantly increase the number of females in nursing programs until the number of females completing secondary education has increased. In 2002, secondary GER for girls was only 14.3 percent (FRDE's PRSP Progress Report, 2003). In addition, married women in Ethiopia tend to adapt to their husbans' professional needs rather than making independent professional moves themselves. Unmarried women, on the other hand, when they do go out on their own, often face security problems when living and working in rural areas.

Figure 5-8: Percentage of Females in Each Health Worker Professional Category in Ethiopia, 2002/03
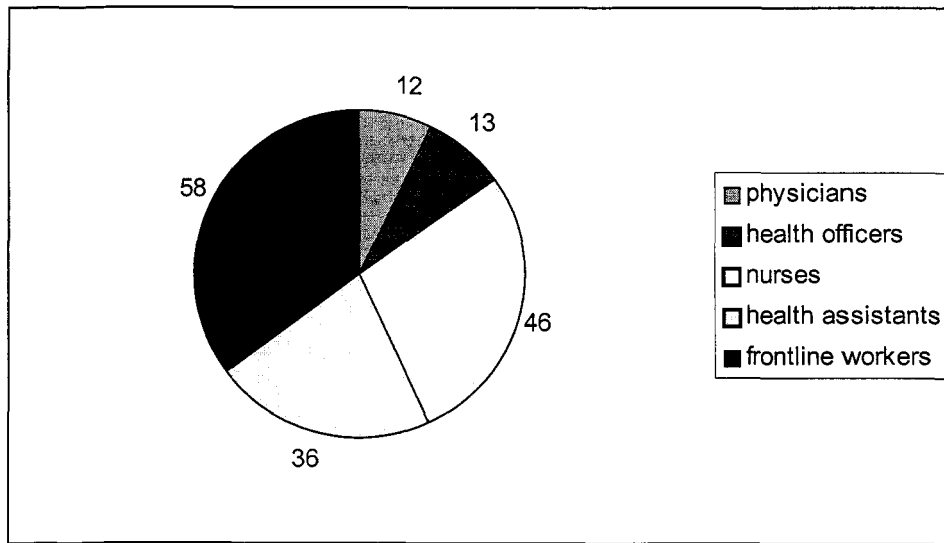
Source: MOH/PPD Health and Health Related Indicators. Addis Ababa. 2002/03

Staffing Norms

5.61   The staffing standard at various health facility levels, based on the new four-tier system, is outlined in Annex 1-3.

5.62   Since the transition to the four-tier system is not progressing as planned, current staffing represents a mix of the old and the new systems. While this provides some flexibility, it is also difficult to design and evaluate training programs and assess performance. The staffing norms and actual status of HSs is unclear, because these facilities were supposed to be phased out and replaced with HPs. However, regions have continued to construct HPs that offer both preventive and clinical services. HPs have been staffed with primary health workers (PHWs), community health assistants (CHAs) and traditional birth attendants (TBAs). However, communities have resisted the plan to downgrade HSs to HPs, because CHAs and TBAs in HPs are not trained to handle both the preventive and curative aspects of healthcare, despite the high morbidity levels and limited health service coverage. Some regions such as Tigray, Amhara, Oromia and SNNPR have assigned junior clinical nurses and upgraded PHWs, replacing CHAs and TBAs in HPs (HSDP MTR, 2001). Site visits to Oromia and SNNPR during the July 2003 mission confirm

that staffing standards are not adhered to because these regions believe that offering only preventive services does not meet the needs of the communities. For example, representatives from Oromia state that the minimum service level that any facility should offer is similar to what HSs currently offer. The HPs visited in SNNPR provide basic curative care such as malaria treatment.

5.63   The current standard number of technical staff set for HCs and district and zonal hospitals (ZHs) does not allow for adjustments based on actual workload or utilization. Hence some regions have adapted the standard to their own requirements or regional realities. For example, the MOH staffing standard only provides for HOs and general practitioners in district hospitals (DHs): surgeons and gynecologists are not included in the staffing requirements. However, DH are expected to serve a population size of 250,000. Transport costs and travel time faced by poor patients to reach ZHs may serve as substantial barriers to utilizing needed health services. In order to address this issue, it is reported that some regions (Tigray and Amhara) have surgeons and/or gynecologists as part of their standard staffing (MTR 2001). Tigray, in particular, has three HC staffing standards based on location: HC A is located in remote areas and provides emergency surgical care; HC B is located in rural areas and refers patients for emergency surgical care to the closest DH; and HC C is located in urban areas. Staffing and equipment are revised accordingly; for example, surgery related staff would be threefold in remote HCs while a physician and nurses should be added to the base staff in urban HCs to deal with outpatient needs.

5.64   The HSDP I (2003) Evaluation reports that many regions are discontinuing training of junior staff and FLHW or modifying curricula to suit their own needs. For example, Oromia has not established HPs that provide only preventive services.

5.65   In terms of administrative-to-health staff ratios, the HSDP I Evaluation finds that the number of administrative staff tends to be greater than the number of health workers (ratio of 2:1). In addition to the large number of administrative and support staff, a considerable number of trained HWs occupy non-clinical positions. For example, Addis Ababa Public Health Services' administrative and support staff (about 3,270) exceeds the total number of HWs. In Benshangul-Gumuz, only five out of 18 HOs (27.7 percent) are in service delivery positions while the rest occupy either teaching or administrative posts. In Amhara, 38 percent of HWs are employed in woreda and zonal offices. Afar has an underutilized 78-bed zonal hospital with 58 technical health staff and 129 administrative and support staff.

5.66   Overall, there are staff shortages: there are large numbers of staff whose skills do not match the community heath needs for both preventive and curative services, and often implementation of staffing norms vary and needed health service delivery staff are assigned to administrative positions.

5.67   The introduction of the Health Extension Program, which will be discussed in further detail in Chapter 7, should also entail a clear delineation of roles and responsibilities of each health staff member at the HP level. For example, the roles and responsibilities of TBAs and CHWs vis-à-vis HEWs as well as how their positions will be financed, (e.g. will the community be responsible for paying the TBA and CHW) needs to be determined.

Training

5.68   Out of at least 30 training institutions located in several regions (five universities or colleges for higher education, 12 senior training schools, and 16 junior training schools—MOH/PDD 2001/02), there are 12 nursing schools with an annual training output of about 2,226 nurses.

5.69   The physical capacity number of teachers with a minimum of pedagogical training and availability of materials for training HWs have improved during HSDP I. Two existing MOE-run institutions with health worker training programs (Health Faculty of Alemaya University and Dilla College) started to operate diploma and degree training programs in 1997. New training programs and schools under RHBs were started in SNNPR, Gambella, Somali and Borena. Six other schools were physically rehabilitated and two of them were expanded. As planned, 30 training institutions received training materials, while 81 teachers (four times more than planned) received some short-term pedagogical training. In addition, 17 curricula were revised. Nonetheless, the schools were overloaded beyond their designed capacity.

5.70   **From 2001 onwards, private training schools started to open. The Ethiopian Health** Professionals Council was established in 2002. However, it does not have the legal mandate to oversee the training and accreditation of health workers.

5.71   *In general, training capacity remains inadequate relative to training targets.*
According to training outputs from 1997/98-2001/02 (Figure 5.9), the number of people trained in the following physician categories [surgeons (113%), internists (113%), gynecologists (103%), ophthalmologists (153%)], nurse catagories [anesthetist nurse (118%), clinical nurse (131%)], pharmacists (197%), laboratory technicians (199%) and FLHW (146%) were greater than anticipated. However actual numbers of trained doctors, health officers, some nurses (midwife nurses and public health nurses) and radiographers were significantly lower than predicted. The most serious gaps existed in the number of anesthesiologists (28% achieved relative to of target), midwife nurses (43% achieved relative to target) and public health nurses (47% achieved relative to target), radiologists (49% achieved relative to target) and pediatricians (78% relative to target).

Figure 5-9: Planned and Achieved Training Outputs
EY 90-94 (1997/98 to 2001/02)
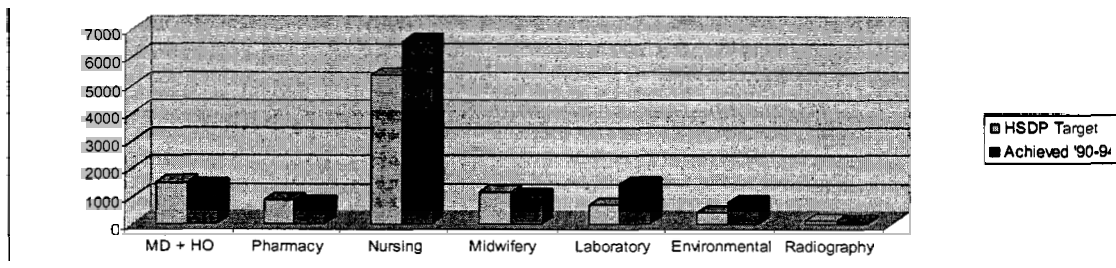
Source: HSDP I Evaluation 2003 based on MOH/PPD and PAP data
Note: While total number of actual nurses trained were greater than expected, certain categories of nurses, such as public health nurses, did not even reach 50% of the target.

5.72 The medical and nursing schools and training institutions for paramedical professionals attempt to increase the annual output of trained personnel to meet the demand for health staff. However, in general, the quality of trained personnel is believed to be unsatisfactory based on existing reviews and evaluations (HSDP I Evaluation, 2003; ICN, 2003; WHO 2002). Schools lack funds and resources for community-oriented training, and health facilities are not sufficiently equipped to provide students with adequate practical training (HSDP JRM3, 2003). According to the MTR (2001), junior professional schools tend to employ diploma holders as teachers, which is below prescribed standards. Many teachers lack training in teaching methods. The training approach used is mainly cognitive and the curriculum needs to be strengthened in terms of community orientation, management approach, problem analysis, team building, and applied research skills.

5.73 *The amount, coordination and planning of in-service training programs need to be improved.* Continuing education hardly exists (Bach-Baouab et al, Health Manpower Study Proposal, 2002). Regional Training Centres (RTCs) were established to coordinate all continuing education and training efforts. However, aside from Oromia SNNPR and Amhara, other regions do not have RTCs. Over the years, the capacity of the RTCs has declined because of inadequate budget, staff and training materials (HSDP I Evaluation 2003).

5.74 An overview of the main cadres of healthcare personnel and their educational and training requirements are provided in Table 5-15:

Table 5-15: Current Types of health care providers and their training

Health officer - Baccalaureate prepared (4 years) - Generic (4 years), Accelerated for diploma nurses (3 years)
Nurse - Baccalaureate prepared Nurse: - Generic Program (4 years), Accelerated Program (3 years) - Diploma prepared – "senior Nurse" (2 years) - Public Health Nurse - Clinical Nurse - Certificate prepared Nurse – "Junior Nurse" or "Assistant Nurse" (1 year) - Public Health Nurse - Clinical Nurse
Midwife - Diploma Prepared – "Senior Midwife" (2 years) - Certificate Prepared – "Junior Midwife" or "Assistant Midwife" (1 year) - Primary Midwife (6 months) - Trained traditional birth attendants – TBA (3 months)
Frontline workers - Community Health Agents (3 months) - Primary Health Care Workers (6 months) - Heath extension Worker
***Community Health Agents (CHWs)** are part of the health team at the HP level, recruited from the local community; and preferably traditional healers. They have 3 months of training.
***Primary Health Workers** (PHWs) are the coordinators of the health team on the HP level. They have 6 months of training.
****Heath Extension Workers** are a new cadre of health providers - health extension worker or agent (HEWs or HEAs) will be assigned to the HP. They should be at least 10th-grade female graduates. They will have one year of training, and there will be two HEWs per kebele.
Note: There has also been recent move to upgrade training of junior/assistant nurses to two years
Source: ICN 2002. *Note: Based on the November 2003 mission discussions, the roles of the CHAs and PHWs are expected to change. They will be expected to provide support to the HEW but working and financing arrangements still need to be confirmed. **updated description based on November 2003 mission.

5.75 *Training curricula needs to be better aligned with intended objectives.* Existing evaluations of health workers indicate that HO training is generally well conceived in terms of community orientation, and it has an appropriate focus on health promotion, illness prevention and essential medical services preparing graduates to be managers in health centers and "extensions" of physicians. However, there is a clear need to modify the curricula for junior, mono-disciplinary nursing, midwifery, and frontline classes in order to better equip the students with practical clinical skills (especially for those working in rural peripheral health units). Currently, midwife training standards do not meet those of the international community. Significant changes need to be made in midwifery training to align it with the FDRE's public health policies and to respond more effectively to maternal and infant health issues using a practical community-based approach (ICN 2002).

5.76   About 20,000 HEWs will be trained and deployed to HPs over the next five years. This will be a particularly challenging goal for rural peripheral communities because HEWs are required to be female; have a minimum education level of 10th grade; and to come from the kebele that they will serve, ensuring that they are familiar with the local culture and language. *It will also be very important to factor in lessons learned from the evaluation of the HSEP pilot in five regions as the improvement of the training and deployment plan for the HEWs is discussed* (MOH/CSR Nov 2003 Mission Discussions).

Salaries, Incentives and Staff Retention

5.77   The MOH has taken initiatives to standardize job titles and outline salary scales and career structures in order to motivate and retain health staff. The Qualification Requirements for Health Professionals (1999) describes salary scales and outlines a career structure for formally trained health workers.

5.78   The large number of health worker categories provides flexibility for the regions, but makes evaluation of performance and quality of curricula difficult to synchronize. For each type of cadre there are (in most cases) five defined career steps (for an Assistant Public Health Nurse (APHN) there are four levels: Junior, Senior APHN, Chief APHN and Expert APHN). Moreover, job descriptions have been developed for at least 90 health worker categories. There is some overlap among the different job categories (for example, there are at least ten nurse categories), and they can be somewhat confusing given the relatively minor differences between some groupings.

5.79   The HSDP I Evaluation (2003) indicates that there were few recent complaints about salaries and remuneration. Health sector salaries seem to be more or less in line with the minimum cost-of-living increases and are favorable relative to other sectors. This may be explained by the recent salary increases and implementation of incentive schemes including hardship allowances.

5.80   Based on available data, on average, base salaries of health personnel increased by at least 21 percent from 1999 to 2003 in nominal terms (40 percent in real terms). Base salaries of health assistants increased by about 37 percent in nominal terms (54 percent in real terms). This increase is explained by the fact that health assistants were previously among the lowest paid health staff (Table 5-16).

Table 5-16: Ethiopian Average Base Salaries (per month) among Selected Health Staff, 1999 and 2003

Position	Average salaries across within-profession categories (Birr, nominal terms)		% nominal change from 1999 to 2003	Average salaries across within-profession categories (Birr, constant terms, 1995=100)		% real change from 1999 to 2003	Annual base salary as a multiple of GDP per cap
	1999	2003		1999	2003		2003[42]
Medical specialist	2233	2697	21	2419	3286	36	39.4
General Practitioner	1373	1650	21	1488	2010	35	24
Health Officer	1059	1288	21.6	1148	1569	37	18.8
Professional Nurse	1059	1288	21.6	1148	1569	37	18.8
Clinical nurse/public health nurse	930	1145	23	1008	1517	51	16.7
Pharmacist	1211	1470	21	1312	1791	36	21
Health assistant	380	520	37	412	634	54	7.6

Source: MOH files 1999; GDP deflator data from SIMA
* Note: there are, on average, about five grades per category of health personnel.

5.81   On average, medical specialists and general practitioners in Ethiopia are paid about 39 times and 24 times the annual GDP per capita, respectively[43]. Professional nurses are paid on average almost 19 times (ranging from 11.7-27) GDP per capita while junior nurses are paid about 17 times GDP per capita.

5.82   *Public salaries for health workers appear to be relatively higher than the average in sub-Saharan Africa.* Based on the available data from other SSA countries, the salary-to-GDP per capita ratios for general practitioners in Ethiopia are much higher than all of the five other comparator countries (ratios range from about five in Cameroon to 23.5 in Burkina Faso). This comparison also holds true in the case of professional nurses: those in Ethiopia have higher salary-to-GDP ratios than do five other comparator countries (ratios range from two in Cameroon to 13.5 in Burkina Faso). Even the salary-to-GDP ratios for Ethiopia clinical nurses/public health nurses who graduated from one-year certificate courses are higher than the salaries of state diploma nurses in the five other countries. Ethiopian physicians and nurses seem to be well-paid in terms of GDP per capita relative to the other countries, although it is important to note that Ethiopia has the lowest GDP per capita relative to these countries (Table 5-17).

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[42] While there is a difference in the time periods of data collection, (2001/02 vs. 2003), which should be taken into account, a teacher in Oromiya with a Bachelor's degree or Master's degree earned on average about Birr 1,182 (including pension and allowances of about 8 %) per month in 2001/02. A Teacher Training Institute-certified teacher earned about Birr 755 and a Teacher College trained teacher earned Birr 797 per month. A teacher for grades 9-12 received an annual salary that was 11.8 times GDP per capita in 2001/02 (Education CSR 2004).

[43] GDP per capita in 2003 of $96 or ETB 821 was estimated based on a total GDP estimate of $6,623 million divided by the estimated population of 69 million.

Table 5-17: Range of Salary-to-GDP per capita Ratios
for General Practitioners and Physicians in Six Countries

Country	General Practioner	Diploma Nurse
Chad	10.3-18.8	5-10.6
Burkina Faso	7.3-23.5	4.2-13.5
Mauritania	5.67-9.45	3.2-5.7
Cameroon	4.7	1.7
Niger	10.6-20.8	5.3-12.0
Ethiopia	18.3-30	11.7-27
Source: WB HD, Africa Region, Country Status Reports.		

5.83   While salaries relative to GDP are high, Ethiopian medical specialists and general practitioners are paid significantly less than physicians from other regions such as South Africa, the Middle East and the United States. In Ethiopia, the average salary for a medical specialist is only US$387 per month while a general practitioner receives about US$236 per month. These numbers make migration very attractive for doctors with prized skills in the international market, particularly surgeons and obstetricians.

5.84   Although salaries and allowances have improved over time, it is clear that additional incentives must be offered to motivate health workers to stay in the public sector in Ethiopia, especially if they are expected to serve in rural areas. According to the preliminary results of a contingent valuation exercise undertaken by Serneels et al. (2004), a mark-up of about 50 percent in monthly wages (i.e., Birr 350 in addition to the current starting salary of Birr 700) would adequately motivate about 80 percent of current nursing students to serve in rural areas. Approximately 60 to 70 percent of the current fourth year medical doctor students would be willing to serve in rural areas if their current starting salary increased by 50 percent (i.e., about Birr 700 in addition to their current average starting salary of Birr 1300-1400).

5.85   *Non-pecuniary issues also affect job satisfaction among health workers.* Training and career development opportunities were cited as important concerns by health workers in various reports. While most workers interviewed explicitly acknowledged the need to address the health needs in rural areas, concerns were also expressed about remaining indefinitely in rural areas without acquiring additional learning, job enrichment and career advancement opportunities (Lindelow et al. 2003). Education opportunities for the workers' children were also cited as important issues (Serneels et al 2004). This underscores the need to equip rural areas with basic health and other services.

5.86   Provision of staff houses was also repeatedly mentioned as a potential motivating factor for higher qualified personnel to remain in remote areas (HSDP I Evaluation). As a result, some regional HSDP II plans have made provisions to support staff housing. Moreover, it has been noted that health worker morale could potentially improve if health staff were provided with the necessary equipment and materials to enable them to perform their jobs effectively. The importance of having materials to work with were underscored in the focus groups discussions among health workers conducted in 2003 (Lindelow et al. 2003). Some of the health workers' concerns were stated as follows:

- "In public facilities, there are times when health workers are obliged to sterilize gloves for re-use, while they are disposed off in private facilities." Health assistant in Addis Ababa
- *"There is inadequate supply of materials. It is not possible to work efficiently and meet expectations. If you try to work with what is available your service will be substandard."* Health assistant in a provincial town

5.87   The ICN 2003 study found that TBAs are equipped with one delivery kit each, which is not adequate to support all of the deliveries that each TBA is expected to carry out.

5.88   A survey on the quality of health services management (PHRD 1998) also raises the above concerns in addition to the following issues: work overload, staff shortage, unclear job descriptions, budget shortage, unfair promotion procedures, inability to obtain annual leave when needed, lack of transport facilities, and lack of adequate care for sick workers.

5.89   There is also a general concern about contracting HIV/AIDS. This fear has increasingly influenced the decision of health workers to work in public health rather than in clinical services. This concern is compounded by the lack of a safety policy and inadequate protective materials such as gloves (CSR Team Field Visit and Lindelow et al. 2003).

5.90   In general, the level of satisfaction regarding salaries and benefits has been mixed. Box 5-1 illustrates some of the views expressed by health workers. However, it is clear that more incentives need to be in place to attract and retain health staff in the regions. To attract female workers, additional measures must be put in place including an assurance of safety when working in remote areas. The HSEP proposes to recruit and train HEWs that live in the same kebele as a strategy to address local staff shortages. However, the implementation of the HSEP in the short to medium term for other health professionals (such as doctors and nurses) is more limited, and other strategies must be put in place.

Box 5-1: Salaries, Benefits, Overall job satisfaction: What do Health Workers Say?

Things are improving...	Concerns
"The profession is good, although there are various problems. It is about helping the poor, particularly the public sector . -Health assistant in Addis "Even though there are many problems, I would advise even my own children to join the health profession. Any profession has its own unique hazards and problems. The most important things in Ethiopia are education and health, and the need in these sectors is great." -Physician/health officer in Addis. "...Now the salary in the public sector has increased to Birr 670 per month. In the private sector it is about Birr 600. This, in addition to the education opportunities that have opened up in the public facilities, helped me decide to come back to the public sector. It seems that the public sector is getting better." -Nurse/midwife in provincial town	"I would not advise a person to join the health sector. I want to leave this sector because of the workload and the low payment." -Health assistant in Addis) "No physician would leave the private sector if he or she was paid well. By moving to the private sector we can earn 3 or 4 times as much. The payment to physicians needs to be improved if there is to be a genuine drive to help the poor." - Physician/ health officer in a provincial town "Although the people in the rural areas need our support, the working conditions are not good for us, and facilities for other basic services are not fairly distributed in the country. " -Nurse/midwife in a provincial town "Once you are dumped in the most remote area, no one will remember your transfer back to a central area. In addition, there are no medicines, books and you cannot access information and opportunities needed to improve your professional standards. Such problems can be resolved by policy makers." -Physician/health officer in a small town "Many health workers choose public health. Surgical training is more risky. After the advent of HIV/AIDS, things have changed." - Physician/health officer in Addis "In some places, sexual harassment is a problem for women unless they live in the facilities..." -Nurse/midwife in Addis
Source: Lindelow et al. (2003)	

5.91   The HSDP I Evaluation noted some signs of work neglect including cases of partial or full day absenteeism. High staff turnover among doctors moving from hardship areas as well as among staff in RHBs was also noticed. Some absenteeism was mentioned as well in the focus group discussions conducted by Lindelow et al (2003). This study showed that some health workers did not respect working hours and would work in the private sector or attend to personal commitments during normal working hours.

5.92   However, a recent survey of facilities that were visited unannounced in Amhara indicate that only two out of every 96 health providers (2.1 percent) in 32 health facilities were absent. This absenteeism rate is very low compared with the six other countries surveyed, which have absenteeism rates ranging from 19 percent in Papua, New Guinea to 35 percent in Uganda (Figure 5-10). *There still seems to be a relatively high work ethic among health workers in Ethiopia as exemplified by the relatively low absenteeism rates when compared with other*

countries with higher incomes. The ability to work in the health sector and be of service to the poor, in spite of the challenges inherent in the medical profession, was appreciated by employees participating in the health worker focus group discussions (Lindelow et al. 2003).

Figure 5-10: Health Care Provider Absence Rate
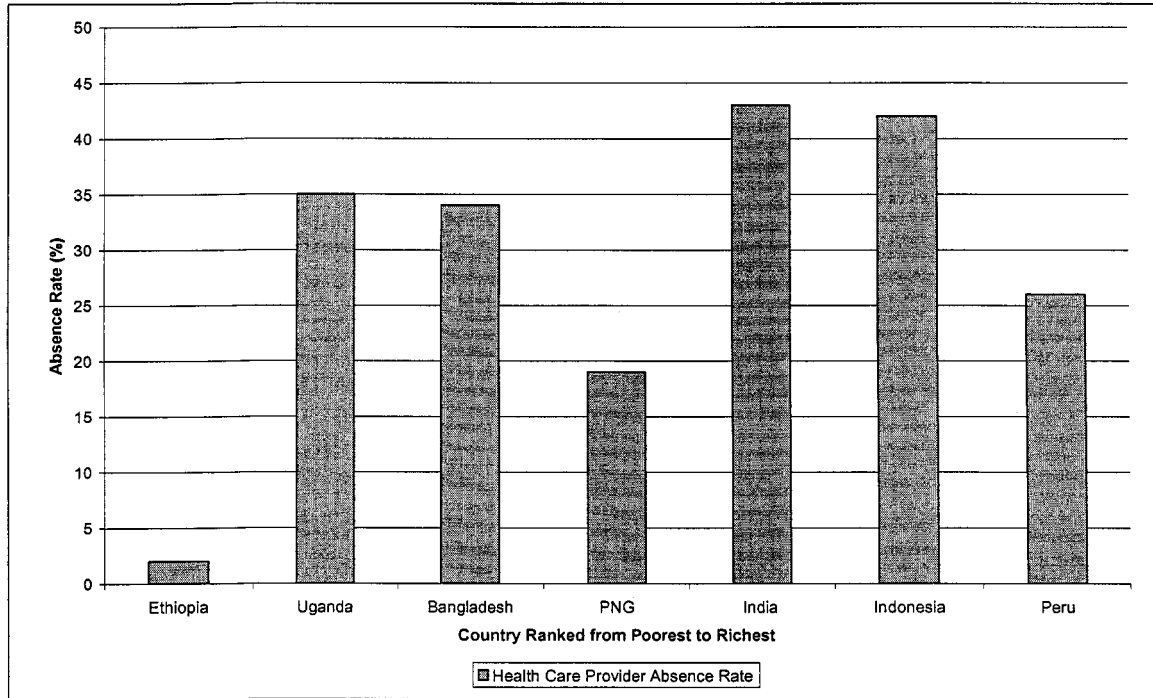
Source: Ethiopia Facility-based Survey Draft Findings from Chaudhury et al. 2004.

Health Care Workers And The Private Sector

5.93   As the private health sector has expanded over the years, it has attracted health staff from the public sector. This is interesting to note because based on existing policies, staff trained in public sector institutions are required to spend a certain number of years working in the public sector. However, as stated above, in reality this appears not to be the case (Barr, A et al., 2003).

5.94   In Addis Ababa more than 50 percent of the nurses and doctors are employed in the NGO/OGA/private sector. In addition, many publicly employed health workers are also doing part-time work in the private sector. The phenomenon is not limited to Addis Ababa. In Afar, about 30 percent of the health workers were involved in private/NGO sector work: 50 health assistants were reportedly working as private rural drug vendors, while about 150 paid CHWs and 100 volunteer TBAs were engaged by NGOs. There are examples in other regions such as Tigray and Amhara, emphasizing the need to include the private sector in overall human resource planning and monitoring. (HSDPI Final Evaluation).

5.95   Information obtained based on focus group discussions with health workers reflect the mixed feelings and perceived advantages and disadvantages of working in the private and public sectors. In particular, while health workers appreciate the higher salaries[44] and performance–based salary increases, better equipment and less bureaucratic procedures in the private sector, they also find profit-driven motivation, lower job security and lack of career development unattractive (Barr et al., 2003; Lindelow et al, 2003). Thus in order to obtain "the best of both worlds" many work in both the public sector (mornings) and private sector (afternoons and evenings). While this division of the workday is commonly practiced, there is also some resentment about the unofficial privatization within the public sector in terms of informal payment or referral to a provider's private practice. These informal activities are officially not allowed, however, they are becoming increasingly accepted among employers and employees. Policies are currently being considered to allow the combination of public and private work in public facilities (Barr, A et al., 2003).

5.96   Various HSDP reviews have already suggested the development of rules and regulations developed in collaboration with the MOE to retain professionals by the government so that the Government would obtain a return on its investment. Incentives need to be established in order for health staff to prefer to remain in the public sector. In this regard, studies are being developed, such as the WB supported health worker study, to better understand human resource dynamics and issues in the health sector. In moving forward, it will be essential to have clearly defined guidelines to facilitate the transition from the six-tier to the four-tier system. These guidelines should also be accompanied by a human resource (HR) strategy based on a comprehensive human resource assessment. This HR strategy would need to address deployment; transfer and training of health workers; and the development of draft HR guidelines governing the partnership, cooperation and control mechanisms between the public and private sectors (including NGOs).

Quality of Health Human Resources Management

5.97   Another study reviewed for this report was the Quality of Health Services and Management Study (February, 1998). While much of the data and specific information (collected August 1997) is outdated, many of the general conclusions, lessons learned and recommendations are still valid based on the review of other assessments and discussions. This study, however, did not include HPs, a major component of the current strategy to deliver services.

5.98   To improve the health management system, the study suggests the development and implementation of the following:

(i)   Clear policy and procedures related to human resource management and improved skills in personnel management;
(ii)   Proper and regular supervision, including an adequate plan for supervisory activities, and written guidelines for supervision protocols;
(iii)   Relevant data for management decision making;
(iv)   Well-defined organizational charts, written job descriptions and technical norms;

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[44] Some regions such as SNNPR have already introduced incentive mechanisms such as additional allowances and bonuses thereby narrowing the salary differentials between private and public health workers.

(v)   In-service training and training-based on needs assessment;

(vi)   Access to transport for facilities; and

(vii) Adequate budget and participation of staff in the preparation of budgets.

5.99   *More effective enforcement and transparency practices would improve human resource policies and practices.* Health worker focus group discussions have expressed concerns regarding favoritism with respect to postings, training, promotions and obtaining release from the public sector. It is important to address these concerns as these issues influence how health workers make career and labor market choices.

5.100 Focus group discussions among health workers also underscore the need to improve accountability in both private and public health sectors. Although corrupt practices such as bribery and pilfering of drugs and supplies are illegal; they are also rationalized at times because of the low wages workers receive. The public sector has recently introduced a new system of performance management, which links salary increases, promotions and training opportunities to health worker performance. It will be important to assess the system's impact on health worker behavior and performance, and determine how it can be improved further to make health workers more accountable to users of health services.[45] It is likely that the deepening decentralization of healthcare management to the woredas may encourage more community or bottom-up approaches to improve accountability (Lindelow et al 2004).

AVAILABILITY OF MATERIAL RESOURCES

Availability of Beds

5.101 *Ethiopia has very few hospital beds.* Figures 5-11 and 5-12 demonstrate that Ethiopia has a very high population-to-bed ratio compared to most other countries, including those in SSA. This translates to approximately 0.17 beds per 1,000 persons, which is less than one-sixth the average for sub-Saharan Africa of 1.1 beds per 1,000 population (WDI 2003). Table 5-2 in an earlier sub-section of this report, reports that approximately 81 percent of the total number of beds are located in hospitals.

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[45] Some users in focus group discussions have expressed their dissatisfaction with lengthy waiting times and impolite treatment from health workers.

Figure 5-11: Population per Hospital Bed by GDP per capita
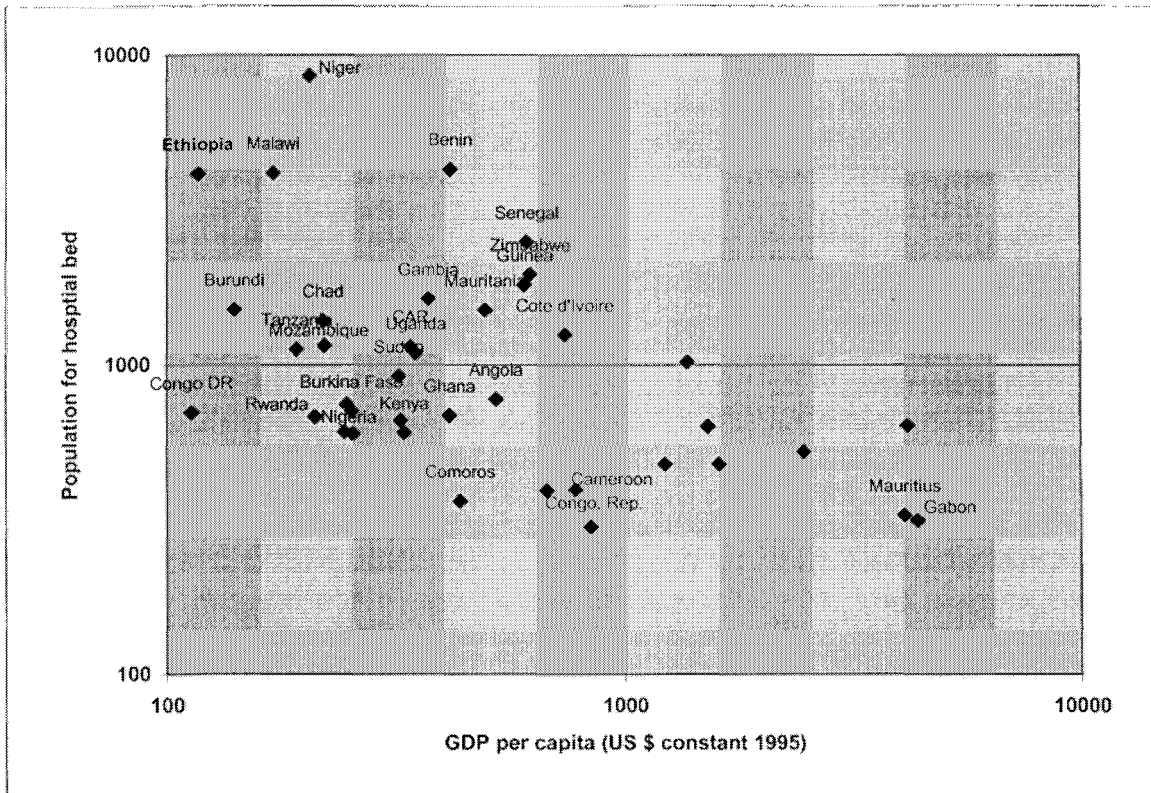
Source: WDI World Bank

Figure 5-12: Population per Hospital Bed in sub-Saharan African Countries
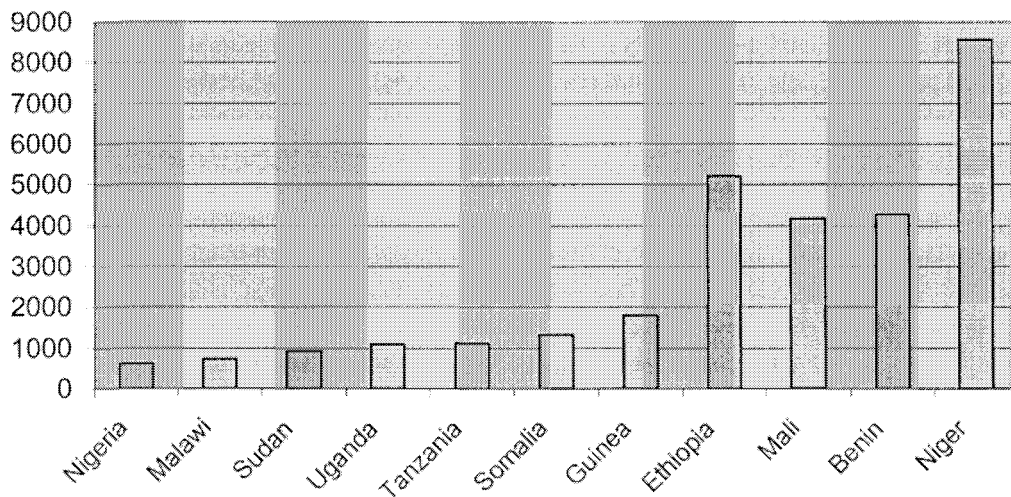
Source: WDI World Bank

5.102 *Regional bed-to-population ratios vary widely*, ranging from 0.08 in Oromia to 2.67 per 1,000 population in Harari. Addis, the most developed region, has the largest number of beds, followed by the larger regions (Tigray, Oromia, SNNPR and Amhara). However, since these regions have to contend with their large population size, with the exception of Tigray, their bed-to-population ratios are less than the national average of 0.20 per 1000. Only Harari and Dire Dawa are at least equal to or greater than the SSA average of 1.1 beds per 1000 persons (Table 5-18).

Table 5-18: Beds by Facility Type; Total number of Beds; and Bed-to-1000 Population Ratios by Region, 2001/02

Region	Beds/health facility type			Total no. of Beds	Bed/1000 population
	Hospital	Health center	Health station		
Addis	2,346	155	148	2,649	0.97
Harari	440	20	19	479	2.69
Dire Dawa	320	30	12	362	1.01
Gambella	93	0	18	111	0.48
Ben-Gumuz	254	8	114	376	0.65
Tigray	1,127	195	183	1,505	0.38
Oromia	2,280	0	903	3,183	0.13
SNNPR	1,260	550	371	2,181	0.16
Amhara	1,246	318	508	2,072	0.12
Afar	120	70	45	235	0.18
Somali	436	200	114	750	0.19
Source: MOH/PPD 2002/03					
Note: beds at the Central level were excluded from calculations for the regional comparisons					

5.103 *Despite the high population- to- bed ratios, bed occupancy rates (BORs) remain low.* The latest available national average BOR is 41.4 percent, which is based only on data from five regions (Tigray, Somali, Benshangul Gumuz, SNNPR and Harari) and the Center in 2002/03. While this is higher than the 2001/02 BOR estimate of 25.4 percent, both figures cannot be compared because six regions and the Center were represented in 2001/02. No data was available for Addis in 2002/03, but it was the region with the highest BOR (175.2 percent) in 2001/02. For both years, all other regions had BORs lower than 50 percent. Somali had the lowest BOR (7.7 percent) (MOH/PPD 2002/03 and 2000/01).

ESSENTIAL DRUGS AND COMMON MEDICINES

Policy Background

5.104 The goal of the Ethiopian pharmaceutical sector is to ensure the regular availability and rational use of safe, effective quality drugs at an affordable price. The strategies and the specific objectives related to this goal are described in the National Drugs Policy (NDP, MOH 1993GC).

5.105 A number of major legislative and organizational reforms have taken place based on the Proclamation to Provide for Drug Administration Control 176/1999. Discussions with donors were held to develop a master plan for the pharmaceutical sector, and the Pharmaceutical

Department of the MOH has been reorganized into an autonomous drug regulatory body and a supply agency.

5.106 New pharmaceutical legislation was prepared and submitted to the government for approval. The List of Drugs for Ethiopia (LIDE 2002) and its sub-lists have been distributed. This list records the drugs that can be legally registered and marketed in Ethiopia, which are then categorized by lists by level of healthcare facility (i.e. by zonal and district hospital, HC, HS, HP, and drug retail outlet) (JRM3 2003).

5.107 A list containing priority drugs that should be available at all times in adequate quantities, especially in the public sector, is being developed as part of the Basic Health Care Package and will be used as the basis for procurement. However, the Essential Drug List (1987EC) has not yet been revised as planned (HSDP I Evaluation 2003).

5.108 A policy on supply and use of anti-retroviral drugs has been developed and distributed throughout the country. The related Treatment Guidelines have been prepared and printed. Guidelines for ARV Procurement, Storage, Distribution and Use have also been prepared (JRM3).

Sourcing

5.109 Drugs are supplied through the following four channels: (1) the private commercial market; (2) the government parastatal (PHARMID); (3) the MOH and other government agencies (Ministry of Defense, Research and training institutes, etc); and (4) nongovernmental organizations (NGOs), donors, the United Nations, and other multilateral agencies.

5.110 The total value of supply moved through the pharmaceutical market was estimated to be around Birr 939 million in 2000/01 (Table 5-19). According to these estimates, 87 percent of the country's drug needs are met through imports (purchase and donation) and 13 percent through local production. The per capita availability of drugs is estimated at around Birr 14 in 2000/01 (ESHE/HCF 2002).

Table 5-19: Ethiopia: Supply of Pharmaceuticals: Value (000 Birr) by Sources 2000/01

Type of Supply	Sector	Value	percent
Imports	MOH	279,936	
	Other Government agencies	210,481	
	PHARMID	151,784	
	NGOs	52,269	
	Private for profit	123,726	
	Sub-total	818,196	87
Local Production	Government	63,646	
	Private	56,813	
	Subtotal	120,459	13
Grand Total		**939,655**	**100**
Source: MOH ESHE/HCF. National Baseline Study on Drug Supply and Use in Ethiopia, 2002			

5.111   In the private sector the number of importers and wholesalers increased from 44 and 17 in EC1989 (1996) to 49 and 24, respectively in EC1994 (2001). Also, the local production of pharmaceuticals and medical supplies increased considerably during HSDP I. In EC1989 there was only one manufacturer (state-owned) and one under construction. Currently there are 11 manufacturers, two of which are reported to be licensed by DACA, while nine have a provisional license (HSDP I Evaluation 2003).

Drug outlets

5.112   *The number of pharmaceutical retailers is expanding significantly.* On average, (as shown in Table 5-20) the number of all types of outlets for drugs has grown largely over recent years in the private sector (as shown in Tables 5-21, the vast majority of pharmaceutical outlets are private).

Table 5-20: Number of Drug Outlets per Region from 1989 to 1994 EC (1996/97 to 2001/02) Excluding Budget and Special Pharmacies

Regions	Pharmacies						Drug Shops						Rural Drug Vendors					
	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
Tigray	17	10	15	16	29	14	8	7	10	14	10	25	167	223	224	224	204	207
Afar	1	1	1	1	1	1	3	3	3	3	3	4	52	52	52	52	46	45
Amhara	22	36	36	35	40	23	27	42	43	45	40	39	236	258	258	268	243	251
Oromia	35	62	62	62	54	41	48	91	97	97	96	142	565	585	771	840	851	813
Somali	0	0	0	0	0	0	2	3	4	3	5	5	13	10	16	19	20	20
Benishangul	0	0	0	0	0	0	1	1	1	2	2	3	24	24	24	35	34	32
SNNPR	20	27	26	30	27	23	16	42	42	45	43	48	362	470	470	471	480	473
Gambella	0	0	0	1	1	0	0	1	1	0	0	2	6	10	10	17	17	14
Harari	6	6	7	7	7	6	2	1	3	3	3	3	6	6	3	4	4	3
Addis Ababa	85	137	137	137	137	128	38	30	29	34	43	39	15	12	18	10	10	10
Dire Dawa	11	13	15	15	15	12	3	1	10	4	4	4	14	9	12	10	8	8
Total	217.58	312.38	319.18	304	2311	1248.5	168.58	242.38	263.18	250	2249	1314.5	1480.58	1679.38	1878.18	1950	3917	2876.5

Source: FMOH, 1990 to 1995 EC (1997/98-2002/03)

Table 5-21: Distribution of Pharmaceutical Retail Outlets By Region & Ownership, 1994EC (2001/02)

Region	Pharmacies				Drug Shops				Rural Drug Vendors		
	Public	NGO	Private	Total	Public	NGO	Private	Total	NGO	Private	Total
Tigray	0	1	14	15	14	1	10	25	0	207	207
Afar	0	0	1	1	0	0	4	4	0	45	45
Amhara	8	7	23	38	1	0	38	39	0	251	251
Oromia	16	8	41	65	35	2	105	142	0	813	813
Somali*	0	0	0	0	0	1	4	5	0	20	20
Benishangul	0	0	0	0	0	0	3	3	0	32	32
SNNPR	7	3	23	33	8	1	39	48	0	473	473
Gambella	0	0	0	0	1	0	1	2	0	14	14
Harari	1	0	6	7	0	0	3	3	0	3	3
Addis Ababa	10	0	128	138	1	0	38	39	0	8	8
Dire Dawa	2	0	12	14	1	0	3	4	0	10	10
National	44	19	248	311	61	5	248	314	0	1876	1876

Source: Health and Health Related Indicators, MOH 2002

Drug Availability

5.113 The main objective of the pharmaceutical component of the HSDP is to ensure a regular and adequate supply of effective, safe and affordable essential drugs and medical supplies of high quality in the public, private and NGO sectors. Interviews conducted during the July 2003 CSR field mission confirm that drug availability is a key determinant in the public's view of the usefulness of health facilities. *Improving drug availability is important not only to facilitate better treatment, but also because the unavailability of drugs is a major factor causing low utilization rates of lower tier facilities.* Since the majority of household health expenditures are spent on pharmaceuticals (about 60 percent), improvements in drug availability and affordability would contribute to household welfare.

5.114 There are significant differences between various mission reports and evaluations regarding the status of drug and equipment supply in the public sector. Table 5-22 shows the principal findings of the HSDP I Evaluation on some of the key issues in drug availability. Although the LIDE and REDL list were often not available, the drugs themselves were mostly accessible. In all but one case, however, storage and inventory control was poor. Availability in the Ethiopia Red Cross pharmacies, Special Pharmacies (SP) and private pharmacies was adequate during the whole of HSDP (HSDP I Evaluation).

Table 5-22: Main Findings by the HSDP I Final Evaluation in Regions, Feb. 2002

Regions	LIDE (DACA 2002)	REDL	Basic Guidelines	Availability of EDs in R – HFs	Storage and Inventory Control	Availability of Equipment in R - HFs
Benishangul Gumuz	Yes	No	Yes	100 -43%	Poor	60% to good
Oromia	No	No	Yes	66%	Poor	80-100%
Gambella	N/A	N/A	Yes	64%	Poor	N/A
Amhara	Yes	No	Yes	85-79%	Poor	>85%
Harari	N/A	N/A	Yes	100%	Poor	60%
Somali	N/A	N/A	Yes	Poor	Poor	Good
Dire Dawa	N/A	N/A	Yes	Good	Poor	Good
Tigray	Yes	Draft	Yes	86-93%	Poor	85%
Addis Ababa	Yes	N/A	N/A	Good	Satisfactory	Good
SNNPR	Yes	Draft	Yes	100%	Poor	90%
Afar**	No	No	No	N/A to poor	Poor	Good
Source: HSDP I Evaluation 2003 Note: REDL = Regional Essential Drug List; ED = Essential Drugs; R = Regional level; HF = Health Facility level; N/A = Not Available						

5.115 In terms of drug availability by type of provider, Table 5-23 shows the findings for drugs in stock during the visit. Government hospitals have the highest number of selected indicator drugs (82 percent) followed by private drug retail outlets (DROs) and HCs (72 percent for both). Results for private facilities were unexpectedly low. In the case of drug retail outlets, as drug vendor shops are more numerous then pharmacies and drug shops, these facilities are not permitted to carry all of the indicator drugs (in other words the type and variety of drugs

permitted decreases at lower levels of drug retail outlets). However, private hospitals also have a lower availability than public hospitals (63 percent compared to 72 percent).

Table 5-23: Average Availability of the Basket of 10 Indicator Drugs on the Day of Visit by Type of Provider

Facility	Availability (percent)
Government hospitals	82
Private hospitals	63
Private DROs	72
Health centers	72
Red Cross	63
Kenema	70
Source: ESHE/MOH HCF, National Baseline Study on Drug Supply and Use in Ethiopia, 2002	

5.116 *In general, it appears that availability of essential drugs has improved, but that shortages of drugs are still common.* For example, during the July 2003 field visit, every HS and HC visited in both Sidama zone (SNNPR) and Arsi zone (Oromia) were out of the drug Depo-Provera. Most of the outlets carried contraceptive pills and usually offered them for free, however the women tended to prefer Depo-Provera even if it costs two Birr per injection. Even the special pharmacy in Alessa (capital of the Arsi woreda) was out of stock. However, the local DKT outlet across the street, as well as the private pharmacies, did have Depo-Provera in stock.

5.117 The availability of cold chain equipment and supplies has increased in most regions, but their functionality has been affected by the availability of spare parts. Regions also raised concerns about the inadequate and delayed operational budget for outreach EPI activities (HSDP I Evaluation 2003).

Personnel

5.118 The number of pharmacists has fluctuated in recent years, and currently there is a clear shortage of pharmacists and druggists, although the number of pharmacy technicians has increased significantly. The number in EC1994 (2001/02) is still less than that of EC1989 (1996/97). At the end of HSDP I, only 121 out of about 500 pharmacists were working in the public sector.

5.119 Pharmacies and drugs stores can only legally be managed by pharmacists and druggists (pharmacy technicians), respectively. However, Table 5-24 shows that about 26 percent of the surveyed government hospital pharmacies are being managed by druggists or pharmacy technicians while another 22 percent are being managed by either nurses or health assistants. Only 48 percent of surveyed HC drug stores are being managed by either nurses or health assistants; another seven percent are being managed by non-health professionals. On the other hand, 98 percent of surveyed private pharmacies are being managed by pharmacists, and about 78 percent of private drug stores are being managed by the required druggists or pharmacy technicians.

Table 5-24: Qualifications of Personnel in charge by Provider and Facility Type, 2001

Facility	Pharmacist	Druggist (pharmacy technician)	Nurses	Health Assistant	Non Health professionals	Total
Govt. hospital pharmacy	13 (48)*	7(26)	3 (11)	4 (11)	-	27
Health center	4 (7)	24 (39)	8 (13)	22 (35)	4 (7)	62
Private pharmacies	42 (98)	-		1(2)	-	43
Private drug stores	-	36 (78)	-	8 (17)	2 (5)	46
Private drug vendors	4 (4)	10 (11)	-	68 (72)	12 (13)	94

Source: ESHE/MOH HCF, National Baseline Study on Drug Supply and Use in Ethiopia, 2002

Note: Figures in parentheses are row percentages

5.120 In terms of prescribing practices, according to the study conducted by HCF/MOH (2002), the average number of drugs per prescription is 2.1; which is slightly higher than the HSDP II target of 1.84. However, the percentage of generic drugs prescribed is about 94 percent; which is also higher than the HSDP II target of 92 percent (Table 5-25).

Table 5-25: Selected Drug Prescription Indicators

Indicators	Overall average
Average number of drugs prescribed per encounter	2.1
Percentage of generic drugs prescribed per encounter	94
Percentage of encounters with an antibiotic prescribed	69
Percentage of encounters with an injection prescribed	21
Percentage of drugs prescribed from the LIDE	98

Source: National Baseline Study on Drug Supply and Use in Ethiopia, 2002.

Special Pharmacies

5.121 The concept behind Special Pharmacies (SPs) is to allow patients to obtain drugs when they are not available in the budget pharmacies. SPs add a markup of about 20-30 percent to the cost of drugs but they are still a lower cost alternative relative to private pharmacies and drug stores. They also raise funds for health institutions. SPs are often staffed by at least some health workers (HCF/MOH, 2001 and HSDPI Final Evaluation 2003).

5.122 Since the first two SPs were established in Addis Ababa in 1990, approximately 100 SPs have been set-up under the Health Care Finance Strategy (HCFS) all over the country. The creation of another 150 SPs is planned with support from USAID (HSDP I Final Evaluation 2003). A crude comparison of surplus generated by SPs to a hospital's operational budget suggests that surplus from SPs could cover close to 30 percent of a hospital's operational budget (HCF/MOH 2001).[46]

5.123 Efforts to expand the number of special pharmacies are faced with many challenges. Firstly, efforts are confronted by a retention arrangement problem. At present, almost all SPs have managed to retain 100 percent of their proceeds, deposit it in a separate account and use the surplus for priority activities when decided by the management committee. However, even though this has become an accepted practice, the country's financial law does not support it. Secondly, a shortage of pharmacy professionals exists. Third, there is a lack of storage space: SPs have to share limited storage space with budget pharmacies. This arrangement makes control and accommodation of increased pharmacy storage requirements due to increased volume of sales very difficult. Fourth, financial management capacity of most facilities, particularly in the rural areas and at lower health service levels, is limited. Most of the time, SPs use the financial staff of the health facility on part-time basis. Endorsement of National Special Pharmacy Guidelines would be a short-term solution, but would elict a potentially negative reaction from the private sector. As price controls are lifted, private retail pharmacies are charging higher prices. There are incidences, however, when the introduction of SPs resulted in reduced prices for drugs in private retail pharmacies. Thus, the further expansion of SPs could pressure private retail pharmacies to further cut their prices, which could potentially crowd out private pharmacies. Thus the private sector could also protest because SPs are subsidized by the health facility that they serve (HCF/MOH 2003).

AVAILABILITY OF EQUIPMENT

5.124 The HSDP I 2003 Evaluation did not find records of inventories for medical equipment. The Evaluation notes that there is no strategy for equipment maintenance and replacement even though national standards are guiding the initial equipment and furnishing of facilities. Construction of regional level medical equipment maintenance centers has started in three regions, and the centers are expected to be functional by 2003/04. However procurement of furniture, equipment and working tools has not yet commenced and training and recruitment of professional staff is lagging behind.

5.125 There are no recent statistics on the availability of equipment. There is an ongoing health facility survey as part of the decentralization study, but it has not been completed.

5.126 The PHRD health facility study (1996) collected data on selected facilities and equipment such as the number of beds, x-ray machines, refrigerators, sterilizers and vehicles; as well as the availability of laboratories, operation theatres and/or minor surgery sets in RHBs and in the sample health facilities. Results are given below in Table 5-26.

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[46] For example, St. Paul Hospital spends 1.4 million Birr on its operational budget, and its SP recorded a surplus of almost Birr 290,000 annually during normal periods. In the case of Ammanuel Hospital, the average operational budget was Birr 1.03 million, while the SP generated an average of Birr 350,000 surplus during the last year. The Tikur Anbesa SP generated aBirr 1.9 million surplus in 1992EC (1999/00), while the hospital spent 5.7 million Birr in operational costs.

Table 5-26: Distribution of Equipment in Hospitals and Selected Facilities – 1995

Region	Hospitals	Beds	X-ray machines	HIV screening centers	Total no. of zones (a)	Zones with operation theatre (b)	% availability of operation theater (b/a)
Tigray	12	860	5	6	5	3	60
Afar	2	60	2	1	1	1	20
Amhara	11	1289	12	9	10	7	70
Oromia	25	2293	22	20	12	6	50
Somali	3	255	3	4	9	2	22
Benishangul	2	254	2	2	5	2	22
SNNPR	9	816	12	7	16	7	44
Gambella	1	95	1	1	-	(1)*	100
Harari	5	735	5	2	-	(1)*	100
Dire-Dawa	3	247	2	1	-	(1)*	100
Addis- Ababa	16	3016	22	7	6	3	50
Total	**89**	**9920**	**88**	**60**	**68**	**34(31)**	**46**

Source: PHRD (Access to Supply of Health Facilities and Services - 1996) * Denotes regions without zonal subdivisions.

5.127 Based on the above 1995 survey, the ratio of selected facility equipment to population was one x-ray machine (working) per 591,136 persons and one HIV screening center per 867,000 persons (current guidelines require one HIV screening center for 400,000 persons). Out of the 89 hospitals surveyed, only 46 percent have operation theatres. (This is extremely inadequate in relation to the number of outpatient attendances and inpatient admissions in hospitals.)

5.128 A separate survey also undertaken in 1995 indicates that a significant percentage of institutions lack some basic equipment. The results are shown in Table 5-27 below.

Table 5-27: Percentage Reported of Availability of Selected Equipment and Transportation by Facility Type-1995

Type of equipment	Hosp. (n=14)	HC (n=16)	HS (n=33)	Type of equipment	Hospital (n=14)	HC (n=16)	HS (n=33)
Baby scale	86%	94%	64%	X-ray machine	86%	na	Na
Adult scale	86%	94%	64%	Microscope	79%	81%	An
Examination bed	79%	75%	67%	Lab. Incubator	57%	na	Na
Delivery bed	86%	81%	45%	Refrigerator	100%	87%	67%
Oto/opthalmoscope	79%	75%	Na	Washing machine	43%	na	Na
Autoclave/sterilizer	86%	69%	67%	Ambulance	21%	na	na
Vacuum extractor	na	62%	Na	Other vehicle	50%	69%	na
Ultra sound	14%	Na	Na	Motor cycle	...	75%	24%
E.C.G. machine	64%	Na	Na	Bicycle	...	50%	21%
Source: PHRD (Survey of Medical and Healthcare Providers - 1996)							

Condition of Health Facility Buildings

5.129 In a detailed assessment of a sample of health facilities in 1995, over 50 percent of the facilities reported leaking roofs, electrical problems and plumbing and sanitary problems. Overall assessment of the condition of the buildings showed that 15.1 percent and 41.1 percent were in excellent condition or required minor repairs, respectively; and 28.8 percent and 15.1 percent needed major repair or total replacements, respectively. Although the trends were more or less similar, there were some variations among the three types of institutions (Table 5-28).

Table 5-28: Health Institutions By Type And Building Condition

Condition of health facility	Type of Health Facility			Total
	Hospitals	HC	HS	
Excellent	17.7	11.1	15.8	15.1
Minor Repair	35.3	55.6	36.8	41.1
Major Repair	29.4	22.2	31.6	28.8
Replacement	17.6	11.1	15.8	15.1
TOTAL	23.3	24.7	52.1	100.0
Source: PHRD (Survey of Medical and Healthcare Providers – 1995)				

5.130 Recent data based on the main findings of the HSDP I Evaluation (2003) underscore the need to improve the condition and maintenance of health facilities. The following issues regarding facility conditions were cited:

- Availability of water at facilities is inadequate and scarce in about 30 percent of PHCUs.
- Minimal power supply exists and attempts to connect to an alternative power supply were not fruitful.
- Facilities requiring minor maintenance have degenerated because of lack of preventive maintenance activities. Moreover, management of medical equipment remains a major concern affecting the continuity of service delivery.
- Rehabilitation of health facilities is often limited to replacing damaged parts rather than rehabilitating functional flows, correcting the shortcomings for service delivery, or adapting new healthcare technology for anticipated future expansions.
- Furniture in many of the facilities is worn-out and does not fit well in the working space. Furniture is often of poor quality and not intended for a health facility.
- Budgets were still low during the first year of HSDP II. Funds are allocated mostly to vehicle maintenance rather than to medical equipment, buildings and furniture.

Availability of Transport for Healthcare Personnel

5.131 The availability of operating vehicles in health facilities is one of the factors influencing the effective delivery of services.

5.132 In 1995, 28 percent of the reported a number of vehicles were non-operational. In terms of regional distribution, the percentage of non-operational vehicles ranged from 18 percent for Region, three to 73 percent for Dire Dawa. This data requires careful interpretation as the number of vehicles for regions like Oromia is underreported.

5.133 The latest HSDP Evaluations indicate that inadequate transport facilities still constrain service delivery and supervision. This is further exacerbated by an inadequate per diem budget for health personnel.

Utilization of Health Services

5.134 The rate of service utilization did not match the steady increase of facilities nor the population growth rate over the five year period of HSDP I. The incidence of consultation has dropped from 49.1 percent in 1996 to 43.4 percent in 1998 and to 41.1 percent in 2000/01. Out patient days (OPD) consultation has slightly increased from 0.23 in 2001/02 to 0.29 in 2002/03. Utilization is less than a third of the HSDP goal for 2004/05 of 1.0 visit per person per year.

5.135 The national average of total health facility visits increased from 0.27 in 2000/01 to 0.29 in 2002/03 (Table 5-29). In 2000/01, both Tigray and Gambella had the highest visits per capita at 0.80, while Somali had the lowest number of visits per capita at 0.04 (although it increased to 0.09 in 2002/03). Gambella's per capita visits declined sharply from 0.80 in 2000/01 to 0.10 in 2002/03 while Tigray's declined slightly to 0.74.

Table 5-29: Ethiopia: Total Outpatient Visits and Visits per Capita by Region,
2000/01 to 2002/03

Region	2000/01		2001/02		2002/03	
	Total Visits	Visits per capita	Total Visits	Visits per capita	Total Visits	Visits per capita
Addis	1,404,746	0.55	1,942,279	0.73	1,189,420	0.54
Harari	131,720	0.79	139,270	0.81	149,028	0.84
Dire Dawa	90,940	0.28	112,243	0.33	116,530	0.33
Gambella	173,020	0.80	29,802	0.13	22,713	0.10
Ben-Gumuz	418,756	0.76	366,838	0.65	307,753	0.53
Tigray	3,021,201	0.80	**2,103,040	0.54	2,975,118	0.74
Oromia	6,515,514	0.28	**2,307,925	0.10	6,417,944	0.26
SNNPR	2,626,193	0.20	2,095,009	0.16	2,141,841	0.16
Amhara	2,539,317	0.15	**2,539,317	0.15	4,294,655	0.24
Afar	289,365	0.23	553,481	0.44	631,090	0.49
Somali	153,553	0.04	NA	NA	362,374	0.09
Total	17,364,325	0.27	12,189,204	NA***	18,879,043	0.29

Source: PPD, MOH 2000/1 and 2001/02.
**Partial data
***Incomplete data because of partial data provided by Tigray, Oromia and Amhara and unavailability of updated data from Somali

5.136 It is difficult to do a trends analysis of outpatient and inpatient flows over time because the readily available data obtained from 1991/92 to 2002/03 are generally not presented using the same format and categories. Moreover, in most years, only partial information is available because data for different regions are missing each year. ***Consistency of data collection and presentation formats are important issues that must be addressed in order to improve the management information system (MIS): consistency and timeliness of reports must also be addressed, especially within the context of training/institutional capacity-building at the woreda level, in order to minimize reporting lags and data recovery problems.***

Reasons for Visits

5.137 Table 5-30 indicates that in 2002/03, malaria, deliveries without complication, bronchopneumonia, TB, dysentery, pregnancy complications, abortion, relapsing fever, pneumonia and helminthiasis were among the top ten major causes of patient admissions. Malaria is the leading cause of patient admissions.

5.138 Malaria was also the leading cause of outpatient visits in 2002/03. Other major causes of outpatient visits during this period were helminthiasis, acute respiratory infection, bronchopneumonia, skin infections and gastric and duodenites.

Table 5-30: Top Ten Reasons for Inpatient and Outpatient Visits (2002/03)*

	Admissions			Outpatient visits		
	Disease	No. of cases	%	Disease	No. of cases	%
1	All types of malaria	31,470	20.4	All types of malaria	549,632	15.5
2	Deliveries w/o complication	14,695	9.5	Helminthiasis	253,928	7.2
3	Bronchopneumonia	6767	4.4	Acute upper respiratory infection	200,178	5.7
4	All types of TB	6608	4.3	Dysentery	170403	4.8
5	Dysentery	4348	2.8	Gastric and duodenites	132,638	3.7
6	Other complications of pregnancy, childbirth & the puerperium	4049	2.6	Bronchopneumonia	124336	3.5
7	Relapsing fever	3777	2.5	Infections of skin and subcutaneous tissue	117588	3.3
8	Abortion w/o sepsis or toxaemia	3653	2.4	All other infective and parasitic diseases	82,579	2.3
9	Primary atypical, other & unspecified pneumonia	3322	2.2	All other diseases of Genito-urinary system	68733	2.3
10	Helminthiasis	1015	2.0	Primary a typical, other and unspecified pneumonia	74,742	2.1
	Total of all the above cases	81774	53.1	Total of all the above cases	1,787,672	50.5
	Total of all cases	154032	100.0	Total of all cases	3,542,231	100.0

Source: PPD, MOH 2002/03
Note: Data from Oromia, Amhara and Somali are not included

QUALITY OF HEALTH SERVICES

Technical Quality

5.139 *There is a variation in quality of care by wealth quintile, region and residence.* Poor, rural women receive lower quality healthcare than rich, urban women. The population-based representative data on technical quality of care is limited. DHS 2000 collected information on seven type of services (measurement of weight, height and blood pressure; sampling of blood and urine; dialogue about pregnancy complications; information about where to go for pregnancy-related complications) a pregnant women received during antenatal care, which was converted into a quality of care index. The quality of care index ranged from zero to seven based on the services received. *The aggregate quality of care score varies significantly by the wealth of the women: a low quality of care index existed among the poor, while a high index existed among the rich.* The quality of care index also varied by region: Addis had the highest (5.1), while Afar had the lowest (2.0). The quality of care index was 4.5 in urban areas while it was only 2.4 in rural areas (Table 5-31).

Table 5-31: Variation in Quality of Care for Maternal Health Services*
by Wealth Quintile, Region and Residence

WEALTH QUINTILES	Score	SD
Poorest	2.2	1.7
2nd Poorest	2.3	1.8
Middle	2.3	1.9
2nd Richest	2.5	1.8
Richest	4.3	1.9
REGIONAL VARIATION		
Tigray	2.9	2.1
Afar	2.0	1.9
Amhara	2.4	2.1
Oromiya	2.5	1.8
Somali	3.7	2.3
Benishangul-Gumuz	2.6	1.8
SNNPR	2.5	1.8
Gambela	3.1	1.8
Harari	4.4	1.9
Addis Ababa	5.1	1.4
Dire Dawa	4.0	2.2
URBAN/ RURAL		
Urban	4.5	1.8
Rural	2.4	1.8

*Note: Maximum of seven points for seven items: weight, height, blood pressure, blood sample, urine sample, told about complications, and told where to go for complications)

Consumer/ Client Satisfaction

5.140 In the MOH/HCF/ESHE Study (WTP, 2001) about 52 percent of respondents perceived the quality of care they received to be good (Table 5-32).

Table 5-32: Evaluation of the Level of Quality of Care in Most Recently Visited Facility

Rating	Total Sample		Rural		Urban	
	Freq.	%	Freq.	%	Freq.	%
Very poor	103	8.2	74	6.9	29	15.9
Poor	215	17.2	182	17	33	18
Neutral	156	12.4	119	11.1	37	20.2
Good	648	51.7	616	57.5	32	17.5
Very good	132	10.5	80	7.5	52	28.4
Total	1,254	100	1,071	100	183	100
Source: MOH, HCF. Estimating Willingness to Pay for Healthcare in Ethiopia. 2001						

5.141 *More clients expressed dissatisfaction with the public sector relative to private and NGO facilities.* About 30 percent of households[47] visiting a government facility rated the quality of care they received to be below average. A smaller percentage of the households that obtained care from NGOs (14% percent) and private facilities (12 percent) rated the care they received in these facilities to be less than average (Table 5-33).

Table 5-33: Respondents' Perception of Quality by Different Providers

Rating	Public		NGOs		Private		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq	%
Very poor	94	10	5	4	6	3	103	8
Poor	188	20	11	10	18	9	215	17
Neutral	132	14	19	17	28	14	156	12
Good	432	46	56	51	100	50	648	52
Very good	94	10	23	21	50	25	132	11
Total	940	75	113	9	201	16	1,254	100
Source: MOH, HCF. Estimating Willingness to Pay for Healthcare in Ethiopia. 2001								

5.142 The main reasons cited for dissatisfaction with the quality of care obtained from public health care facilities are the following: (a) inconsistent availability of drug; (b) inadequate skills/knowledge and courtesy of health personnel; (c) inconvenience of lengthy procedures; (d) inadequate availability of diagnostic facilities; and (e) lengthy waiting time. The average travel time was almost 3 hours. Waiting time between arrival and being seen was also long, averaging 7 hours at government hospital outpatient departments, 6.2 hours at NGO facilities and 2.7 hours in other private facilities. Respondents considered the consistent and sufficient availability of drugs an important indicator of service quality. However, about 37% of households who visited public health facilities stated that drugs were not consistently available (MOH,HCF 2001).

5.143 Separate focus group discussions[48] rated private providers as superior to public and NGO facilities in terms of promptness, reduced length of waiting times, availability during off-peak hours and holidays, and knowledgeable personnel[49] proficient at handling patients. However, private providers were also considered inferior to large government hospitals because they provided limited laboratory, x-ray and surgical services. The additional tests conducted and higher priced drugs sold at private facilities also led to excessive charges. NGO providers were rated favorably in regard to immediate availability of services and and in terms of cleanliness.

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[47] The household survey included 13,932 individuals in 2,473 households. About 10% of individuals surveyed reported an illness/ injury in the two months prior to August 2000 interview. Of those reporting illness, 84% sought formal treatment and 16% sought informal treatment or treated themselves. Of those seeking formal treatment, 76% went to a government facility, 9% went to an NGO facility and 16% visited a private for-profit provider. Only 1% had been hospitalized in the past 12 months.

[48] Three focus groups in Addis and three in Dire Dawa were conducted. Twenty-seven focus groups were conducted in the five other regions (Amhara, Addis, Oromia, SNNPR and Tigray) with at least one focus group for every three million persons, resulting in a total of 33 focus groups.

[49] Knowledgeable caregivers were defined as being good listeners, courteous, respectful and tolerant. Caregivers are expected to be to listen to patient complaints and respond accordingly to their needs.

5.144 Client satisfaction surveys were also conducted as part of the PHRD grant in 1996. When respondents were asked if they had ever faced difficulties in using health services, 48.3 percent confirmed that they had indeed faced difficulties in seeking health care: 51.7 percent reported that they had encountered no difficulties. The major difficulties cited were lack of facilities within the institutions (42.7 percent) and lack of funds to seek care (33.8 percent). About 23 percent said they did not have access to essential drugs, and some mentioned the lack of a cure for their illness as a major frustration. Respondents recommended three priority areas for improvement in the health sector (Table 5-34): 1) increased availability of curative facilities; 2) better trained staff; and 3) greater availability of less expensive drugs.

Table 5-34: Improvements Suggested by Respondents for the Health Sector

No	Suggested Improvements	Frequency	Percent of Total
1	Increase number of clinics, health centers and hospitals	51	52.6
2	Provide better trained staff	14	14.4
3	Make drugs available	8	8.2
4	Make drugs cheaper	7	7.2
5	Increase number of beds	6	6.2
6	Increase rooms within existing facilities	6	6.2
7	Provide training on prevention of epidemic diseases	5	5.2
	Total	**97**	**100.0**
Source: PHRD (Community Consultation and Participatory Development), 1995			

Community Participation (Social Accountability)

5.145 The 1996 study on the Role of NGOs and the Private Sector in Social Service Delivery notes the low rate of community involvement in health service activities. Only 14 percent of NGO institutions surveyed reported high community involvement, while the rest reported low involvement. Those institutions reporting high community involvement operated village HPs and outreach health programs.

5.146 Regional awareness of HSDP components is very high. On the contrary, knowledge of the various HSDP mechanisms tend to be quite limited at zonal, woreda, and health facility levels. The HSDP I Evaluation notes that although the Program Implementation Manual provides an opportunity for community and woreda health staff to participate in the governance of HSDP, a low number of these personnels are actually involved. Efforts to improve local participation were insufficient raising community awareness and providing stakeholders with adequate guidance.

5.147 Despite the above challenges, some good examples of strong community involvement do exist. The HSDP I Evaluation cites one example of an HC with strong community involvement (see Box 5-2).

Box 5-2: Example of Local Community Ownership of a Health Center (HC)

One HC in Addis Ababa that is "community owned" provides a stark contrast to many government owned HCs and underscores the importance of local ownership.

The HC, situated in Kebele 18 of Woreda 5 in the Mercato area of Addis Ababa, was founded 22 years ago. The HC is governed by a seven member management board appointed by the community and led by a female health officer who has served the center for almost 20 years. With an annual budget of 700-800,000 Birr, the HC is almost entirely self-sufficient. The entire staff (14 professionals and 12 support staff) is paid from local revenues, but salary levels are 10-20% lower than in similar government institutions. Previously, the HC obtained some cross-subsidy from the proceeds on the leases of a warehouse, a local bakery and an adjacent kindergarten. Currently, only the kindergarten brings in some additional funds. Inputs from the RHB are limited to free contraceptives, vaccines and occasionally some health learning materials and incidental training courses or workshops. However, the staff indicates a strong desire to be kept abreast of new insights and developments in the area of health care on a much more regular basis.

The full range of services of a typical HC is provided, including a fair number of laboratory services, but excludes DOTS therapy for TB patients. Every day 50-70 outpatients visit the center, and there are two to three deliveries per day. The HC looks very neat and is well organized, and the smiling faces of both patients and staff members indicate a great sense of ownership and pride.

5.148   In addition to the necessary training in planning and budgeting, adequate sensitization of woreda and kebele stakeholders, focused on the importance of achieving health sector development goals, must be realized in order to ensure that the health sector goals are well-integrated into woreda development programs and budgets. The new HSEP, and its corresponding outreach and family/community services (which will be discussed further in Chapter 7), provides opportunities for sensitizing communities and for a greater mobilization of HEWs to generate community awareness and interest in utilizing and (possibly managing) health services.

6. PUBLIC HEALTH EXPENDITURES

6.1   This chapter analyzes public expenditures on health services. The analysis draws extensively from the Public Expenditures Review (PER) conducted in 2003 and the National Health Account exercises undertaken in 1995/96 and 1999/2000. These expenditures are analyzed against private expenditure data that are extracted from the Household Income Consumption Expenditure Survey (HICES) and Welfare Monitoring Survey (WMS). It also uses information derived from the Health Sector Development Program (HSDP) reviews as well as other documents from the MOH and GOE. This chapter examines:

- Trends in amounts allocated to health services including public and private, and external and internal sources of funds;
- Levels of expenditures on health services in Ethiopia vis-a-vis current international experience;
- Allocation of public spending across the different levels of care, across regions and between rural and urban settings;
- The actual financing mix against the FDRE's intended mix; and
- Extent to which resources are allocated to interventions responding to the needs of the poor.

Public Spending on Health Services

6.2   *Public spending on health services is very low, however both private and public spending have been on the increase between 1995/96 and 1999/2000.* Recently released official government National Health Accounts (NHA) data for 1999/2000 show that Ethiopia's total health expenditure remains dramatically low. Estimated per capita health expenditures are around US$5.6 per person, or PPP of about US$32.7 per person in 1999/2000, representing about 5.5 percent of GDP. Public spending, both domestic and from external sources, represents the largest share of total spending (49 percent). Public spending amounts to US$2.77, representing 2.74 percent of GDP per capita. However, as is typically observed in most low-income countries, private consumption through out-of-pocket spending also represents a large share of this spending (36 percent), amounting to US$1.96, about 1.9 percent of GDP per capita. *Per capita expenditures on health increased by 25 percent (from US$4.0 to US$5.6) between 1997 and 2002,* increasing as a proportion of GDP per capita by about 49 percent. Both public and private spending increased. However, public spending increased more significantly as a result of external sources. Compared to the first NHA analysis done in 1995/96, domestic public spending has only slightly increased (Table 6-1).

Table 6-1: National Health Accounts--Evolution of Total, Public and Private Spending 1996/1997-1999/2000

	NHA 1: 1995-1996	NHA 2: 1999-2000	Variation 1995/96-1999/2000 (%)
Total spending as a share of GDP	4.1 percent	5.3 percent	+34.1
Total spending US$	4	5.6	+40
Total spending PPP	25	2.7	+32
Public spending as a share of GDP	1.7 percent	2.74	+61.1
Public spending US$ per capita	1.65	2.77	67.8
Public spending PPP	10.3	1.2	+57.2
Private spending as a share of GDP	2.4 percent	2.8	+16.6
Private spending US$ per capita	2.3	2.82	+22.6
Private spending PPP	14.4	16.5	+14.5

Source: FMOH, NHA, 1995-1996; FMOH, NHA, 1999/2000

6.3   Using comparable data for the period 1990-1998, it appears that the overall per capita level of health spending in Ethiopia is among the lowest in the world (Figure 6-1). Ethiopia's per capita total health spending of US$4 (PPP of US$25) is also significantly lower than the SSA average of US$42 (PPP of US$89). Spending on health in Ethiopia has been dramatically lower than in neighboring Uganda (US$18), Kenya (US$31) and even Tanzania (US$8). The recent increase over the last few years has only slightly narrowed the gap (see Table 6.2).

Figure 6-1: Per Capita Expenditure on Health in Various Countries vis-à-vis GDP
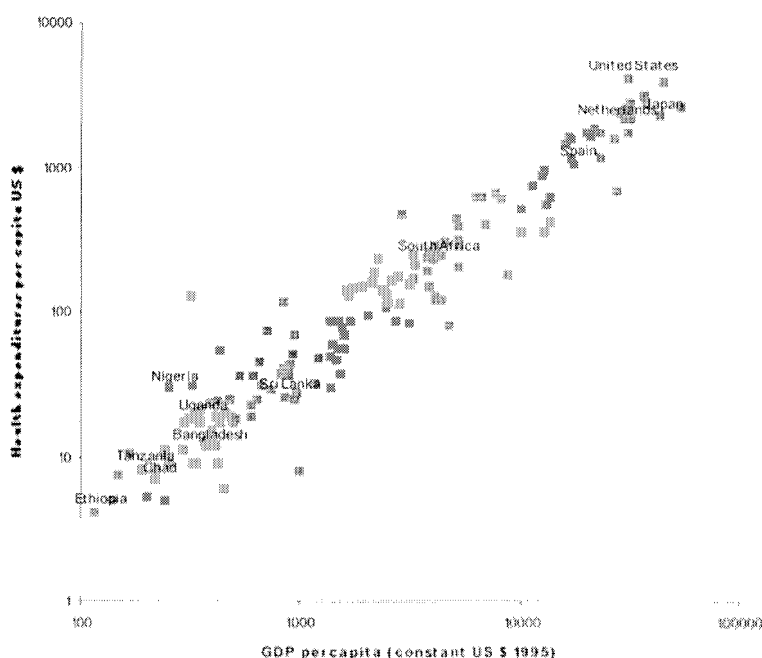
Table 6-2: Health Expenditure for Selected Countries in SSA (1990-98); SSA average (1990-98, 2000)

Selected Countries in SSA	Health expenditure as percent of GDP			Health expenditure per capita		
	Public	Private	Total	Public Share (Including Donors)	PPP $	Current $
Benin	1.6	1.6	3.2	50 percent	29	12
Burkina Faso	1.2	2.7	3.9	31 percent	36	10
Cameroon	1.0	4.0	5.0	20 percent	77	31
Cote d'Ivoire	1.2	2.6	3.8	32 percent	62	29
Eritrea	2.9	0.9	3.8	76 percent	14	--
Ethiopia	1.7	2.4	4.1	41 percent	25	4
Ghana	1.8	2.9	4.7	38 percent	8.5	19
Guinea	2.2	1.4	3.6	61 percent	68	19
Kenya	2.4	5.4	7.8	31 percent	79	31
Mali	2.1	2.2	4.2	50 percent	30	11
Mauritania	1.4	3.4	4.8	29 percent	74	19
Nigeria	0.8	2	2.8	29 percent	23	30
Senegal	2.6	1.9	4.5	58 percent	61 ·	23
Sierra Leone	0.9	4.5	5.5	16 percent	27	8
Sudan	0.7	2.7	3.4	21 percent	48	126
Tanzania	1.3	1.8	3.0	43 percent	15	8
Togo	1.3	1.3	2.6	50 percent	36	8
Uganda	1.9	4.1	5.9	32 percent	65	16
Sub-Saharan Africa 1990-98	1.7	2.6	4.3	40 percent	89	42
2000	2.5	3.4	5.9	42 percent		29
Source: World Development Indicators (WDI), 2002 Eastern and Southern African Network on NHA Note: Data is for most currently available year between 1990-1998 for all countries						

6.4   This low level of spending mainly reflects a very low resource base or GDP per capita of only about US$110 (Figure 6-1). Using comparable date from 1990-98, Ethiopia's total health spending as a percentage of GDP (4.1 percent) is comparable to the SSA average (4.3 percent), and slightly higher than the low-income countries' (LIC) average (4.1 percent). Using most recent NHA data, the SSA average increased to 5.9 percent of GDP in 2000 (WDI 2002). This still places Ethiopia's total health spending in 19995/96 and 1999/2000 below the recent SSA average, both in absolute terms and relative to GDP.

6.5   On the other hand, the private health expenditure share of GDP in Ethiopia is quite high when compared to the LIC average of 1.1 percent. Ethiopia's private health spending share of GDP (2.4 percent) remained close to the SSA average (2.6 percent) in 1990-98. By 2000, the private expenditure share of GDP in Ethiopia increased to about 2.8 percent compared with the higher SSA share of 3.4 percent. Despite this increase, Ethiopia's share of private expenditures on health compared to GDP is much lower than Kenya's (6.4 percent) and Tanzania's (3.4 percent) (Table 6-2 and Figure 6-2).

6.6   When it comes to public health spending, the contrast is more striking: Ethiopia's public health spending as a percentage of GDP (1.8 percent) in 2000 is significantly lower than the LIC average (3.1 percent). According to 1990-98 NHA data, Ethiopia is close to the SSA average of 1.7 percent. Yet according to revised averages from WDI 2002, Ethiopia is lower than the SSA average, placing the country third behind Nigeria and Uganda in terms of low public spending on health relative to GDP (Table 6-2 and Figure 6-2).

Figure 6-2: Per capita Public and Private Expenditures (as a percentage of GDP) on Health in Various Countries of the World
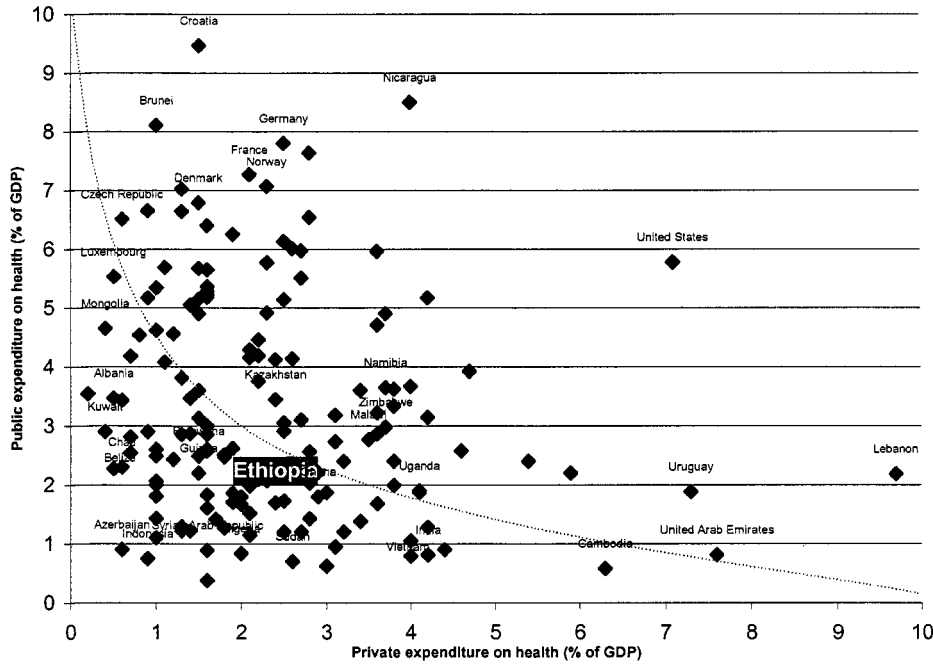
Source: World Bank WDI, 2002

**Figure 6-3: Per capita Public and Private Expenditures (as a percentage of GDP)
on Health in Various Countries of the World**
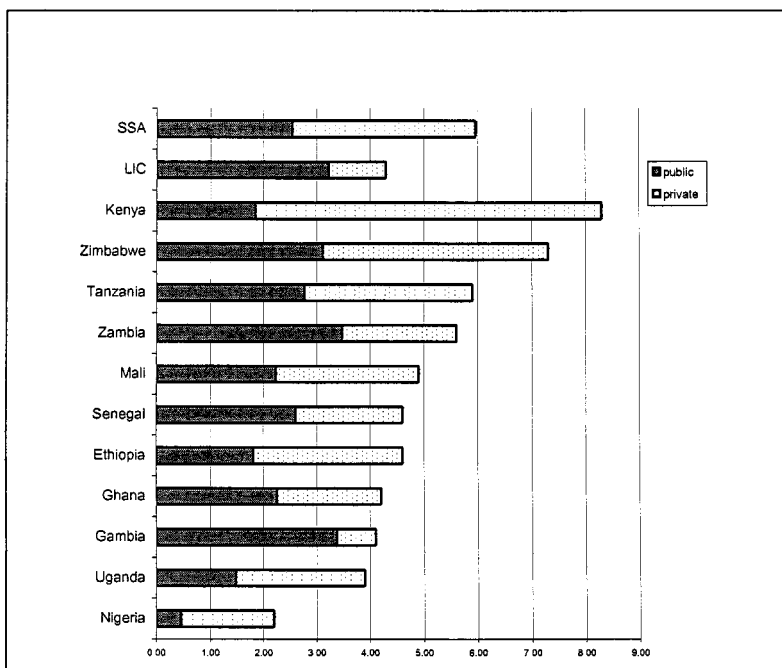
Source: WDI, World Bank, Washington, D.C., 2002

Health Sector Funding: Public and Private Sector Contributions

6.7   Funding of the health sector in Ethiopia is shared equally between the public and the
private sector. Based on NHA estimates, Birr 2.9 billion was spent on health services in EY1992
(1999/2000) representing about Birr 46 (US$5.6) per capita (see Table 6-3). Of this,
approximately 36 percent was out-of-pocket spending by individuals, including direct payments
to private practitioners, traditional healers, private pharmacies and government facilities in the
form of user charges. NGOs contribute a lower, but not trivial amount their contribution
reaching close to ten percent of all health spending. On the other hand, the contribution of
private enterprises remains marginal at five percent of total health spending (See Chapter 4 for
more information on out-of-pocket spending).

Table 6-3: Ethiopia: National Health Accounts Data for 1999/2000

	Millions Birr	Share of Total	Birr per person	US$ per person (1999/00)
Total expenditure on health	2,931		46.1	5.6
General government expenditure on health	979	33%	15.4	1.87
Central government				
State, regional, provincial authorities				
Donors	471	16%	7.4	0.9
Private expenditure on health	1480	50%	21.	2.6
Private enterprises	133	4.5%	2.06	0.25
NGO's and non-profit institutions (local and international)	290	9.8%	4.5	0.55
Net out-of-pocket spending on health	1,057	36%	16.6	2.02

Sources: Authors' estimates based on various sources including NHA 1999/2000, MOH, MOF, IMF Statistics, PER 2003.

Figure 6-4: Ethiopia Health Spending: Source of Financing, 1999/2000
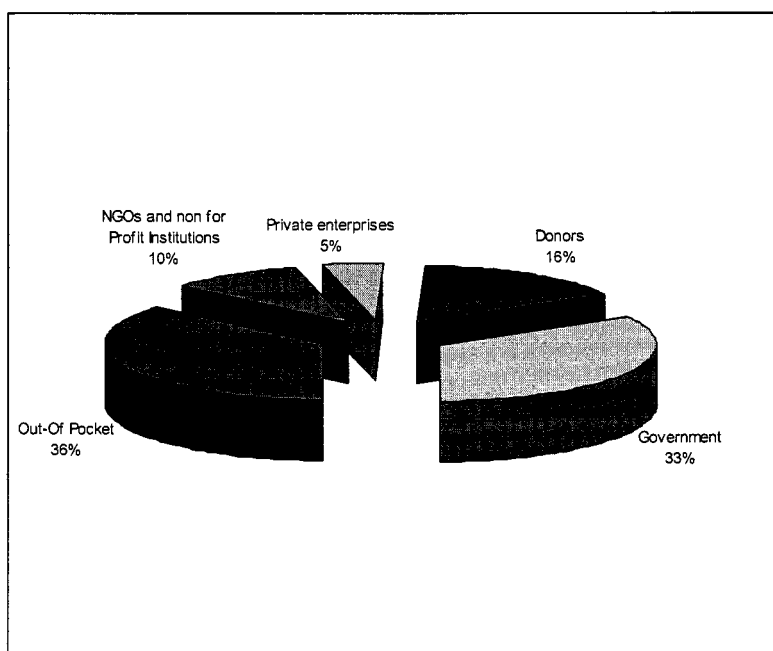
Source: Author's calculations based on PER 2003 and NHA 1999/2000

6.8   After out-of-pocket spending, public expenditures represent the largest share of health spending (about 33 percent). Government revenues financed most of the public health expenditures (PER 2003). The share of public health expenditures out of total health expenditures has been declining in recent years largely as a result of higher out-of-pocket and donor spending. It decreased from 41 percent in 1995/96, to 36 percent in 1996/97, and then to 33 percent in 1999/00.

6.9 External assistance and loans are the third major source of financing, particularly for capital expenditures. In 1995/96 assistance and loans financed 10 percent of recurrent expenditures and 28 percent of capital expenditures, or 15.8 percent of total health expenditures.[50] During the course of HSDP I implementation, donor resources in the form of loans and external assistance to the health sector have increased significantly from Birr 63 million in 1997/98 to Birr 437 million in 2000/01 (HSDP I Evaluation Report 2003). Despite this increasing trend, however, donor assistance to Ethiopia still appears to be considerably lower than the average donor assistance received by other least developed countries (LDCs).[51]

Health Spending and Curative Care

6.10 *A majority of total health spending is allocated to curative care.* Table 6-4 indicates that approximately 64 percent of total health resources are spent on curative[52] care and 25 percent on promotive and preventive[53] healthcare (PPHC). Administration costs, which mainly represent those of federal and regional health administrations, comprise eight percent of total spending. Very few resources are spent on training (two percent) and research and development (one percent). Pharmaceuticals and medical supplies constitute about 38 percent of total expenditures. Households financed approximately 74 percent of pharmaceutical and medical supplies.

Table 6-4: Expenditure by Major Functions (Amount and as % of Total Expenditures)

Functional Classifications	Birr (millions)			% Share
	Service Delivery	Expansion	Total	Total
Administrative Expenditure	221.2	7.0	228.2	8%
Curative Expenditures	1673.4	211.2	1884.6	64%
Inpatient	254.3	153.9	408.2	14%
Outpatient	295.4	57.3	352.7	12%
Pharmaceuticals and medical supplies	1,123.7		1,123.7	38%
Promotive and Primary Health Care	516.9	214.0	730.9	25%
Research and Development	21.5		21.5	1%
Training	57.5	8.5	66.0	2%
Total	2,490.4 (85%)	440.8 (15%)	2,931.2	100%

[50] PHRD Health Sector Synthesis Report, 1996
[51] According to the NHA results (MOH 2003), average per capita donor assistance received by the health sector in LDCs was about US$ 2.29 between 1997-1999, compared with less than US$ 1.0 received by Ethiopia in 1999/2000 and 2000/01.
[52] Curative care in this case is composed of inpatient and outpatient services including consultations, diagnostics and treatment using pharmaceuticals or other procedures.
[53] Promotive and preventive care are comprised of services such as provision of vaccines for the Expanded Program on Immunization (EPI); maternal and child health including vertical programs like Family Planning, Adolescent and Reproductive Health (ARH), Integrated Management of Childhood Illness (IMCI), Nutrition and Safe Motherhood; prevention of non-communicable diseases; and Information, Communication and Education (IEC) services etc.

6.11   Figure 6-5 shows that PPHC expenditures can be broken down into sub-sections: mother and child health (41 percent); expansion of primary health care (29 percent); control of communicable diseases (12 percent); and other services, which include information, education and communication (IEC), non-communicable disease control, sanitation and environmental health (18 percent).

Figure 6-5: Breakdown of Promotive and Primary Health Care Services
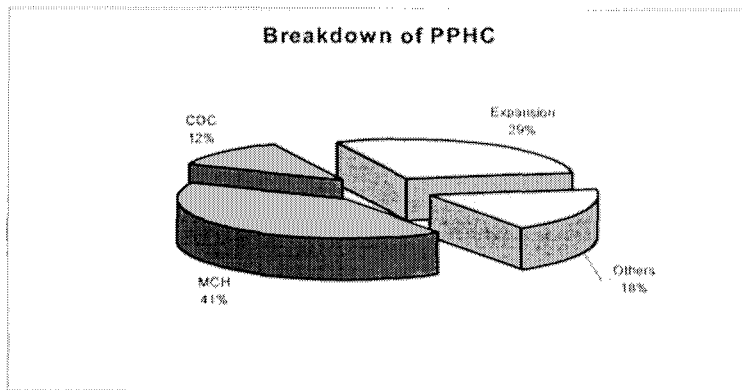
Source: HCF,MOH. Ethiopia's Second NHA Report, 2003.

6.12   It is expected that PPHC expenditures will increase over time as a result of the establishment of the HSEP. Future NHAs will be able to confirm this.

Trends in Overall Public Revenues and Expenditure

6.13   Table 6-5 shows selected indicators of consolidated public revenues between 1980/81 and 2001/02. The data indicate that revenues fluctuated in the last two decades; and despite increases in revenues from other sources, about 19 percent of revenues still come from external grants. Revenues excluding external grants have been growing, rising from 11.9 percent of GDP in 1992-93 to 19.1 percent in 2001/02. Despite this positive trend, Ethiopia's level of domestic resource mobilization, which averaged about 17 percent of GDP throughout the period, remains slightly lower than the average of 19 percent for 33 low-income African countries in 2000 (Bruns et al. 2003 cited in the Education CSR 2004).[34]

6.14   Since the 1980s, public expenditures have consistently exceeded revenues. Total public expenditures as a percentage of GDP has remained high, averaging about 30 percent in recent years. The share of interest paid on external public debt has more than doubled from about 20 percent in 1991/92 to almost 47 percent in 2000/01. The average share of recurrent expenditures from 1980/81-2001/02 is 68 percent, declining to about 66 percent from 1995/96 to 2001/02 (see Table 6-5).

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[34] Countries in the cited study are those which have yet to achieve the goal of universal primary school completion as of 2002.

Table 6-5: Trends in Overall Government Revenues, Ethiopia, 1980-81 to 2001-02

Ethiopia Calendar	Gregorian Calendar	Total Government Revenues			% share of external grants in total revenues	Per capita revenues net of external grants	
		In constant 1994/95 Birr	Index (1994/95=100)	As % of GDP		In constant 1994-95 Birr	Index (1994/95=100)
1973	1980-81	4837.8	100	18.2	9.8	124.7	100
1974	1981-82	5097.4	105	19.0	12.2	127.8	102
1975	1982-83	5628.7	116	19.4	10.7	137.3	110
1976	1983-84	6091.4	126	21.5	10.0	144.3	116
1977	1984-85	5343.8	110	21.3	21.4	123.1	99
1978	1985-86	6206.1	128	22.5	13.6	138.8	111
1979	1986-86	6608.7	137	21.1	9.9	143.4	115
1980	1987-88	8102.9	167	25.8	15.5	170.2	137
1981	1988-89	8779.0	181	28.0	17.0	178.1	143
1982	1989-90	6404.7	132	19.9	11.3	125.1	100
1983	1990-91	4806.0	99	16.1	14.6	90.7	73
1984	1991-92	3601.3	74	13.2	19.7	65.7	53
1985	1992-93	4231.1	87	13.7	12.7	79.4	64
1986	1993-94	5552.4	115	17.4	20.0	101.1	81
1987	1994-95	7044.6	146	20.8	16.1	124.7	100
1988	1995-96	7987.1	165	21.3	13.6	137.2	110
1989	1996-97	8628.6	178	21.8	16.6	144.3	116
1990	1997-98	8125.1	168	20.9	13.6	132.5	106
1991	1998-99	8808.7	182	21.4	16.9	140.3	112
1992	1999-00	9208.4	190	21.6	15.4	143.2	115
1993	2000-01	11236.8	232	24.2	20.5	170.8	137
1994	2001-02	13101.1	271	23.5	18.6	194.7	156

Note: 1982EC to 1984EC corresponds to the transition from the Megistu regime to the new government.
Source: Education CSR 2004

Table 6-6: Trends in Total Government Expenditure in Ethiopia, 1980/81 to 2001/02

Ethiopia Calendar	Gregorian Calendar	Total spending					Recurrent spending		Interest on all public debt		
		In constant 1994/95 Birr	Index (1994/95=100)	As % of GDP	As ratio of revenues[a]	Per capita spending (1994/95=100)	As % of total spending	As % of GDP	As % of total spending	As % of GDP	% share of interest paid on external debt
1973	1980-81	5,668.1	100.0	21.3	1.17	100	77.9	16.6	3.7	0.8	22.8
1974	1981-82	6,629.0	117.0	24.7	1.30	114	74.3	18.3	3.0	0.7	21.1
1975	1982-83	8,756.2	154.5	30.2	1.56	146	67.1	20.3	2.4	0.7	22.8
1976	1983-84	8,005.0	141.2	28.3	1.31	130	72.1	20.4	4.4	1.2	18.2
1977	1984-85	7,024.4	123.9	28.0	1.31	111	69.4	19.4	5.8	1.6	12.9
1978	1985-86	7,780.0	137.3	28.3	1.25	119	63.9	18.0	4.8	1.3	20.0
1979	1986-87	8,187.3	144.4	26.1	1.24	122	65.6	17.1	5.5	1.4	31.9
1980	1987-88	9,663.0	170.5	30.8	1.19	139	70.2	21.6	5.2	1.6	38.8
1981	1988-89	10,709.8	188.9	34.2	1.22	149	66.2	22.6	4.3	1.5	33.9
1982	1989-90	9,543.6	168.4	29.7	1.49	128	72.7	21.6	4.3	1.3	20.7
1983	1990-91	7,353.0	129.7	24.6	1.53	95	75.0	18.5	5.4	1.3	19.2
1984	1991-92	5,504.9	97.1	20.2	1.53	69	77.4	15.6	7.3	1.5	19.9
1985	1992-93	6,037.8	106.5	19.6	1.43	78	65.8	12.9	10.2	2.0	22.9
1986	1993-94	7,995.9	141.1	25.0	1.44	100	62.0	15.5	13.5	3.4	15.4
1987	1994-95	8,371.9	147.7	24.7	1.19	101	62.3	15.4	10.0	2.5	28.8
1988	1995-96	9,058.7	159.8	24.1	1.13	107	61.0	14.7	10.1	2.4	33.9
1989	1996-97	9,461.4	166.9	23.9	1.10	108	57.9	13.8	9.3	2.2	30.8
1990	1997-98	9,733.0	171.7	25.0	1.20	109	63.1	15.8	7.4	1.9	37.0
1991	1998-99	12,615.5	222.6	30.6	1.43	138	67.9	20.8	6.4	2.0	38.6
1992	1999-00	14,099.7	248.8	33.0	1.53	150	80.0	26.4	6.5	2.2	35.6
1993	2000-01	13,473.0	237.7	29.1	1.20	140	67.4	19.6	7.0	2.0	46.8
1994	2001-02	16,402.5	289.4	29.4	1.25	167	65.3	19.2			

Note: blanks denote no data
[a] Including grants
Source: Education CSR based on GOE data

Public expenditures in Ethiopia

6.15   In general, public expenditures have been increasing steadily in Ethiopia over the last few years with a sharp increase in 1999/2000. Total government expenditures increased by 91 percent in nominal terms and 70 percent in real terms from 1995 to 2002 (Figure 6-6). The average share of public expenditures-to-revenue has been at about 32 percent of GDP from EFY1988 to EFY1994 (statistics from EFY1995-2002), placing Ethiopia among the SSA countries with the largest level of public spending (Table 6-7).

Figure 6-6: Total Public Expenditures from 1995-2002 (Current and Constant Terms, 1995=100)
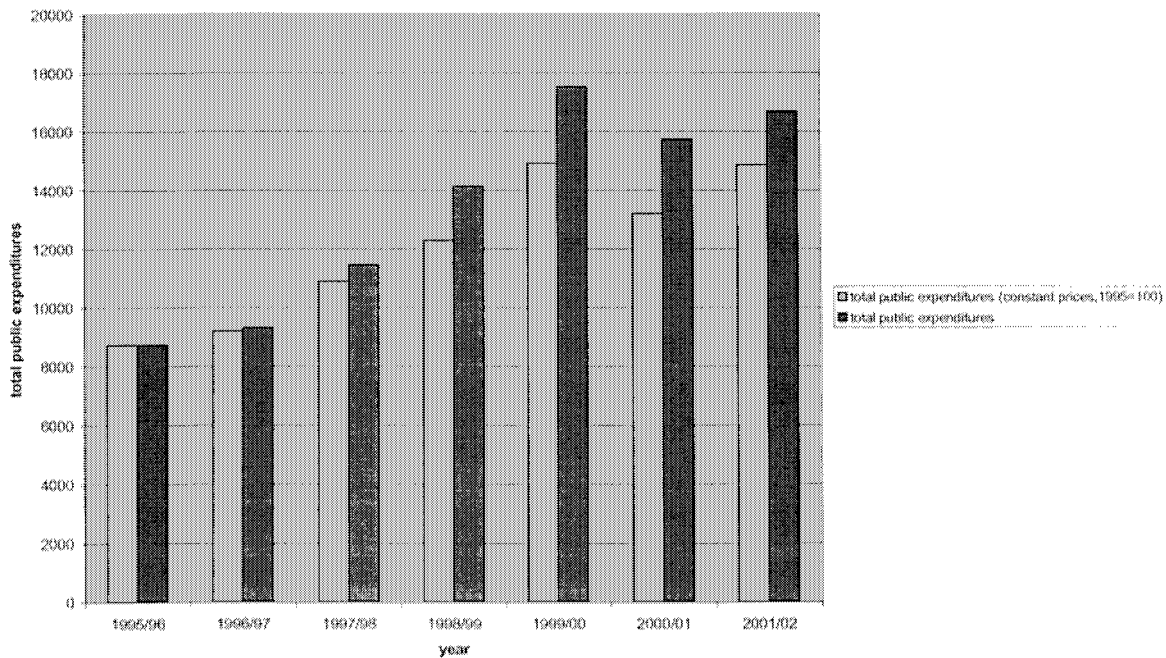
Table 6-7: Public Spending as a Share of GDP in Selected African Countries

	GDP per capita	Public expenditures as a proportion of GDP
Ethiopia	99	32 percent (average from 1995-2002)
Malawi	165	25 percent
Tanzania	269	25 percent
South Africa	2,900	30 percent
Zambia	321	30 percent
Mauritania	350	23.1 percent (2000)
Cameroon	550	20 percent
Senegal	480	17.3 percent (1999)
Niger	180	
Mali	230	15 percent (2000)
Chad	200	8 percent (2000)
Guinea	410	11 percent (1999)
Source: WDI 2002, AFTHD CSR		

Public Spending on Healthcare

6.16 *In recent years, public spending on health has also increased, albeit at a slower pace than total public expenditures.* The public expenditures monitoring system captures a somewhat lower proportion of health spending than the NHA.[55] The monitoring system does not capture much of the spending by bilateral donors, which has increased significantly in the past years according to the NHA study. Nonetheless, the system does show an increase in public health expenditures over time. Nominal public health expenditures increased significantly by almost 368 percent between 1991 and 2002; significantly more than total public expenditures, which increased by 228 percent during the same period. Real public health expenditures increased by 146 percent between 1990/91 and 2001/2002 while total public expenditures increased by 73 percent. *However, in recent years, this trend has changed,* for example public spending on health increased by 80 percent between 1995 and 2002, which was lower than the 90 percent increase in total public spending during the same period. Moreover during the same period, real public health expenditures increased by only 58 percent, compared with the 70 percent increase in real total public expenditures (Figure 6-7).

6.17 Health expenditures per capita also increased by 49 percent over the period 1995-2002 in Birr, and by ten percent in US$. From 1995/96 to 2001/02, public health expenditures increased from about US$1.25 per capita in 1989 to $1.38 in 2001/02, although it declined from its 1990/91 value of $1.59 (Table 6-8). In real terms, public health expenditures per capita in US$ declined by 1.6 percent from 1995/96 to 2001/02; and it declined more significantly by 54 percent from 1990/91 to 2001/02.

Figure 6-7: Total Public Health Expenditures (Current and Constant Prices)

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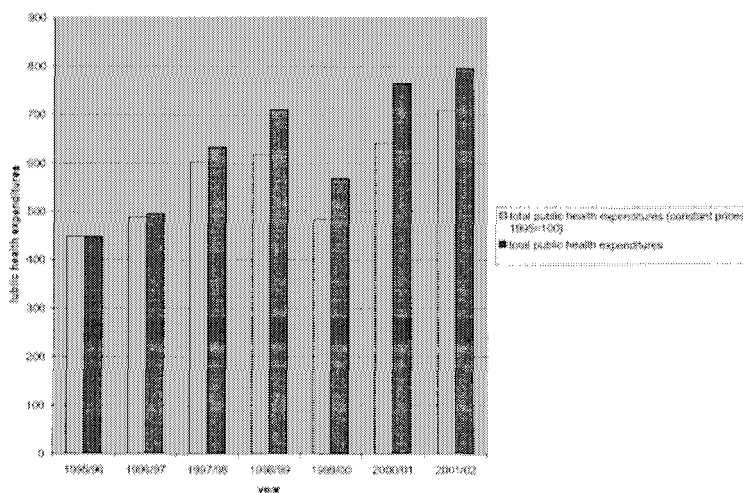
55 This may be due to underestimating some of the extra budgetary support to the public sector by the expenditures monitoring system

Table 6-8: Ethiopia Health Expenditures in Current and Constant Prices and Per Capita Expenditures, EFY 1983, 1988-1994(1990/91, 1995-2002)

Expenditures	EFY83 1990/91	EFY88 1995/96	EFY89 1996/97	EFY90 1997/98	EFY91 1998/99	1992 1999/2000	1993 2000/01	1994 2001/02	Var. 95-02 (%)	Var. 90-02 (%)
Expenditures in millions of birr (current prices)	170	448	495	634	711	569	765	796	78	367.4
Expenditures in millions of birr (constant 1995 prices)	288	448	489	602	617	484	641	708	58	146
Expenditure in birr per capita (current prices)	3.29	7.95	8.51	10.58	11.52	8.96	11.71	11.85	49	260
Expenditure in US$ per capita (current prices)	1.59	1.25	1.26	1.49	1.42	1.09	1.38	1.38	10	-13
Total health expenditures in US$ per capita (constant 1995 prices)	2.6	1.25	1.24	1.42	1.23	0.93	1.16	1.23	-1.6	-54

Note: Actuals for 1990, 1996-1999, pre-actuals for 1999/2000 and 2000/01
Source: PER data 2003 and SIMA 2002, Author's calculations

6.18   Figure 6-8 shows that real health expenditures (based on 1995 prices) grew more than real total public expenditures in 1995 and 1996. However, *total public expenditures outpaced public health expenditures from 1997 onwards, especially in 1999/2000.* In 1999/2000, public health expenditures sharply declined while total public expenditures significantly increased; possibly because of non-health related expenditures incurred in response to the Ethiopia-Eritrea Border Conflict.

Figure 6-8: Real Public Health and Total Public Expenditures Indexed to 1995/96 Expenditures
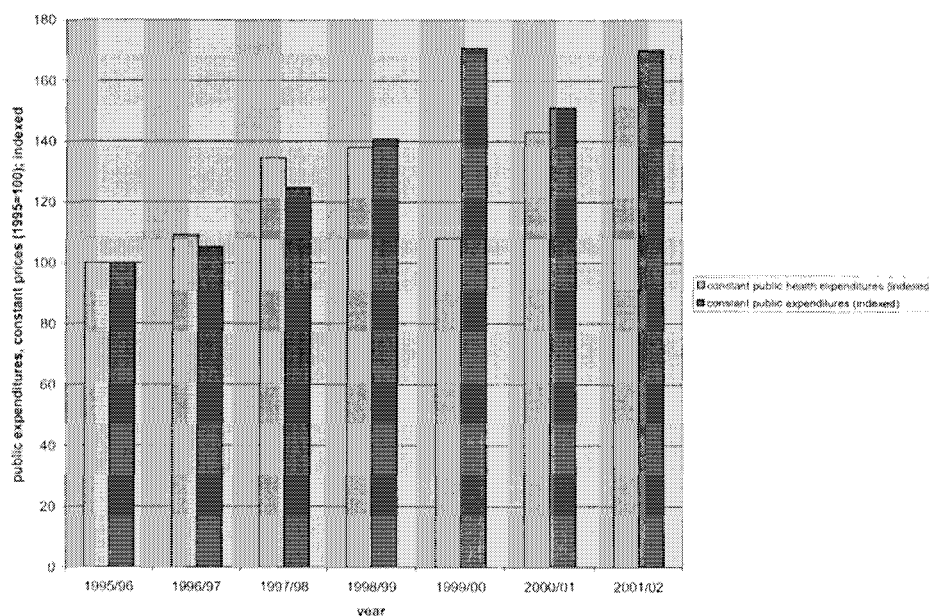
Source: MOFED, Authors' calculations

6.19   Public spending on health increased from about 0.9 percent of GDP in FFY1991 (EFY1983) to an average 1.5 percent of GDP between 1997 and 2002 (EFY1990-1994).[56] From 1990/91 to 1993/94, the public health expenditure share of total public expenditures increased from 3.1 percent to 5.2 percent. It then remained fairly constant at around five percent from 1994/95 to 2000/01[57] During the period 1995/96-20001/02, only an average of 4.7 percent of public spending was allocated to health (Table 6-9).

**Table 6-9: Share of Public Spending on Health in Ethiopia,1990, 1995/2002
According to Budget Monitoring Data (Percent GDP and Percent of Public Spending)**

Public Health Expenditure	1990/91 EFY1983	1995/97 EFY1988	1996/97 EFY1989	1997/98 EFY1990	1998/99 EFY1991	1999/00 EFY1992	2000/01 EFY1993	2001/02 EFY 1994
Total health share of GDP	0.88	1.18	1.22	1.47	1.5	1.09	1.47	1.5
Total public health share of total public expenditures	3.4	5.1	5.31	5.5	5.0	3.2	4.9	4.8

Note: 2000/01 and 2001/02 are pre-actuals.
Source: Based on MOFED data collected by the PER (2003) team.

6.20   Ethiopia's share of total government expenditures that go to health is among the lowest in SSA. Malawi, Tanzania, South Africa and Zambia allocated closer to ten percent of their public spending to health, a proportion twice as large as Ethiopia's allocation (PER 2003).

Capital and Recurrent Expenditures on Health

6.21   The increase in health spending is linked to an increase in both recurrent and capital expenditure. Both capital and recurrent expenditures on health have increased, although the rate of increase of the former is greater than the latter (Figure 6.9). Capital expenditures increased by 553 percent over the period EFY1983 to 1994 (statistics from EFY1990 to 2002) in nominal terms, and by 244 percent in real terms. The increase in recent years (1995-2002) has been substantially less (128 percent in nominal terms and 102 percent in real terms). Average capital spending per capita remained low at about US$0.45 from 1995-2002, peaking at US$0.47 per capita in 2001/02 in nominal terms (US$ 0.42 in real terms) (Table 6-10).

6.22   However, data on capital expenditure need to be interpreted with caution. First, all donor-funded operations (and many government-financed initiatives organized in the form of projects) are included in the capital budget, resulting in the inclusion of some recurrent expenditures such as drugs. Second, the capital budget does not include all project-related expenditure by donors. Third, aid-funded expenditures are systematically under-reported, even for those projects that are included in the budget documents (PER 2003).

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56 The only exception to this trend was during the period of the Ethiopia-Eritrea Border Conflict when public spending on health as a %age of GDP dropped to 1.1. %

57 Similar to the rest of public health expenditure trends, it dropped to 3.2% in 1999/2000 because of the Ethiopia-Eritrea Border Conflict.

Figure 6-9: Public Recurrent and Capital Health Expenditure Trends (1990/91-2001/02) (Current and Constant Prices)
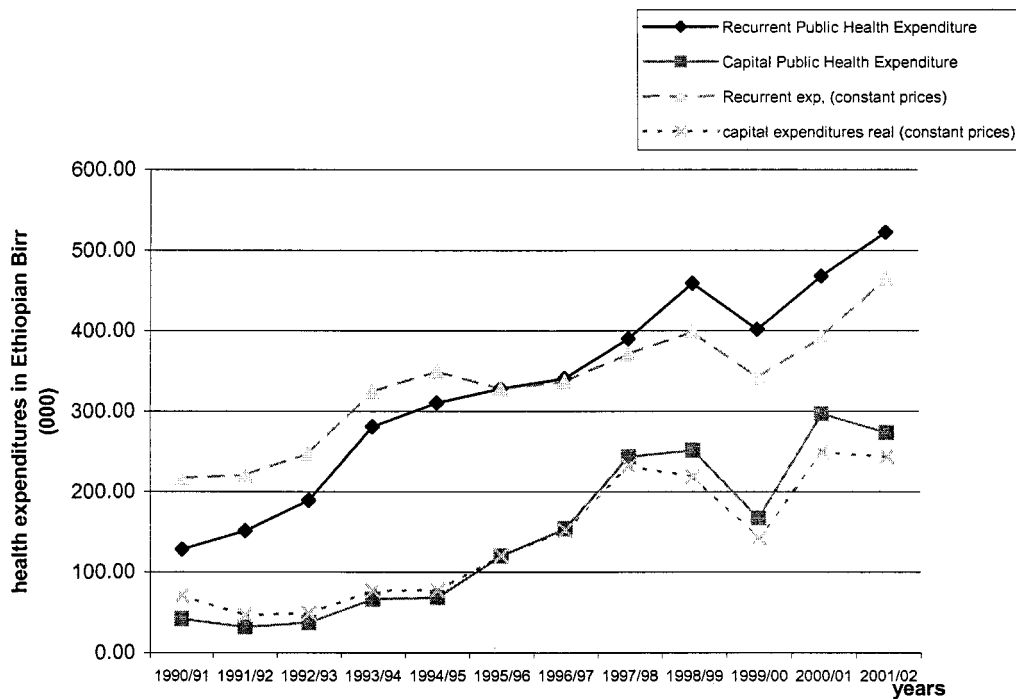
Source: PER (03) data, Authors' calculations

6.23   Recurrent spending increased significantly by 307 percent and by 114 percent in real terms from EFY83-94 (1990-2002). Over the more recent period of EFY1999 to 1994 (statistics from EFY 1995-2002), it increased by a more modest 59 percent in nominal terms (42 percent in real terms). Similar to capital expenditures per capita, the average annual recurrent spending per capita remained low at about US$0.88 from 1995-2002, reaching US$0.91 in 2001/02 in nominal terms (US$0.81 in real terms). These figures are substantially lower than the average per capita recurrent expenditures of low income countries (US$2.50). Nonetheless, the combined increase of both capital and recurrent expenditures is a positive development.

6.24   However, it is not clear whether the increase has been sufficient to ensure that facility expansion is accompanied by needed material and human resource inputs to provide good quality health services. For instance, the latest NHA results (1999/2000) in Figure 6-10 indicate that capital expenditures (expansion of health facilities as well as equipment) comprise the largest share of total public expenditures (27 percent). This analysis is supported by the HSDP I 2003 Evaluation findings that note that HSDP I provided "insufficient attention to the composition of expenditures, and strategic shifts in funding were not achieved. Neither were important balances, particularly between capital and recurrent expenditures, maintained"[58]. Anecdotal evidence provided in the HSDP I report of 2003 points out that some newly built facilities are still not functional due to lack of personnel.

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[58] FMOH, 2003, Report on the Evaluation of HSDP I, Final Report, Volume 1, pp xv.

Figure 6-10: Functional Breakdown of Ministry of Health and Regional Health Bureau Expenditures
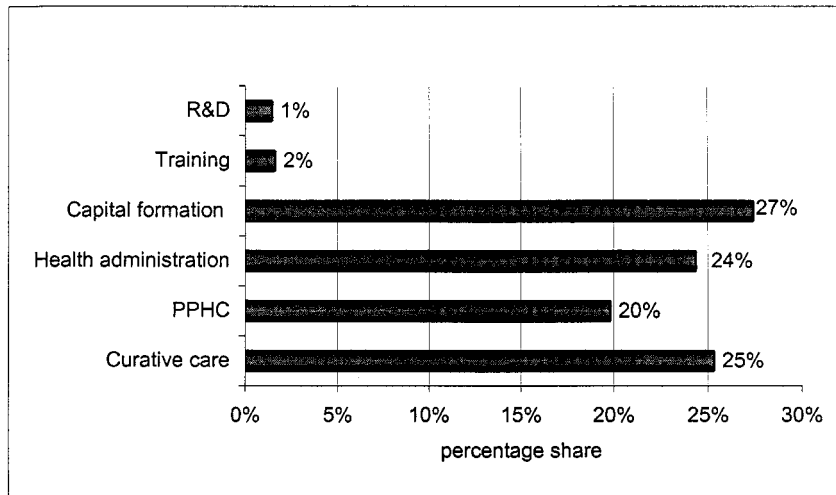
Source: MOH. Ethiopia's Second NHA Report, 2003.

6.25   Chapters 3 and 5 have shown that both physical access and quality of services are key determinants of the rate of service utilization in Ethiopia. While there is a clear need to invest in access and quality, allocating sufficient resources to both areas would be extremely difficult in a resource-constrained country. Using several different probit and logit specifications, a study by Collier et al. (2002) suggests that investments made in improving the quality of health services in Ethiopia, measured by amount of functioning equipment (proxied by a functioning refrigerator with back-up power supply); qualified staff (proxied by a nurse in regular attendance); and reliable supply of material inputs (proxied by a regular supply of antibiotics) would have a larger impact on usage than would investments in facility expansion or increasing the density of service provision.

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**Table 6-10: Recurrent and Capital Health Expenditures (current and constant prices)
EFY 1983; 1992-1994(1990/91, 1997-2002)**

	EFY1983 1990/91	EFY88 1995/96	EFY89 1996/97	EFY90 1997/98	EFY91 1998/99	EFY92 1999/00	EFY93 2000/01	EFY94 2001/02	Var. 95-02 (%)	Var. 90-02 (%)
Expenditures in millions of Birr (current prices)										
Recurrent	128	328	341	390	459	402	468	522	59	307
Capital	42	120	154	243	252	167	297	273	128	553
Total	170	448	495	634	711	569	765	796	77.5	367
Expenditures in millions of Birr (constant 1995 prices)										
Recurrent	235	328	337	371	399	342	392	465	42	114
Capital	76	120	152	231	218	142	249	243	102	244
Total	311	448	489	602	617	484	641	708	73	146
Expenditures Birr per capita (current prices)										
Recurrent	2.48	5.82	5.87	6.52	7.44	6.33	7.16	7.78	34	214
Capital	0.81	2.13	2.65	4.06	4.08	2.63	4.55	4.07	91	402
Total	3.29	7.95	8.51	10.58	11.52	8.96	11.71	11.85	49	260
Expenditures in USD per capita (current prices)										
Recurrent	1.20	.92	.87	.92	.92	0.77	.85	.91	-1.08	-24
Capital	0.39	.34	.39	.57	.50	0.32	.53	.47	38	20.5
Total	1.59	1.25	1.26	1.49	1.42	1.09	1.38	1.38	10.4	13
Total Health Expenditures in USD per capita (constant 1995 prices)	2.68	1.25	1.24	1.42	1.23	0.93	1.16	1.23	-1.6	-54

Note: Actuals for 1990, 1996-1999, pre-actuals for 1999/2000 and 2000/01;
Source: PER Data 2003 and SIMA 2002, Author's calculations

6.26   Table 6-11 indicates that the recurrent spending share of GDP increased by 49 percent from 0.66 percent in EFY 1983 (statistics from 1990/91) to 1.0 percent in EFY 1994 (statistics from 2001/02). During most of this period, it fluctuated between either 0.8 or 0.9 percent of GDP.[59] From 1995/96 to 2001/02, the recurrent spending share of GDP increased by 16.5 percent.

6.27   The capital expenditures share of GDP increased by about 108 percent from 0.25 percent in EFY1983 (statistics from 1990/91) to about 0.52 percent of GDP in EFY1993 (statistics from 2001/02). From 1995/96 to 2001/02 the capital spending share of GDP increased by 48 percent. It dropped to 0.3 percent of GDP in EFY1992 (statistics from 1999/2000) as a result of the border conflict but rose to 0.57 percent of GDP in the following year (statistics from 2000/01).

Table 6-11: Evolution of Recurrent and Capital expenditures on Health in Ethiopia, 1990/91, 1995/2002 (percent of public spending and GDP)

Public Health Expenditure	EFY1983 1990/91	EFY88 1995/96	EFY89 1996/97	EFY90 1997/98	EFY91 1998/99	EFY92 1999/00	EFY93 2000/01	EFY94 2001/02	Var. 95-02 (%)	Var. 90-02 (%)
Capital share of total public capital expenditures	2.9	3.8	4.3	5.7	7.0	4.3	5.6	4.5	17.4	53.4
Capital of total public expenditures	0.82	1.37	1.65	2.12	1.77	0.95	1.88	1.63	19.3	98.9
Capita share of GDP	0.25	0.35	0.40	0.58	0.56	0.32	0.57	0.52	48.5	116
Recurrent share of total public recurrent expenditures	0.9	0.6	0.58	0.47	0.32	0.24	0.32	0.32	(47.09)	(65.4)
Recurrent share of total public expenditures	2.5	3.7	3.66	3.4	3.24	2.29	2.97	3.13	(16.6)	23.8
Recurrent share of GDP	0.7	0.86	0.82	0.87	0.94	0.77	0.9	1.0	16.5	49

Note: 2000/01 and 2001/02 are pre-actuals;
Source: Authors' calculations based on MOFED data collected by PER (2003) team and SIMA 2002

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[59] It also declined to its 1983 level (0.7 %) during the Border Conflict (1999/2000)

Allocation of Public Expenditures

6.28   Allocation of public expenditures across inputs has been stable with a slight increase in the share allocated to wages. The Public Expenditure Review conducted in 2003 shows a relatively stable distribution of public spending over time (Table 6-12). Wages and salaries represent the largest item of public spending. Between 1996 and 2001, on average, wages represented about 53 percent of recurrent expenditures, and medical supplies and equipment amounted to 19 percent. Between 1996/97 and 2000/01, there was a progressive shift in spending composition, with an increase in the percentage allotted to salaries and a corresponding decline in materials and supplies, operations and maintenance, grants, contributions and transfers. As a result, in 2000/01, approximately 61 percent of the recurrent budget paid for salaries, compared to about 52 percent in 1996/97. About 26 percent went to medical materials and supplies, including medical supplies and equipment (about 16 percent) in 2000/01, lower than the 1996/97 shares of 31 percent and 20 percent, respectively.

Table 6-12: Ethiopia: Composition of Recurrent Expenditures, EFY 1989-1994
(Statistics from 1996/97-2001/02) Birr in Thousands

Recurrent Expenditures	Share (%) EFY1989 1996/97	EFY1989 (1996/97)	EFY1990 (1997/98)	EFY1991 (1998/99)	EFY1992 (1999/00)	EFY1993 (2000/01)	Share (%) 1993 (2000/01)	Average 1996-2001
By Inputs								
Wages and Salaries	51.6	190,023	213,010	235,106	234,658	282,854	60.5	53.05
Operation and Maintenance	8.0	29,439	31,947	80,481	61,972	34,318	7.3	10.6
Materials and Supplies	31.2	114,685	138,767	154,854	101,932	120,739	25.8	29.0
Medical Supplies and Equipment	20.0	73,721	96,043	107,394	61,344	76,847	16.4	19.0
Petrol and Lubricants	1.5	5,374	7,146	8,477	6,789	7,991	1.7	1.6
Other Materials and Supplies	9.7	35,590	35,577	38,983	33,799	35,902	7.7	8.3
Grants, Contributions, Other Transfers	8.0	29,260	17,684	33,036	27,561	23,772	5.1	6.0
Motor Vehicles & Equipment	1.3	4,625	6,213	5,627	3,007	5,705	1.2	1.1
By Function								
Administration	17.9	65,977	90,863	167,547	131,683	95,984	20.5	24.83
Health centers and Clinics	30.2	111,229	118,022	121,775	106,747	142,186	30.4	27.6
Hospitals	37.7	138,729	157,032	172,561	144,791	177,854	38.1	36.3
Other	14.2	52,099	41,704	47,221	45,909	51,364	11.0	11.07
By government level								
Regional	82	301,761	332,626	404,590	351,177	408,672	87.4	82.5
Federal	18	66,273	74,994	104,514	77,953	58,716	12.6	17.5
Federal Share (%)		18.0	18.4	20.5	18.2	12.6		
Total Recurrent Expenditures		**368,033**	**407,621**	**509,104**	**429,130**	**467,387**	**100.0**	

Note: Actuals for 1996-1999, pre-actuals for 1999/2000 and 2000/01
Source: PER 2003 based on MOFED data; Authors' calculations

6.29   National level funding has also increased for medicines from Birr 60 million in EFY89 (statistics from 1997/98) to Birr 245 million in EFY94 (statistics from 2001/02) (Table 6-13). Domestic revenue financed a significant percentage of that increase, from 60 million birr in EFY89 (accounting for 100 percent of drug spending that year) to 104 million Birr in EFY 1994 (accounting for 40 percent of drug spending that year). The remaining 60 percent (141 million Birr in 1994) was financed through IDA funds and donations to the Pharmaceutical Administration and Supply Services (PASS).[60] Per capita expenditures on drugs, however, are still significantly lower (US$0.44) than the HSDP target of US$1.25.

Table 6-13: Data on Budget and Expenditure for Procurement of Drugs and Medical Supplies in the Ethiopia Public Health Sector, EFY 1989-1994 (Statistics from 1997-2002)

Source	1996/97 EFY1989	1997/98 EFY1990	1998/99 EFY1991	1999/2000 EFY1992	2000/01 EFY1993	2001/02 EFY1994	Share in EFY 1994
GOE drug budget (Birr million)	60	65	85	70	82.5	104	40%
GOE drug budget (% of total health budget)	17%	17%	18%	17%	18%	19%	19%
IDA expenditure on pharmaceuticals and medical equipment (Birr million)	0	0	0	37.8	45.5	47.7	19%
Donations through PASS (Birr million)				N/A	98.5	93.2	36%
Vaccines	20.2	11.2	10.7	20	15.6	13	5%
Public per capita exp on drugs (Birr)	1.4	1.3	1.6	2.0	3.7	3.8	
Public per capita exp on drugs (US$)					0.44	0.44 *	
*Note: This amount is only 35 percent of HSDP target for EFY 1994 (2001/02) of US$ 1.25 Source: HSDP I Evaluation 2003.							

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[60] Based on HSDP I Evaluation Report 2003. As noted in previous sections, the total amount spent on drugs is underestimated because it does not account for donor funds that pass through other channels

**Figure 6-11: Capital and Recurrent Expenditures
Capital Expenditures by Functional/Service Levels, 1999-2000**
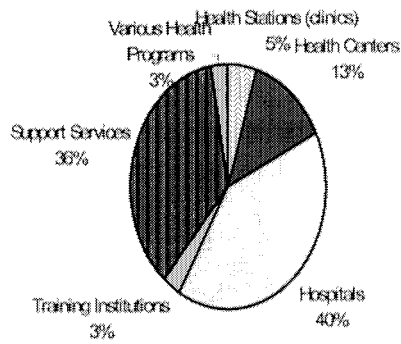
Recurrent Expenditure Across Line Items, 2000/01
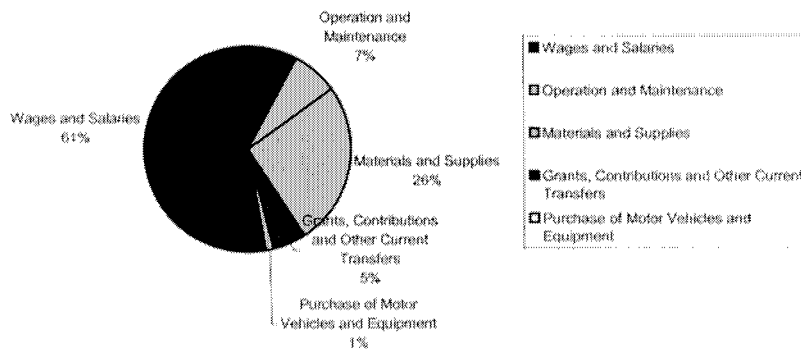
**Recurrent Expenditures By Service/Functional
Levels, 2000/01**
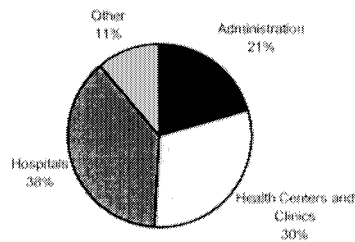
Source: PER 2003

Public Expenditures and Hospital Programs

6.30   *A large share of public money has been consistently allocated to hospital care (compared to lower levels of care).* In EFY93 (statistics from 2000/01), the government spent Birr 178 million on recurrent expenditure in the country's 80 public hospitals; while it spent only Birr 142 million at the primary health care level. Similar to recurrent expenditures, over-all capital expenditures are also skewed towards investments in hospitals, with about Birr 61 million spent on hospitals in EFY92 (statistics from 1999/00) compared to only Birr 26 million for primary care facilities. (See Table 6-14 and Figure 6-11).

6.31   *On the other hand, funding for basic immunization services appears to have declined over the last five years.* Funding for vaccines was reported to be Birr 20 million (or less than seven percent of government recurrent health expenditures) in EFY89 (statistics from 1997/98) and, except for EFY92, it has been even lower in every year since. In EFY94 (statistics from 2001/02), expenditures on vaccines was only Birr 13 million, representing less than three percent of the government's recurrent health expenditure. It is possible that vaccines financed by external agencies in the capital budget have to some extent substituted for domestic funding, but the available data make it difficult to draw conclusions (PER 2003). The non-availability of funds for fuel and per diems was frequently cited during visits to some HCs and HPs as the major constraint in prohibiting more children from obtaining vaccines (HSDP 2003). In 2001, several activities, including training, outreach, social mobilization and maintenance, had to be postponed or cancelled. In order to partially address this issue, in 2002, the central government approved a budget line for EPI in the MOH accounts. The budget line is expected to provide a basis for tracking expenditures, analyzing trends, and advocating for more funds. The following three areas will require special attention: (1) reporting against budgets; (2) budget development based on a realistic assessment of available resources; and (3) the financial sustainability of future program strategies (Candries and Stevenson, 2002).

Table 6-14: Ethiopia: Composition of Capital Expenditures, EFY 1989-1994 (Statistics from 1996-2001), in Birr Thousands

	EFY19890 (1996/97)	EFY1990 (1997/98)	EFY1991 (1998/99)	EFY1992 (1999/00)	EFY1993 (2000/01)	Share EFY1992 (1999/00)	Average 1996-2000
By Function							
Health Stations (clinics)	36057	54425	36524	7032	NA	4.7%	13.2
Health Centers	80331	65859	36636	19490	NA	13.0%	21.1
Hospitals	73478	93079	76763	60672	NA	40.6%	38.2
Training Institutions	9601	8051	3211	4811	NA	3.2%	3.1
Support Services	21180	19343	14660	53241	NA	35.6%	19.2
Various Health Programs	22654	10822	11464	4292	NA	2.9%	5.1
By Government Level							
Regional	224101	238851	174242	147410	NA		
Federal	19199	12727	5015	2128	NA		
Federal Share (%)	8	5	2.8	1.4			
Total Capital Expenditures	**243,300**	**251,158**	**179,257**	**149,538**			

Source: PER 2003

6.32   This pattern of higher spending on tertiary and secondary healthcare (about 40 percent) than on primary healthcare (PHC) is often observed throughout the world. The Ethiopian case is not the most extreme; many countries spend sixty percent and more on hospital care. Given that most of the diseases that impose a heavy burden on Ethiopians are those that can be prevented or treated on an outpatient basis through PHC facilities, it is likely that additional resources channeled to PHC will have a larger impact on health outcomes than funds directed to hospital level care. The government budgets since EFY1994 (statistics from 2001/02) have projected a shift in emphasis toward primary level care. It will be important to monitor whether future actual primary care and HSEP expenditures reflect this shift in emphasis.

6.33   The 1999/2000 NHA report also states that shifting resources to primary care would also require a well articulated hospital financing strategy. This strategy would need to clearly outline a plan to improve the efficiency of hospital management so that more funds could be released to PHC.

Decentralization

6.34   Decentralization to the regions has deepened, but challenges remain regarding budget execution and improvement of health outputs and outcomes. The public expenditures review also confirms the trend towards decentralization. The share of public funds spent in the regions has increased over time relative to the share at central level. Regional recurrent shares have increased from 82 percent in 1996/97 to 87.4 percent in 2000/01. Regional capital expenditure shares have also increased from 92.1 percent in 1996/97 to 98.6 percent in 1999/2000.

6.35   The MOH/PPD data indicate a similar proportion of federal-to-regional shares in terms of recurrent expenditures. The federal level receives 12 percent of the recurrent spending budget and spends 15 percent of total recurrent expenditures. However, it is interesting to note that while the federal share of capital expenditures is about five percent of the total capital budget (Birr 55.7 million of Birr 466 million), its actual share in terms of capital expenditures was 69 percent (Birr 210 million of Birr 305 million) in 2000/01. A similar pattern is noted for 2002/03. It will be important to verify what the MOH's rationale is for spending substantially beyond its capital budget allocation in both years.

Spending Rates and Budget Execution

6.36   *Spending rates are low in all regions, justifying the reluctance of the government to increase public funding for health. Budget execution is also very much a problem.* HSDP data show slow budget execution rates (Table 6-15); except for some regions such as Addis, Amhara and Gambella that spent at least 92 percent of their respective budgets in EFY 1994 (statistics from 2001/02). A few regions such as Oromia, Afar and Tigray have either exceeded their budgets or fully depleted them several times between 1996/97 to 2001/02. However, these are exceptions.

Table 6-15: Budget Execution Rates by Region EFY 1989 to 1994
(Statistics from 1996/97-2001/02)

	Expenditure/Allocation (%)					
Region	**EFY1989 1996/97**	**EFY1990 1997/98**	**EFY1991 1998/99**	**EFY1992 1999/00**	**EFY1993 2000/01**	**EFY1994 2001/02**
National	87	81	75	65	48	64
Addis Ababa	83	72	75	40	48	92
Afar	57	39	75	111	38	50
Amhara	78	84	62	65	43	95
Benshangul-Gumuz	83	48	91	63	58	84
Dire Dawa	70	69	87	79	43	73
Gambella	77	39	66	95	40	98
Harare	90	67	78	53	52	n.a.
Oromia	100	91	90	57	55	54
SNNPR	84	70	69	61	35	n.a.
Somali	90	60	52	62	46	30
Tigray	76	99	91	133	67	88
Source: HDSP I Evaluation 2003						

6.37   Disaggregating regional expenditures by capital and recurrent categories, it is interesting to note that in 2002/03 (Table 6-16), with the exception of Afar, all of the regions performed significantly better in spending their recurrent budgets (compared to their capital budgets).

Table 6-16: Budget Execution Rates: Recurrent and Capital by Region, 2002/03

Region	Recurrent expenditures/ recurrent budget (%)	Capital expenditures/capital budget (%)	Total Exp/budget (%)
Addis Ababa	136	3.2	52
Afar	21	42	27
Amhara	51	2	35
Benshangul-Gumuz	79	30	59
Dire Dawa	89	27	62
Gambella	79	45	67
Harare	83	38	74
Oromia	26	26	26
SNNPR	37	19	29
Somali	113	24	52
Tigray	99	25	78
*Expenditures are based on pre-actual (preliminary information)			
Source: MOFED cited in MOH/PPD Health and Health Related Indicators, 2002/03.			

6.38 Table 6-17 examines national level budget execution rates by recurrent and capital categories over a 10-year period. With the exception of three years (1992, 1998 and 2002), compared to the capital budget, a significantly larger percentage of the recurrent budget has been spent. This could mean that capital needs relative to implementation capacity tend to be overestimated, and/or there could be factors such as donor processes which impede faster execution of capital budgets.

Table 6-17: National Level Recurrent and Capital Budget Execution Rates, 1992-2002

Year	Recurrent	Capital
1992	96	98
1993	86	33
1994	93	53
1995	92	59
1996	92	71
1997	104	78
1998	95	214
1999	98	49
2000	95	40
2001	95	47
2002*	52	58

*Based on pre-actual expenditure data
Source: MOFED cited in MOH/PPD Health and Health Related Indicators. 2002/03.

6.39 The other potential causes of general underspending include inadequate capacity for program planning/budgeting and management at the regional, zonal and woreda levels. The problem of underreporting could also be a contributing factor. The PER (2003) mentions that donor inflows tend to be overestimated in the budget at the beginning of the year and underreported when it comes to actual expenditures. Thus the gap between budget estimates and actual expenditures seems larger than it actually is. There is also the need to adequately orient zonal and woreda stakeholders to health sector development goals and motivate them to give priority to improving the implementation of health interventions. This point is discussed in sub-section 6.67, as well as in Chapter 5.

Regional expenditures vary widely

6.40 In 2000/01, per capita expenditures across regions ranged from Birr 4.7 (US$ 0.55) in Somali to Birr 45.3 (US$5.3) in Gambella. The high spending rates in Benishangul-Gumuz, Gambella and Harari result from the fact that although these regions are small and not densely populated, they incur high administrative overhead costs.

6.41 Expenditures per capita in the three urban regions (Addis Ababa, Dire Dawa Harari) are also comparatively high because these regions have a relatively large number of hospitals and serve as referral points for service seekers from other regions. Per capita expenditures in Addis, while high relative to a number of regions, seem relatively lower than expected given its income and level of development. However, this could also be a function of its proximity to central level facilities, resulting in a reduced need to spend money on facilities and operating costs.

6.42 The most populated regions, such as Amhara, SNNPR and Oromia, also have relatively lower per capita health expenditures. Among those highly populated yet rural regions, however, Tigray stands out as allocating the most money on health on a per capita basis.

Table 6-18: Regional Health Budget, Expenditures (in Birr 000)
**and per Capita Expenditures 2000/01 and 2002/03**

Region	Budget	Expenditure	Per Capita expenditures	Budget	Expenditure	Per Capita expenditures
Addis	115,660	56,550	18.5	149,800	78500000	28.8
Harari	17,230	7,440	44.8	15,500	11,400	64
Dire Dawa	16,090	6,110	18.5	19,900	11,800	33
Gambella	27,070	9,790	45.3	20,300	13,600	59.6
Ben-Gumuz	33,490	12,130	22	27,100	16,100	27.8
Tigray	93,320	52,240	13.8	95,600	74,900	18.7
Oromia	298,190	133,870	5.8	542,800	143,300	5.9
SNNPR	219,560	69,830	5.4	186,000	54,100	4
Amhara	193,300	81,900	4.9	263,700	93,500	5.3
Afar	41,830	22,710	18.3	60,100	16,200	12.5
Somali	69,180	17,980	4.7	53,100	27,500	6.9

Note: Regions ranked from most developed (Addis) to least developed (Somali) based on GOE development index (explained in Annex 5.1)
Source: PPD/MOH. Health and Health Related Indicators. 2000/01.

6.43 Similar expenditure patterns are observed in EFY 1994 (2001/02) and EFY (2002/03). In 2002/03, for example, amounts at less than Birr 7 in SNNPR, Somali, Amhara and Oromia were spent compared to over Birr 59 in Gambella and Harari.

6.44 Regional differences also exist with regard to their allocation of recurrent expenditures across line items/inputs. For example, expenditure shares of materials and supplies range from a low nine percent in SNNPR to about 40 percent in Gambella. Expenditure shares for operations maintenance is also low, ranging from four percent in Somali to 11 percent in Addis. It has been noted that many external agencies finance drugs and supplies via the capital budget. This could explain the regional variations. However, the percentage of the total expenditures allocated to wages remains high across regions, ranging from 51 percent in Addis and Gambella to 79 percent in SNNPR (Figure 6-12).

Figure 6-12: Ethiopia: Composition of Regional Recurrent Expenditures (2000/01)
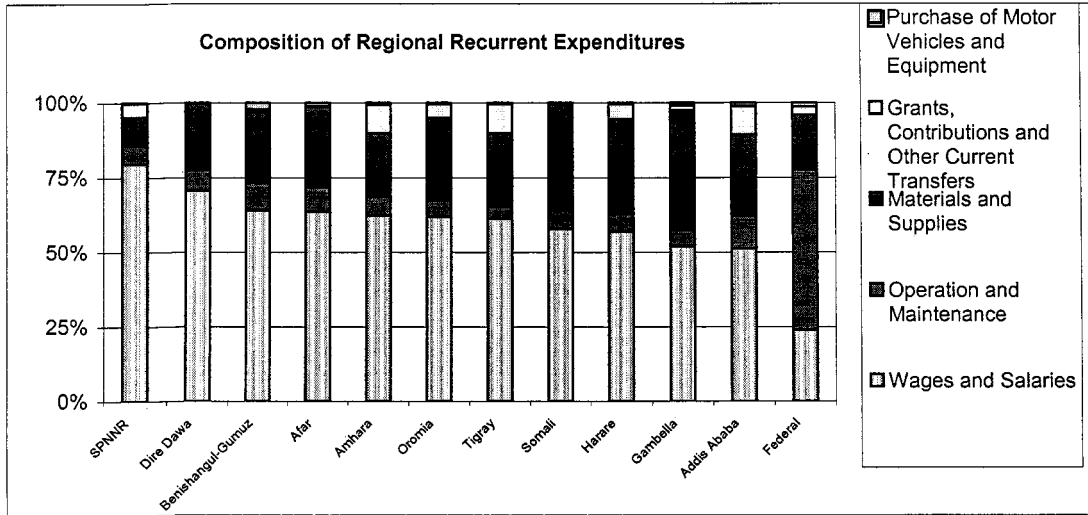
Source: PER 2003

6.45 The HSDP I Evaluation indicates that in the larger regions (Tigray, Amhara, Oromiya and SNNPR), 21-39 percent of total spending was devoted to facility construction and/or rehabilitation; 30-44 percent was spent on operating expenditures; and less than three percent was spent on HR development.

Tigray's Success: Expenditures to Results

6.46 It has been reported that Tigray has been successful in translating public health expenditures into results. Table 6-19 provides average per capita spending in the sector by region from 1997-2002 using selected indicators. Similar to the expenditure patterns observed above for 2000/01 and 2001/02, spending has been highest in Benishangul-Gumuz, Gambella, Harari, Dire Dawa and Addis Ababa. On the other hand, expenditure per capita is relatively low in Somali and in the three largest regions (Oromia, Amhara and SNNPR). All regions[61] have improved their potential health service (PHS) coverage, indicating an increase in infrastructure/facilities.

6.47 *However, in many cases, the increase in PHS coverage did not translate into actual increases in services, i.e., an increase in immunization coverage or in attended deliveries.* In fact, the national immunization coverage declined by 31 percent, and the national average for attended deliveries decreased slightly. Comparing immunization and attended delivery indicators to per capita spending, those regions that spent more did not necessarily improve their health performance. For example, immunization coverage in Benshangul and Harari declined, while attended births only marginally increased for both regions, as well as for Gambella. The three largest regions (except Tigray) display similar low levels of performance of public funds (only Birr 6.0 to 7.0 per capita) used to finance their health services.

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[61] Addis did not have its PHS figure

6.48   Tigray and Afar also both have per capita spending levels that are greater than the national average and more than double that of the largest regions (Amhara, Oromia SNNPR). But despite higher levels of spending, Afar's already low EPI coverage declined from 12 to four percent while its attended deliveries coverage increased marginally to 2.8 percent, which was below the national average of 9.7 percent. (HSDP I Evaluation 2003). *Tigray appears to be the most successful in translating resources into high impact health interventions.* Its immunization coverage increased and is significantly higher than the national average. The coverage of pregnant women by attended deliveries is the third highest among all the regions, and Tigray has the highest FLHW-to-population ratio in the country as well. The region also has strong community-based organizations. In Tigray, staffing and equipment are determined based on the location of a facility; i.e. more surgery related staff would be deployed in remote HCs than in urban ones.

**Table 6-19: Relation Between Average per Capita Spending (in Birr)
by Region EFY1990-1994 (1997/98 to 2001/02) and
some selected Coverage Indicators at Baseline (EFY 1989, 1996/97) and in EFY 1994 (2001/02, end HSDP I)**

Regions	Ave. per capita Spending (1997-02)	PHS* coverage 1996/97	2001/02	EPI coverage 1996/97	2001/02	Attended delivery 1997/98	2001/02
National average	10.9	52	61	67	46	10	9.7
Emerging Regions							
Afar	15.0	52	74	12	4	1.0	2.8
Somali	7.4	31	37	NA	3	3.2	5.4
Gambela	52.8	191	286	21	29	13.0	13.8
Benishangul-G	34.3	151	197	35	21	8.2	8.6
Large Regions							
Tigray	17.6	59	76	68	77	30.6	26.6
Amhara	6.2	46	53	63	59	6.0	8.0
Oromia	6.5	51	57	40	44	7.1	7.5
SNNPR	6.6	49	60	34	31	8	7.3
City Councils							
Addis Ababa	20.4	NA	NA	73	65	43	33
Dire Dawa	21.7	48	113	47	41	22.3	21.5
Harari	58.9	72	157	63	55	33	38

*Note: Use of disaggregated data between per capita spending in EFY1990 (1997/98) and EFY 1994(2001/02) instead of using averages would have been more useful; especially since changes in coverage rates (and not average coverage rates) are being compared.
Source: HSDP I Evaluation 2003

Actual Capital Spending and the HSDP

6.49   A larger amount of funding comprises actual capital spending than the HSDP originally had anticipated. The HSDP Review underscores the disparities between the actual composition of expenditures under HSDP implementation as opposed to those projected in the HSDP plan. *A complete set of data was available for six regions from EFY1990 to 1993 (statistics from 1997-*

2001), which showed that actual spending on the rehabilitation and expansion of health facilities was significantly higher than planned for in the HSDP. In three regions, Tigray (41 percent), Amhara (26 percent), SNNPR (40 percent), capital spending was significantly higher than planned HSDP expenditures by about 18 percent, 17 percent, and 33 percent, respectively. On the other hand, expenditures on HRdevelopment, pharmaceuticals, health service delivery and quality of care have been relatively low in all these regions.

6.50   The need to achieve an adequate balance between the expansion and maintenance of acceptable delivery standards has been discussed extensively during both the HSDP Mid-term Review (2001) and the Overall Review (2003*). Coverage levels in Ethiopia remain low, and given the needs of the population, the expansion targets are not overly ambitious. Yet it will be important to ensure that the recurrent budget will be sufficient to keep up with facility expansion.*

6.51   Discussions with RHB staff during field visits indicate that two factors have contributed most significantly to the financing of HSDP I outside of the intra-sectoral priorities set out in the Program. The first is HSDP's inadequate integration of the planning and budgeting processes;[62] and the second is the development of a costing expenditure system that is based on historical expenditure trends rather than on strategic directions outlined in the HSDP (HSDP I Evaluation 2003).

6.52   *Given the limited available resources, it will be necessary to determine more efficient ways of delivering health services.* For example, further construction of HPs need to be accompanied by parallel training of health workers in order to adequately staff these facilities. In the process of rethinking the delivery of health services, it will be necessary to re-examine the nature of services offered in order to make them more responsive to the needs and demands of the population. In this regard, the health extension/community outreach program is a welcome complement to the facility-based services that have been traditionally offered by the public health system.

Donor Funding:

6.53   From 1997-2001, the health sector received a yearly average of US$57 million; 9.5 percent of the total aid that is available to the sectors (Table 6-20). Meanwhile, agriculture received the highest share of annual aid at 16.2 percent (US$85 million). However, *donor funding is difficult to account for because it has traditionally flowed through extra-budgetary channels.* External assistance travels to the government system along three pathways. Loans are included in the budget and in the accounts. In addition, most budget supported non-earmarked grants and some other grant funds are included in the budget. This is usually done on the basis of commitments presented by donors during budget preparation that are often not reflected in the government account. Lastly, an unknown amount of donor funds are provided in-kind. These resources are usually not captured in the budget process. All external technical assistance, direct

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[62]The health budget has been developed using four separate processes: recurrent budget, capital budget financed through treasury resources, capital budget financed through loans and external assistance, and off-budget resources. It has been difficult to relate annual HSDP outputs and budgets with these three processes, especially since the budget process has generally been done one based more on incremental increases based on historical requirements rather than having sufficient analysis of resource requirements. The overall FDRE budget process is also usually based on a one-year time frame while HSDP is planned over a five-year period (HSDP Review 2003).

procurement of pharmaceuticals, transport and equipment for hospitals provided by donors directly are examples of off-budget donor assistance. (HSDP Evaluation, 2003).[63]

Table 6-20: Sectoral Distribution of Aid in Ethiopia: Average 1997-2001 and Most Recent Year

Sector	Average 1997-2001 (US$ millions)		2002 (est.) (US$ millions)	
Agriculture & Natural Resources	85	16.2%	81	8.1%
Transport	80	15.2%	148	14.9%
Multi-sector & Area Development	64	12.2%	114	11.5%
Health	57	10.9%	109	11.0%
'Economic Management' (Primarily Budget Support)	55	10.5%	291	29.2%
Education	51	9.7%	71	7.1%
Energy & Other Infrastructure	50	9.5%	57	5.7%
Social Development	50	9.5%	72	7.2%
Misc. & Unspecified	33	6.2%	52	5.2%
Sub-Total	**525**		**995**	
Source: UNDP Development Cooperation Report 2002 cited in PER 2003				

6.54   Off-budget funding enables donors and recipients to avoid the government's financial procedures (often considered cumbersome) as well as the regional offset (HSDP I Evaluation 2003). However, these contributions are often difficult to track. For example, the government has only partial information on the actual level of spending because public spending on medicines is largely done with donor funds. As a result, the GOE's ability to accurately determine whether it is allocating too much or too little of its own budget for a specific item or budget category is affected. The ability of regional and woreda level officials to effectively plan by assessing the amount of money actually available and/or being spent is diminished Off-budget donor supported programs have also not been taken into consideration in the planning process for determing future recurrent costs. Finally, having incomplete expenditure and budget information also affects the assessment of health sector performance as the lack of information influences various indicators for analysis, including expenditure per capita (HSDP Evaluation 2003 and PER 2003).

Cost Recovery Revenues

6.55   *Cost recovery does not represent a large share of public health system revenues.* Cost recovery has been part of the Ethiopia's health system since the early 1950s. At both government and non-government facilities, users pay for registration, medical certificates, diagnosis, dental and ophthalmologic services.[64] Nominal amounts are charged, ranging from small fees (Birr 1 to 5) for outpatient registrations, consultations, laboratory tests, and other routine diagnostic procedures, as well as inpatient beds; to higher fees (Birr 10 and above) for prescription drugs and inpatient surgical procedures.

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[63] Note however that this information excludes a number of sector-specific aid operations that are financed off-budget and/or incompletely reported.

[64] PHRD Health Sector Synthesis Report, 1996.

6.56   Patients can be exempted if they obtain a free paper from their kebele certifying that they are too poor to pay. Certain services are also free, including treatment of tuberculosis, family planning, and childhood immunizations. Criteria for granting free healthcare services is principally based on the direct monthly income of the individual. (However, this criterion has changed over time). Currently, anyone with a monthly income of less than Birr 105 would be eligible (MOH/HCF/2001). As a consequence, the majority of patients visiting government facilities pay nothing. However, some poor people may still be dissuaded from using services because they have to pay a token amount for services (about Birr 0.50 or Birr 1.0), and must invest time in obtaining the exemption.

6.57   No changes were made to this policy until 1998, with the initiation of the new Health Care and Financing Strategy. When originally introduced, fees recovered a substantial portion of the total costs of providing the services. However, the level of fees remained unchanged for almost 50 years, and today it has become almost symbolic. Table 6-21 shows that about 60 percent of users received a fee waiver and about 66 percent obtained full exemptions (FMOH 2003). As a proportion of GOE health expenditures, fee remittances to the MOF have declined from 16 percent in 1986 to less than six percent in 1995/97.

Table 6-21: Proportion of Free Patients to Total Patients and Estimated Foregone Revenue by Health Facility

Type of Health Facilities	Total Number of patients	Percentage of Waived Patients	Revenue Foregone (000 Birr)
Hospitals at zones	139,648	73	616.9
Hospitals at the regional capital	143,874	73	967.1
Subtotal	283,522	73	1,584.1
Health Centers at zones	163,501	51	176.6
Health centers at regional capital	128,517	71	1,240.8
Sub total	292,018	60	1,417.4
Grand Total	575,540	66	3,001.6
Source: FMOH 2003. Fee Waiver and Exemption Study cited in ESHE/HCF 2003			

6.58   Fee totals are traditionally small, yet even these small amounts could make a difference in recovering facility costs if they were reinvested. However, usually they are not reinvested to improve services at point of delivery because the fees are not held at the facility level. With the exception of SPs and some hospitals in SNNPR, all fees collected are remitted to Regional Finance Bureaus, then forwarded to the MOF, which accounts for them as general government revenues.

6.59   In terms of insurance mechanisms, in 1996, there was only one state-owned insurance company that covered 11,000 workers and operated in conjunction with workmen's compensation programs (PHRD Health Sector Synthesis Report, 1996). At present, aside from the government-owned insurance company, there are seven additional private insurance companies in Ethiopia (NBE 2000).

Public Spending and the Poor

6.60   The poorest segment of the population benefits little from public spending, although utilization of services is low across all income quintiles (Table 6-22) (DHS, WMS 2000). The rich-to-poor ratios in terms of utilization are lowest for HPs and health stations/clinics (0.2 and 0.5 respectively), slightly higher for HCs, and highest for hospitals (about 6.0). It is interesting to note that the largest shares of public capital and recurrent expenditures were allocated towards hospitals (approximately 40 percent and 38 percent, respectively) in 2000/01.

6.61   Based on the latest available data,[65] the capital expenditure share for health stations/clinics was only about 5.0 percent in 1999/2000. Perhaps this relatively low figure is a result of the FMOH's decision to phase out HSs as part of the move from the six-tier system of health service delivery to the four-tier system. However, HCs also represent a low percentage share of total public capital expenditures (13 percent for 1999/2000). The combined share of PHCUs (HCs, clinics and HPs) in terms of public recurrent expenditures was about 30 percent in 2000/01; 38 percent lower than public recurrent expenditures allocated to hospitals. Various health programs only represent a very small share of total capital and recurrent expenditures. [66]

6.62   There are marked differentials by income quintile across households regarding the use of basic health services. The poorest households consistently have the lowest utilization rates for immunization, assisted deliveries and antenatal care by a trained professional. The richest to poorest ratio (27.0) is highest for the use of assisted deliveries. About 24 percent of women in the richest households have had an assisted delivery compared with less than one percent of women in the poorest households. **Nonetheless, *it is important to note that while income differentials with regard to access are high, absolute levels of use are still low even among the richest households.*** There is a clear need for improved access to basic health services for young children and mothers. While some incremental increases could result from allocating a larger proportion of expenditures from hospitals to PHC, over-all public health expenditures would need to be increased to improve the quality and accessibility of health facilities at all levels.

Table 6-22: Use of Health Facilities and Services: National Data per Income Quintile

	Q1	Q2	Q3	Q4	Q5	Richest to Poorest Ratio
% Use of health posts (WMS)*	4.8	5.1	10.0	5.2	0.9	0.2
% Use of health stations (WMS)	49.5	53.3	44.5	45.9	26.2	0.5
% Use of health centers (WMS)	26.3	20.3	23.4	28.5	41.9	1.6
% Use of hospitals (WMS)	3.2	5.2	6.7	4.9	18.4	5.7
Use of immunization services: all vaccinations received (DHS00)	6.7	5.6	15.4	15.1	33.3	4.9
Use of assisted delivery services (DHS00)	0.9	1.5	1.4	4.8	24.3	27
Use of antenatal care by a trained professional (DHS00)	15.3	16.4	20.6	28.7	58.2	3.8
Source: WMS, PER03, DHS2003						

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[65] Recurrent expenditure data were available for 2000/01, but capital expenditure data was only available for 1999/2000.

[66] The recurrent share of various programs is not as easy to calculate because it has been combined in the "others" category, which has a total share of 11% of recurrent spending.

Woreda Decentralization: Preliminary Experiences and Issues

6.63   Experiences related to decentralization at the woreda level are still relatively limited. Based on the available information, some transitional issues have emerged as a result of the rapid decentralization, which commenced in July 2002. These issues are mostly related to the rebalancing of allocations; lack of clarity on responsibilities and expenditure assignments; and budget formulation and reporting.

6.64   *The block grants were mainly based on a population-based formula and did not necessarily correspond to existing obligations.* For example, more developed woredas have large numbers of facilities such as schools and health facilities as well as additional administrative staff per capita; in these cases the block grant was insufficient to cover their operating costs, particularly the staff wages. On the other hand, less developed woredas have fewer facilities; tend to have a number of empty positions due to difficulty in attracting staff; and therefore incur less recurrent costs. According to the PER (2003), the regions are addressing these issues pragmatically through "rebalancing as well as certain ad hoc arrangements and contingency funds." However, in many cases, the transfers are only able to cover recurrent expenditures, mainly salaries, thereby increasing the risk of unfunded mandates (especially in cases of service coverage expansion). For example, in Oromia, the block grant allocated for woredas is insufficient to handle the resource needs of the various sectors. If not addressed, this shortage of resources could hinder the achievement of the MDGs (Okubagzhi HSDP Trip Report, 2003).

6.65   *The woredas also face capacity constraints that tend to increase the gap between budgets and actual spending.* MOFED data indicate that budget execution was only 80 percent in 2000/01, chiefly due to lags in capital spending (PER 2003). HSDP I Evaluation data show that half of the regions have budget execution rates below 70 percent. Problems in the planning and implementation of investment plans, in addition to difficulties in utilizing donor funds, are cited as the principal reasons for low execution. Capacity constraints can also exacerbate reporting lags. Prior to woreda decentralization, significant delays in reporting on sectoral allocation of budgets and actual expenditures existed. For example, even by 2003, reporting on actual expenditures by program and sub-item were only available for 1999/2000, which constitutesa lag of three years. Thus, efforts need to be made to improve partial reporting (PER 2003).

6.66   The costs of the additional staffing and infrastructure, which would strengthen the capacity of woredas to be able to manage their new responsibilities, could be substantial. While the need for institutional strengthening is expected and understandable, there is a risk that this type of reinforcement might come at the expense of the strengthening of essential services such as education or healthcare (PER 2003).

6.67   Another issue to be addressed is the assurance of the achievement of national goals within the context of decentralization to the woreda level. Adequate sensitization of woreda stakeholders to these goals and to the importance of achieving them must be undertaken. This becomes particularly important based on the HSDP I Evaluation (2003), which notes that both zonal and woreda level stakeholders were not well informed about HSDP goals. Moreover, capacity building activities in terms of planning, budgeting and monitoring/supervising must be

provided to woreda administrators. In moving forward it will be important to ensure that sectoral priorities are achieved, particularly in terms of reaching the MDGs. In this regard, some benchmarks should be set focusing on key performance indicators with incentives for accomplishment. The SNNPR region has moved forward in this area by creating performance contracts for its woreda councils based on a set of core indicators (CSR February 2004 mission). Future budgets for the woredas, as well as pay increases for the woreda council members, are related to woreda performance in terms of these key indicators. Tigray has also established some performance incentives. It will be important to learn from these regional experiences, as well as continue to identify strategies being developed by other regions.

Box 6-1: Examples of Early Experiences with Block Grants

In **Oromiya**, about 58 percent of the regional budget was transferred as block grants. It is estimated that 38 percent of expenditure at the woreda level was covered by own-revenue, and the balance was insured by the block grant. After applying the formula, about 35 large woredas received insufficient resources. A combination of reallocation and contingency funds was used to address the financing gap. The region maintained considerable control of capital spending.

In **Tigray**, zones have been dissolved. There are currently two types of local government authority: (1) woredas with responsibility for primary and secondary health and education, rural water supply, local roads and agricultural extension; and (2) urban authorities, with the same functions as woredas, plus traditional local government functions such as street lighting, waste removal, etc. The block grant represents about 55 percent of regional spending. The region provided budget guidelines to the woredas, suggesting 15 percent capital and 85 percent recurrent spending: 61 percent for health and education, 26 percent rural development, and 13 percent for administration and justice. Additional transfer mechanisms were introduced alongside the block grant to compensate for imbalances, including a rural hardship allowance, contingency fund and sectoral capital grants (to cover on-going health and education projects).

In **SNNPR**, a decision was made to retain zones; partly because of the diversity of nations and nationalities in the region. About 72.5 percent of the budget was transferred to woredas and 12.5 percent to zones. Zones were used to rebalance where there were mismatches due to application of the formula. Concerns expressed by regional and woreda officials included the costs of decentralization; management of the investment strategy across woredas; capacity to implement capital budgets at the woreda level; and handling of any unspent capital funds under the block grant. Woreda officials were concerned about the lack of capacity; and most say their first priority is administrative staff and buildings and equipment. The Regional Health Bureau has recently established performance agreements with the woreda councils based on five indicators. These indicators are:
(1) Immunization coverage
(2) Family planning
(3) Sanitation (access to latrine)
(4) Outpatient service utilization
(5) Health post construction
Woredas' budgets and the performance evaluation of the woreda council members are also linked to their evaluations. Implementation of this performance agreement is still in its preliminary stages, but it is worth following up on and learning from.

Source: Regional notes on fiscal decentralization (PSCAP); PER mission visits as quoted in the PER (2003), and CSR February 2004 visit.

7. SPENDING MORE . SPENDING BETTER. THE COST AND POTENTIAL IMPACT OF ALTERNATIVE SERVICE DELIVERY OPTIONS FOR HIGH IMPACT INTERVENTIONS IN ETHIOPIA

7.1   This chapter evaluates the potential cost and impact of the country's efforts to strengthen the contribution of health services to achieving health outcomes in the context of the National Strategy for Development and Poverty Reduction (SDPRP). In particular, the chapter examines the potential cost and impact of increasing the coverage of highly effective preventive and curative health interventions for rural and poor households in accordance with current and envisioned health service delivery strategies and policies. Specifically, the following questions are addressed in this chapter:

- How much extra money would be needed to increase the effective coverage of high impact health services interventions from the current level to meet the HSDP II target, and then further to achieve the 2015 MDG targets?
- What results, in terms of the reduction in child and maternal mortality, could be expected (on the basis of the most recent knowledge available) from the disbursement of these extra funds?

7.2   To respond to these questions, this report initially relied on the Marginal Budgeting for Bottlenecks (MBB) Tool[67] developed by the World Bank, UNICEF and WHO,[68] and also validated the results through national and international expert opinion groups and compared the findings with the outcomes of other studies.

7.3   The MBB, an analytical costing and budgeting tool assisting policy makers to plan and manage health programs, helped to:

- Guide a country-based process of identification of bottlenecks to the successful service delivery of high impact interventions;
- Calculate the incremental cost of removing systemic and intervention-specific bottlenecks to achieve effective intervention coverage; and
- Estimate the potential impact of health interventions on health outcomes, such as rates of child and maternal mortality, HIV/AIDS and malaria-associated mortality.

Applying the MBB Tool in Ethiopia: Process and Methodology

7.4   The MBB study in Ethiopia builds on the collaboration among teams from the World Bank, UNICEF, USAID, WHO and the Ethiopian Government. The exercise was led by the Planning Department (PPD) of the Federal Ministry of Health (FMOH) with the participation of various FMOH departments/teams including Family Health, TB Control, HIV/AIDS Control, the

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[67] The fact that MBB focuses on marginal and incremental cost and impact makes it a particularly helpful tool to estimate the extra efforts and resources needed to reach the MDGs.

[68] Refer to annex 2 for a description of the MBB approach and tools

Health Services Extension Package (HSEP), as well as the Health Care Financing and Health Service secretariats. The USAID-funded Essential Services for Health in Ethiopia (ESHE) project played an essential role in providing technical support to the MBB Ethiopia project.

7.5   Numerous work sessions were held to discuss the achievements and constraints in the health sector and to collect health intervention coverage baseline and cost data needed for the MBB analysis. The MBB analysis relied on existing information at the country level including survey data (DHS and Ethiopia Welfare Monitoring Survey) and government documents (program reports, action plan etc.), especially HSDP II documents. Additional information from studies outside Ethiopia were also used when Ethiopia-specific information was not available.

7.6   The analysis followed five main steps:

(a)   Define the high impact health interventions, which, if used more frequently by Ethiopian households and made more accessible to a larger number of affected populations; would likely lead to improved health outcomes (based on most recent national and international epidemiological evidence and national policies);

(b)   Identify existing and planned service delivery strategies that would improve not only provision, but also demand for the interventions;

(c)   Identify bottlenecks hampering the implementation of these service delivery strategies;

(d)   Set health coverage boundaries, i.e. identify how far service delivery can go; and

(e)   Estimate the potential impact and cost of various health service delivery options.

Step 1: Identify High Impact Interventions that Need to be Strengthened in the Ethiopian Health Services Delivery System

7.7   The recent Lancet[69] series on child survival and newborn health[70] has re-directed attention to the field of child health. One of the contributions of the Lancet papers is a meta-analysis based identification of health interventions which have been scientifically proven to be effective in reducing child mortality. A similar effort has been made by the World Bank, WHO and UNICEF in reviewing the literature on the efficacy of interventions to reduce maternal mortality on the basis of a Cochran analysis. Evidence from the Roll Back Malaria Partnership and UNAIDS[71] was used to identify effective interventions for malaria and HIV/AIDS.

7.8   On the basis of these meta-analysis reviews and discussions with the FMOH, a list of Ethiopia-specific potential high impact intervention activities was defined. The selection criteria for health interventions included knowledge on the efficacy of MDG-related health indicators; Ethiopia's epidemiological profile; the country's current health policy; and recent

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[69] Lancet. 2003 Child Survival:361,362

[70] Lancet, 2005, forthcoming

[71] Key references used for this analysis in addition to UNAIDS guidelines included : 1. Kahn, JG and E. Marseille (2000). "Fighting global AIDS: the value of cost-effectiveness analysis." AIDS 14(16): 2609-10; 2. Marseille E, Hofmann PB, and Kahn JG. HIV prevention before HAART in sub-Saharan Africa. Lancet. 2002 May 25;359(9320):1851-6. 3. Weidle PJ, Malamba S, Mwebaze R, Sozi C, Rukundo G, Downing R, Hanson D, Ochola D, Mugyenyi P, Mermin J, Samb B, Lackritz E.Assessment of a pilot antiretroviral drug therapy programme in Uganda: patients' response, survival, and drug resistance. Lancet. 2002 Jul 6;360(9326):34-40.

implementation experience. Most interventions examined were already recognized in the country's national policy. Other interventions were not, but were included in the MBB exercise on the basis of international recommendations. This was the case, for example, for home-based treatment of respiratory infections with antibiotics (oral or injectable).

Step 2: Identifying Country-Specific Service Delivery Strategies

7.9   The MBB tool proposes three main delivery modes: 1) population-oriented outreach services; 2) family/community-oriented services; and 3) clinical individual-oriented services. This latter mode is subdivided into primary, first referral and second referral levels. These delivery modes are service-based as opposed to facility-based. Health intervention activities are also grouped by delivery mode instead of by the level of facility delivering the services. For example, population-oriented services are conducted by both HPs, HCs and mobile units in some regions (for example, Somali).

7.10   In the Ethiopian context, the newly developed approach of the Health Services Extension Package (HSEP) is the main outreach vehicle delivering population-oriented services to the majority of the country. The services delivered are standardized for a given population. In Ethiopia, the services include immunization, vitamin A supplementation, de-worming and vector control (Table 7-1).

7.11   The "community promoters" approach has been tested in both Tigray and SNPPR for the delivery family/community-oriented health services. Those services focus on health-conducive family practices and behaviors, integrating the support of media and locally trained health promoters to promote hand-washing, breastfeeding, and use of bed nets (Table 7-2).

7.12   In the public sector, HCs, hospitals and, sometimes health stations all deliver clinical services that cater to discretionary illnesses. In the private sector, NGO clinics, pharmacists (qualified or not), and traditional healers are also involved in delivering clinical care (Table 7-3).

7.13   The comparisons between the generic list and the Ethiopia-specific list of interventions through the three delivery modes show that most high impact interventions are already included in Ethiopia's intervention package (Tables 7-1 to 7-3). One exception is that anti-malaria drugs and antibiotics for the treatment of children's ARI, although highly effective, are not recommended by the FMOH for delivery by family/community-oriented services. Those interventions are to be made available through clinical services comprising of a professional provider (i.e. at HCs and in some regions at health stations level according to current policy). Potential benefits and costs of changing this policy are examined below.

Table 7-1: Health interventions included in the HSEPStrategy
and Delivered by Population-oriented Outreach Services

Ethiopia Health Services Extension Package (HSEP)	High impact interventions in Lancet and WHO Review	Cost items
Preventive care for adolescent girls & women of childbearing age: • Family Planning: Depo Provera@ • Treatment for Iron deficiency in pregnancy • Tetanus toxoid vaccination	**Preventive care for adolescent girls & women of childbearing age:** • Family Planning • Treatment for Iron deficiency in pregnancy • Tetanus toxoid vaccination	1. Essential materials, drugs, supplies, vaccines 2. Human resource: salary, incentive, housing subsidies
Preventive Care for Pregnant and Newborn • Folate supplementation in pregnancy Tetanus toxoid vaccination • **Intermittent Presumptive Treatment against malaria** • Postnatal & Newborn care	**Preventive care for pregnant women and newborns** • **Folate supplementation in pregnancy** • **Tetanus toxoid vaccination** • Intermittent Presumptive Treatment against malaria • Postnatal & newborn care	3. Cost to periodic session 4. Cost to new health post 5. Cost to mobile team 6. IEC. 7. Training, supervision
Preventive infant & child care • Routine Measles/DPT3 immunization • Vitamin A supplementation	**Preventive infant & child care** • Routine Measles/DPT3 immunization • Vitamin A supplementation	

Table 7-2: Health Interventions iDelivered by Community Health Promoters or Family/Community-oriented Services

Ethiopia intervention packages	High impact interventions in Lancetand WHO Review	Cost items
Preventive maternal & neonatal care: • Pregnant women using insecticide treated net • Newborn temperature management • Clean home delivery • Condom promotion	**Preventive maternal & neonatal care:** • Clean home delivery by TBA • Newborn temperature management and KMC • Pregnant women using insecticide treated material • Condom promotion	1. Stock of essential commodities: bed nets, safe water system, chlorine, latrine, home delivery kit, etc.
Preventive infant & child care: Exclusive breastfeeding 0-5 months Prolonged breastfeeding 6-11 months Hygiene/ hand-washing promotion Under Fives using insecticide treated nets Complementary feeding	**Preventive infant & child care:** • Exclusive breastfeeding for children 0-5 months • Prolonged breastfeeding for children 6-11 months • Water/sanitation/hygiene promotion • Under-five using insecticide treated materials • Complementary feeding • Supplementary feeding for malnourished children • Zinc prevention • Detection and treatment of	2. Cost of community health session 3. Utilization of essential commodities 4. Incentives 5. Training, supervision and monitoring
Management of maternal, neonatal & childhood illness: • Oral Rehydration Therapy (ORT/ORS) • Not included • Not included	**Management of maternal, neonatal & childhood illness:** • Oral Rehydration Therapy • Home treatment with antimalarials • **Home treatment by cotrimoxazole for ARI** • **Home treatment of neonatal** sepsis by **gentamycine** • Zinc treatment for diarrhea management	

Source: Authors developed tables based on HSDP HSEP documents and the Lancet article.

Table 7-3: Health interventions included in the Clinical Individual-oriented Service Delivery Strategy

Ethiopia intervention packages	High impact interventions in Lancet and WHO Review	Cost items
Preventive maternal & neonatal care: • Delivery by skilled attendant • PMTCT (Nevirapine: Prevention of Mother to Child HIV Transmission) • Antenatal steroids • Antibiotics for premature rupture of membranes	**Preventive maternal & neonatal care:** • Delivery by skilled attendant • Nevirapine and replacement feeding • Antenatal steroids • **Antibiotics for Premature Rupture of Membranes**	1. Essential materials, drugs, supplies
Clinical primary level care: • Oral Antibiotics by skilled health worker for pneumonia and neonatal sepsis • **Anti-malarials by skilled health worker resuscitation** • Management of RTI/STI • Management of malnutrition including anemia • **Management of PHLA (Anti-Retroviral Drugs)** • Management of tuberculosis	**Clinical primary level care:** • Antibiotics for pneumonia • Anti-malarials by skilled health worker • Resuscitation/emergency newborn care • **Management of RTI/STI** • **Treatment for iron deficiency in pregnancy**	2. Human resources: salary, incentive, housing subsidies 3. Construction costs 4. Equipments
Clinical first referral level care: • Basic emergency obstetric care • Injectible antibiotics for neonatal sepsis & severe childhood infections • Management of opportunistic infections	**Clinical first referral level care:** • Basic emergency obstetric care • Injectible antibiotics for neonatal sepsis & severe childhood infections	5. Training, supervision and monitoring
Clinical second referral level care: • Comprehensive emergency obstetric care • **Prevention & management of complications from abortion**	**Clinical second referral level care:** • Comprehensive emergency obstetric care • **Prevention & management of complications from abortion**	

Source: Authors developed tables based on HSDP HSEP documents and the Lancet article.

Step 3: Identifying Bottlenecks Hampering Effective Coverage Using High Impact Interventions

7.14   For each service delivery arrangement, the MBB approach helps guide the measurement of five key determinants of coverage of services. These determinants measure the extent to

which the system and the communities are moving toward the ultimate goal of providing effective coverage using high-impact interventions that will contribute to reducing child and maternal mortality. This step is particularly useful for a country like Ethiopia where the institution and implementation capacity gap is substantial. The bottleneck-identifying process can help the country pinpoint whether gaps exist in the supply side (human resources, essential drugs and materials, quality of services) or in the demand side (initial and continuous utilization of the services). The five key determinants are:

- *Availability:* This indicator includes assessing the availability of critical health system inputs such as drugs, vaccines, supplies and/or human resources. This information is obtained from stock registers, personnel information systems and facility surveys.
- *Accessibility:* This indicator describes the physical accessibility of health services for the clients. It includes the presence of trained human resources at the community level; the number of villages reached at least once a month by outreach services; and the time taken to reach a facility providing basic and emergency obstetric and neonatal care services.
- *Utilization:* This indicator tracks the first use of multi-contact services (e.g., the first antenatal contact or bacillus calmette guerin (BCG) immunization). Household surveys and service statistics reported at facilities are the main sources of information. Service records, however, need to be validated.
- *Continuity:* This indicator describes the extent of achievement compared to optimal contacts and services (i.e., percentage of children receiving DPT3 or measles immunization, in relation to the percentage of women receiving three antenatal contacts). Thus, this indicator documents the continuity and compliance of care.
- *Quality:* This determinant documents the quality of care as measured by assessment of the skills of the health workers. Skills are assessed in terms of the workers' ability to: (a) examine the beneficiary; (b) provide a diagnosis and the requisite interventions; (c) use the equipment properly; and (d) advise appropriately.

7.15   Bottlenecks are identified on the basis of a set of indicators measuring determinants for each service delivery mode. These country indicators use either accepted international standard indicators or specific system indicators developed to monitor health services achievements in the country. The value of these indicators was measured using surveys and service data. Measures were then revised and validated by expert groups, including the Child Survival Group established with the support of UNICEF, WHO, USAID and the World Bank.

Step 4: Setting the Frontiers of Health Service Coverage

7.16   In order to simulate the potential cost and effects of various strategies to deliver high impact interventions, various scenarios for reaching the performance frontier of the Ethiopian health system have been envisioned. The cost and impact of implementing these scenarios has been examined in terms of various options for expanding geographical access and options for removing the gaps or bottlenecks in demand, continuity and quality.

Figure 7-1: Examples of Identifying Bottlenecks and Setting Coverage Frontiers for Immunization, ORT Use and Assisted Delivery Services
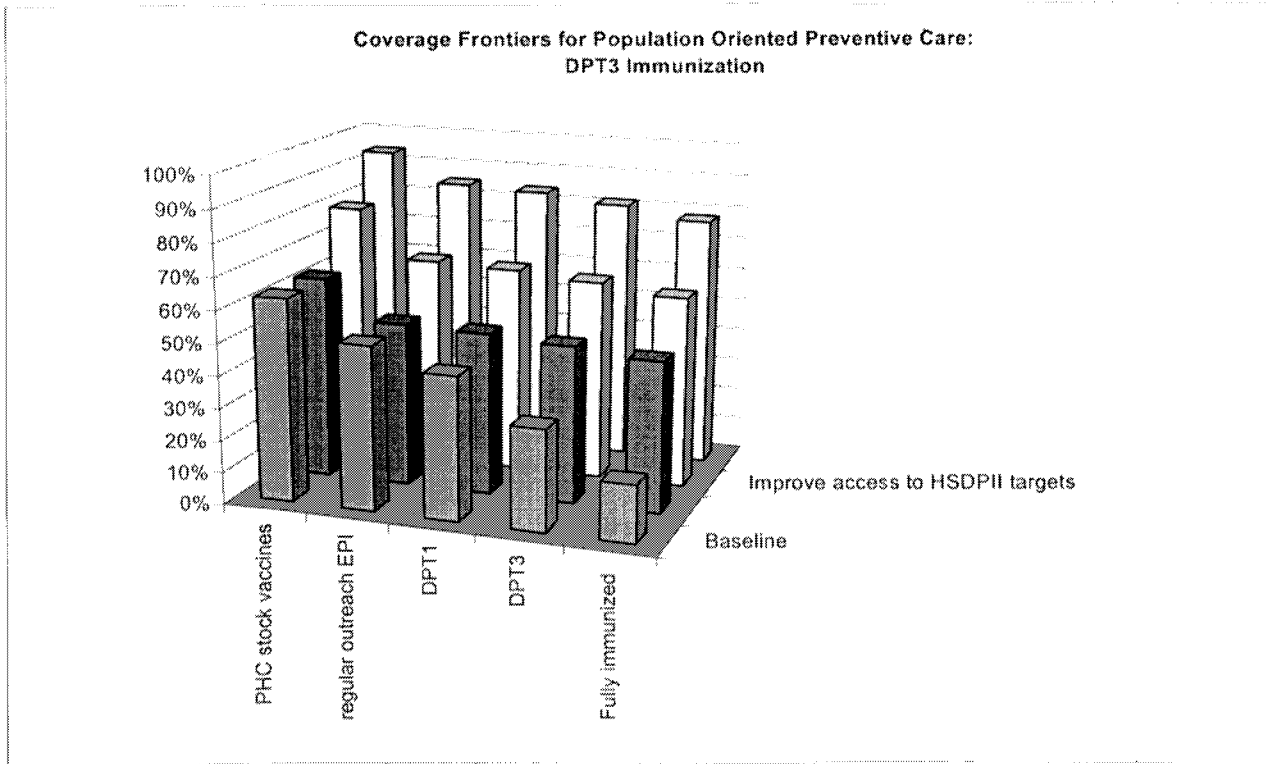
Source: Authors' calculations.

7.17 Options for geographical access include the following:

- *Base Access:* the current physical access level
- *HSDP II:* increased access (improving access to health services) to meet the targets of HSDP II, including access to outreach services (65 percent of the population) and clinical care (45 percent); as well as some specific targets for different health programs such as malaria prevention, EPI etc.
- *Expanded access:* This scenario would require significant investments in infrastructure, training and remuneration of human resources. This scenario has more ambitious targets of the HSEP reaching 85 percent of the population; support for family care/health promoters covering 71 percent of households; 70 percent the population living within five km of a facility providing primary clinical care; and first- and second-level referral care reaching 60 percent of the population.
- *Maximum access:* This scenario is the most ambitious and would likely require significant changes in the macro-economic and infrastructural contexts of Ethiopia. This scenario has been used essentially for projecting potential cost and impact associated with reaching all the health MDGs; including maternal mortality targets and the addition of the large scale treatment of HIV/AIDS patients as part of the MDGs needs assessment exercise. This scenario assumes an access target of 95 percent for the HSEP, 80 percent for community-based promotion services and 70 percent for clinical services.

7.18 In addition to options for expansion of geographical access, other alternatives have been examined for implementing Ethiopia-specific strategies to remove the bottlenecks, which hinder achievement of increased quality, continuity and utilization of services These bottleneck removal options outline possible progressive improvements in coverage (with enhancement of demand), as well as in the continuity and quality of alternative service delivery arrangements (including the proposed HSEP and health promotion strategy) (Table 7-4).

7.19 The baseline health service coverage data for each health intervention are collected from the country and published survey data such as the Demographic and Health Survey of 2000. Each of the scenarios has coverage frontiers to measure the extent to which health service coverage can be increased; which, in turn, the established estimates of the marginal cost and impact of increasing coverage with the chosen high impact health interventions. Frontiers were estimated and validated by expert groups of the FMOH; and assistance was provided by technicians from development partner agencies. The setting of the frontiers was informed by estimates of access, availability, and elasticity of demand; Ethiopia's experience in delivering health services; as well as specific studies on the elasticity of demand and the specific quality-density trade offs.[72]

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[72] See Chapter 3, Household Behaviors; and Collier, P. Dercon S., MacKinnon J., 2003 " Density versus Quality in Health Care Provision: Using Household Data to Make Budgetary Choices in Ethiopia." The World Bank Economic Review 16(3): 425-48.

Table 7. 4: Ethiopia's Strategies and Key Inputs to Remove Bottlenecks Prohibiting Health Service Delivery

	Ethiopia's Strategies	Key Inputs
Improving Availability	Training a new cadres of health workers with alternative skill mix (health promoters and HEW)	Training and compensation of Health Promoters
	Upgrading cadres of obstetric nurses	Training and compensation of HEW
	Drug Revolving Funds (special pharmacies)	
	Bed nets, condoms, ORT, chlorine, chloroquine available in retail/pharmacy outlets	Hardship allowances
		Drug stocks/revolving funds
	Cold chain in every health post	Additional equipment including cold chain equipment
	Buffer stocks of vaccines	
Improving utilization of services	Social Marketing,	Commodities
	Rural radios programs	Rural radios
	IEC through health promoters	IEC material
	Fee exemptions for the poor	Additional drugs
	No fees for contraceptives, bed nets, vaccines, vitamin A	Food
	Conditional cash transfers (eg food aid or free bed nets conditional to use of immunization, assisted delivery)	
Improving Continuity	Performance based incentives (performance contract between region and woreda on key indicators including number of fully immunized children, number of women using family planning)	Performance bonuses for staff Matching grants for woredas
Improving Quality	Increased number of supervisors	Training and compensation of supervisors, trainers, facilitators
	Participative monitoring	
	Refresher training	

7.20   The tool subsequently allows estimation of the potential impact on the U5MR and MMR, as well as the potential incremental cost linked to the implementation of these scenarios. Impact was estimated with the help of an epidemiometric model that calculates the efficacy of health interventions and measures the contribution of each intervention to the reduction of mortality in a residual way (see Annex 2).

The Reduction of Bottlenecks: How Much is Enough?

7.21   To respond to this question, four scenarios of bottleneck reduction were initially examined. The first scenario is the base situation in which gaps in demand, continuity and quality are not addressed. The second scenario (50 percent gap reduction in quality, continuity, and utilization bottlenecks) targets the potential improvement of health services (within the current constraints of the health system). These scenarios require few resources but would likely produce only small margins of improvement.

7.22   The third scenario (75 percent gap reduction) takes into account capacity building activities, including institutional and human resource capacity as well as other incentives. The fourth scenario displays the maximum level of reduction of bottlenecks (90 percent), because it calls for significant additional investment in increasing quality (and therefore demand)

by providing performance-based bonuses, incentives for supervision and monitoring and demand-side subsidies.

7.23 Each of the bottleneck removal scenarios reflect the extent to which the service bottleneck will be tackled and how many resources will be made available. The simulation of the gains and costs of reduction suggests that it is a worthwhile strategy to pursue even given the present geographical access level. At the current level of access (base access), maintaining the current cost structure; and reducing bottlenecks in demand, continuity and quality by 50 percent; may contribute to reducing U5MR by 12 percent and MMR by five percent at an annual cost of US$0.34 per capita. Reducing bottlenecks by 75 percent may further reduce the impact on U5MR by 27 percent and on MMR by 17 percent at a cost of US$0.95 per capita. Finally, reducing bottlenecks by 90 percent may decrease U5MR by 30 percent and MMR by 20 percent at a cost of US$1.57 per capita (see Figure 7-2).

7.24 The simulation suggests that it is worthwhile to decrease bottlenecks even though enhancing utilization and continuity translates into using demand-side financing (such as conditional cash transfers for outreach and clinical services) and incurring extra travel costs for supervision. The cost is largely offset by the additional impact gained. Adding incentives from the supply and demand sides to create reductions of 75 percent to 90 percent are also beneficial as these cut-backs would significantly diminish U5MR.

7.25 Overall, by reducing bottlenecks by 90 percent, it may be possible to decrease U5MR by 33 percent and reduce MMR by almost 25 percent, all for an additional US$1.50.

Figure 7-2: Impact of the Reduction of Bottlenecks on Quality, Continuity and Demand of Services by 50%, 75% and 90% Respectively
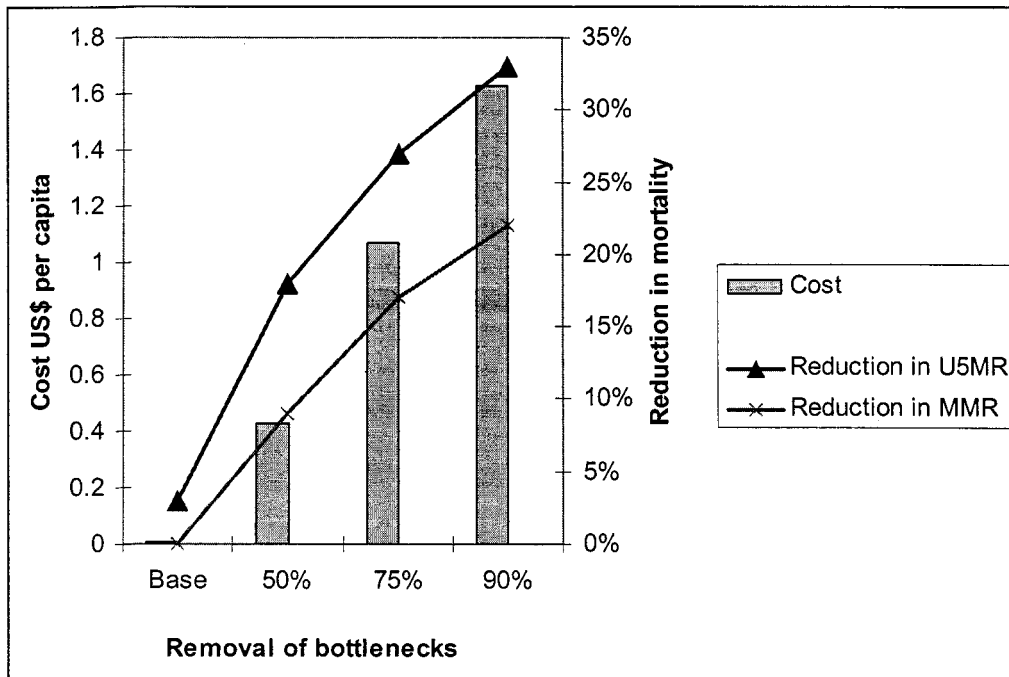
Source: Authors' calculations based on DHS, WMS and MOH data

Density vs. Quality of Health Care Provision

7.26   Increasing access without reducing bottlenecks or reducing them partially, would most likely have a small impact at quite a substantial cost. Even expanding access to the maximum people possible within the physical and logistical capacity of the Ethiopian infrastructure base (Access Scenario 3) would probably only reduce U5MR by ten percent and reduce MMR by one percent at a per capita cost of US$2.00. This simulation suggests that merely increasing access buys less results than effectively addressing bottlenecks. (Figure 7-3). This result, obtained through the MBB simulation tool (an essentially non-parametric model based on the country planning exercise), is consistent with the analysis conducted by Collier and et al. (2003) using various parametric models (see Box 7.1).

Box 7-1: Density versus Quality In Health Care Provision: current evidence from Ethiopia

This analysis done by Collier et al. combines household survey data on health care choices in rural Ethiopia with budget data on the costs of health provision to analyze the trade-offs between the density and quality of service provision. Several different probit and logit models are used to assess the access/quality trade-offs. The analysis concludes that at the current level of efficiency, an increase in expenditures of Birr ten million would raise usage about 0.6% if spent on quality improvements, but only 0.1% if spent on additional facilities. The authors conclude that given the current allocation of the budget, quality improvements (i.e. increased availability of drugs, personnel and equipment) appear to be more effective in increasing usage than building additional facilities.

Reference: Collier, P. Dercon S., MacKinnon J., 2003 " Density versus Quality in Health Care Provision: Using Household Data to Make Budgetary Choices in Ethiopia' The World Bank Economic Review 16(3): 425-48.

**Figure 7-3: Reduction in Mortality and Costs Associated with Increased Access
without Addressing Bottlenecks**
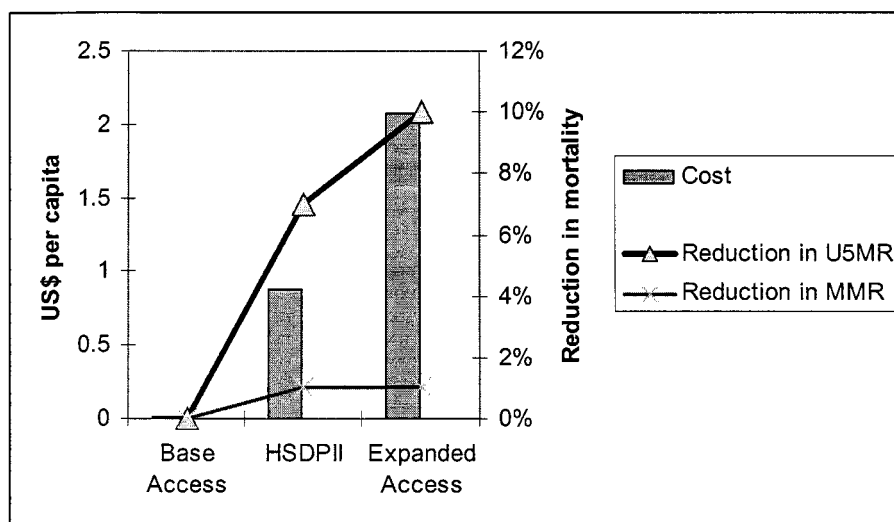
Source: Authors' calculations based on DHS 2001, WMS and MOH data

Step 5: Variances in Impact and Cost of Addressing Different Bottlenecks

7.27   *Impact and cost of addressing various bottlenecks differ significantly.* Focusing only on quality improvements would be relatively low-cost and could potentially create significant gains in U5MR. Removing the bottlenecks in quality for all service delivery modes could reduce U5MR by 10 to 15 percent for a modest US$0.4 per capita. This could be obtained mainly through improving the quality of family-oriented services and associated behaviors and family practices. However, this improvement would only have a very limited impact on MMR. Addressing bottlenecks in continuity and demand would provide additional gains, but this would involve doubling or even tripling the cost per capita. Overall, a U5MR reduction of 11 percent could be reasonably obtained for US$0.50 per capita. Demand side interventions could be strengthened, for example, by investing in improving performance incentives and introducing demand-side transfers to compensate for the opportunity cost of using services (Figure 7-4).

Figure 7-4: Cost and Potential Impact of Removing Bottlenecks in Quality, Continuity and Demand
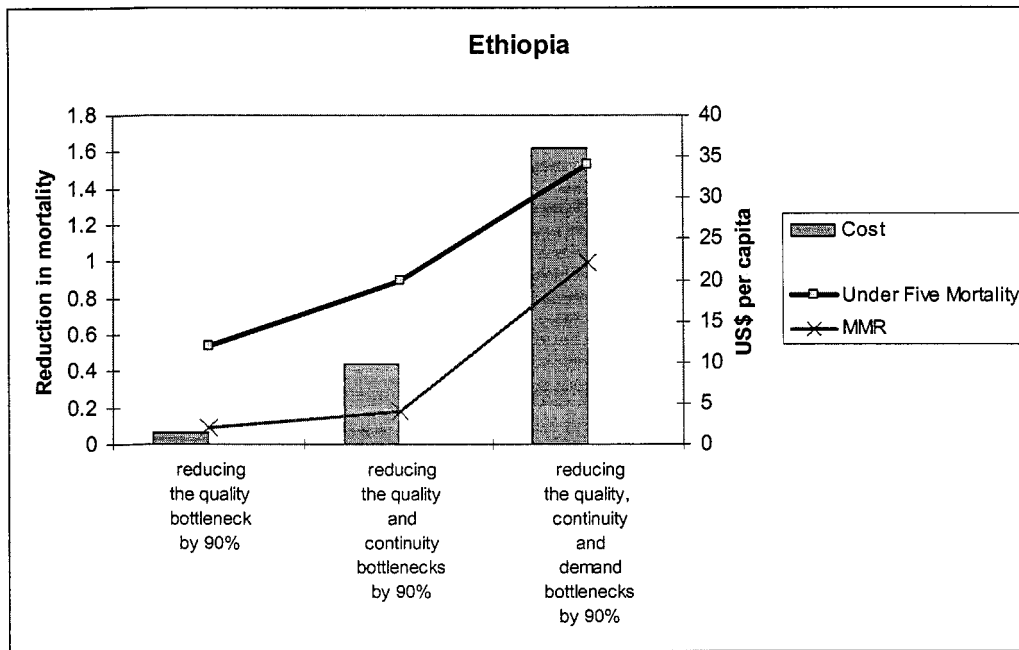
Source: Authors' calculations, based on DHS2001, WMS and MOH data

The Optimum Combination of Access and Bottleneck Reduction

7.28   Different combinations of access expansion and focus on demand and quality must be envisioned when scaling-up services according to national policy (Table 7-4). Increasing access to the level of HSDP targets and, at the same time, reducing bottlenecks by 50 percent, could potentially reduce U5MR by 25 percent and MMR by 13 percent at a cost of around US$1.50 per capita. This results in a lower overall impact than using the same amount of money to reduce bottlenecks by 90 percent at a given access level, but this scenario might be more politically realistic given that access expansion is a political priority. Moreover, reducing quality and demand bottlenecks by 90 percent could prove difficult because of limited institutional and managerial capacity (the assumptions in coverage expansion for a reduction of bottlenecks of 90% are presented in Table 7.5).

7.29   **Aiming for HSDP access targets and reducing bottlenecks by 75 percent would reduce** U5MR by 33 percent and MMR by 25 percent. This is about the same level of reduction as decreasing bottlenecks by 90 percent and maintaining the current level of access, but at a much higher cost of nearly US$2.50 per capita. However, it may be an alternative if a 90 percent reduction in bottlenecks proves difficult to achieve.

7.30   The optimum scenario of increasing access to reach HSDP targets, in addition to a 90 percent reduction in bottlenecks, reduces U5MR over 40 percent and decreases MMR by one third at a cost of only US$3.00 per person. Yet a reduction in quality and demand bottlenecks of 90 percent might be too ambitious given the challenges of implementing demand creation schemes.

7.31   **Further expansion of access would likely continue to improve the level of impact, namely** to a reduction of 50 percent in U5MR and 37 percent in MMR, but it would be quite costly at nearly US$5.00 per capita.

Table 7-4: Trade-offs between Reducing Gaps in Demand, Continuity and Quality and Increasing Access

|		Base Access		HSDP targets		Expanded Access	
			Incremental cost per capita		Incremental cost per capita		Incremental cost per capita
Bottlenecks in demand, continuity and quality remain unaddressed	Reduction in U5MR	3%	$0.01	7%	$0.88	10%	$2.07
	Reduction in MMR	0%		1%		1%	
Reduction of 50% of bottlenecks in demand, continuity and quality	Reduction in U5MR	18%	$0.43	24%	$1.45	30%	$ 2.80
	Reduction in MMR	9%		13%		16%	
Reduction of 75% of bottlenecks in demand, continuity and quality	Reduction in U5MR	27%	$1.07	34%	$2.43	42%	$4.12
	Reduction in MMR	17%		24%		28%	
Reduction of 90% of bottlenecks in demand, continuity and quality	Reduction in U5MR	33%	$1.63	41%	$3.08	49%	$4.87
	Reduction in MMR	22%		32%		37%	

Table 7-5: Increase in Health Service Coverage for each Bottleneck Removal Option

Delivery mode	Intervention package	Intervention	Scenario 1 Baseline level of access and gaps in demand, continuity and quality remain (%)	Scenario 2 Present access and 90% removal of gap in demand, continuity and quality (%)	Scenario 3 HSDP target level access and 90% removal of gap in demand, continuity and quality (%)	Scenario 4 Expanded access and 90% removal of gaps in demand, continuity and quality (%)
Family/ community based care	Preventive maternal and neonatal care	• Clean delivery	20%	20%	25.7%	61%
		• Temperature management and KMC	0%	17.1%	25.7%	61%
		• Insecticide-treated mosquito nets	1.8%	17.1%	25.7%	60.7%
	Preventive infant and child care	• Breastfeeding for children 0-5 months	38.1%	89.1%	89.1%	89.1%
		• Breastfeeding for children 6-11 months	74.9%	89.1%	89.1%	89.1%
		• Water/sanitation/hygiene	10%	89.1%	89.1%	89.1%
		• Insecticide-treated mosquito nets	0.2%	17.1%	26%	61%
		• Complementary feeding	34.3%	89.1%	89.1%	89.1%
	Management of maternal, neonatal & childhood illness	• Oral rehydration therapy	13.3%	45.9%	58.5%	63.9%
Population-oriented outreach services	Preventive care for adolescent girls & women of childbearing age	• Family planning	6.3%	44.7%	57%	74.5%
		• Tetanus toxoid	14.8%	44.7%	57%	75%
	Preventive care for pregnant women and newborns	• Folate supplementation in pregnancy	6.2%	43.8%	55.8%	72.9%
		• Intermittent presumptive treatment	3.7%	43.8%	55.8%	72.9%
		• Postnatal and newborn care	10.5%	43.8%	55.8%	72.9%
	Preventive infant and child care	• Routine Measles/DPT3 immunization	17.7%	46.7%	59.6%	77.9%
		• Vitamin A – P	55.8%	55.8%	79%	80%
	Preventive maternal & neonatal care	• Delivery by skilled attendant	2.9%	27%	39.1%	52.2%
		• Nevirapine and replacement feeding	2.9%	27%	39.1%	52.2%
		• Antenatal steroids	2.9%	27%	39.1%	52.2%
		• Antibiotics re PRM	2.9%	27%	39.1%	52.2%
Clinical individual-oriented care	Clinical primary level illness management	• Antibiotics for pneumonia	14%	31%	43.6%	55.7%
		• Simple Malaria treatment	14%	31%	44%	56%
		• Resuscitation	14%	31%	44%	56%
		• Management of RTI/STI	14%	31%	44%	56%
		• Treatment for Iron deficiency in pregnancy	14%	31%	44%	56%
		• Gentamycin for neonatal sepsis	0%	31%	44%	56%
	Clinical first referral illness management	• Basic emergency obstetric care	1%	25.4%	36.8%	40.9%
		• Management of severe prematurity/LBW and neonatal sepsis	0%	25.4%	36.8%	40.9%
	Clinical second referral illness management	• Comprehensive emergency obstetric care	1%	25.4%	36.8%	40.9%
		• Prevention and management of complications from abortion	1%	25.4%	36.8%	40.9%

Evaluating of Potential Returns from Alternative Service Delivery Arrangements

7.32   The various scenarios developed with the help of the MBB tool strongly suggest that strategies to increase quality and demand for services, in addition to enhancing access, would enhance the contribution of health services to the reduction of child mortality and maternal mortality. However, the relationship is not linear (Figure 7-5), and a pattern of diminishing return is observed for both mortality measures. As the coverage increases, the cost augments as well, and the cost function assumes an asymptotic shape (Figure 7-6). This implies that setting up feasible targets and prioritizing effective health interventions with limited resources have important policy implications.

Figure 7-5: Diminishing Returns on Additional Resources for Health Services
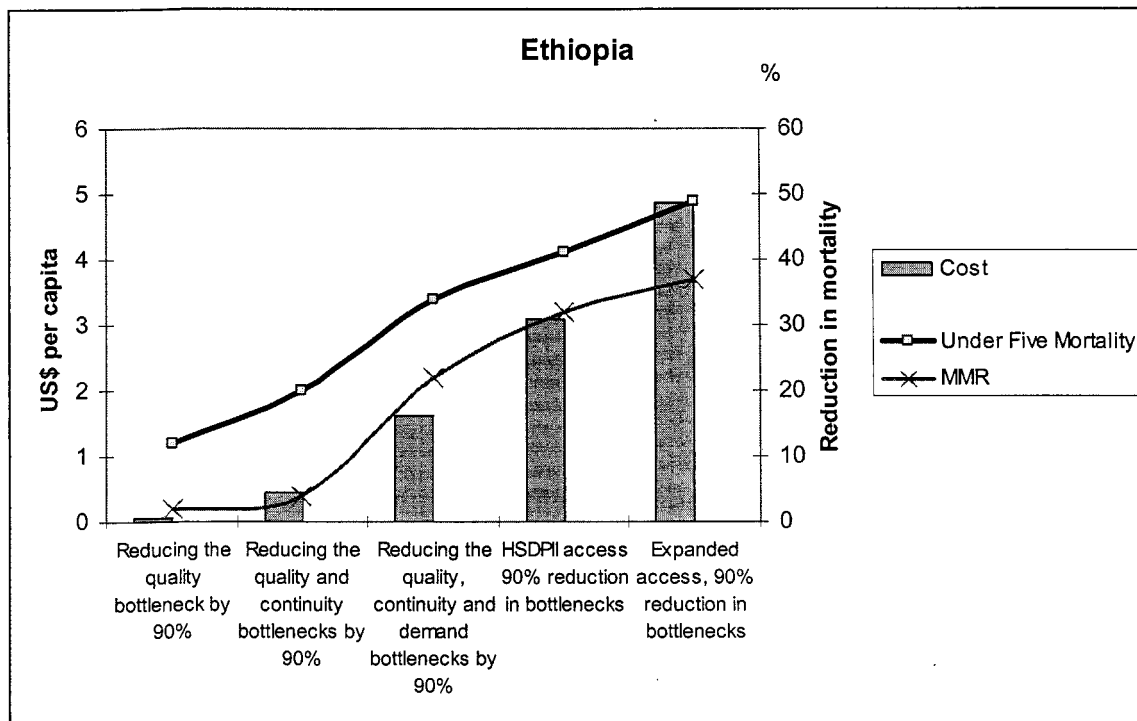
Source: Authors' calculations based on DHS 2001,WMS and MOH data

Figure 7-6: Cost Function Estimate of the Health Service Contribution to Reducing Child Mortality
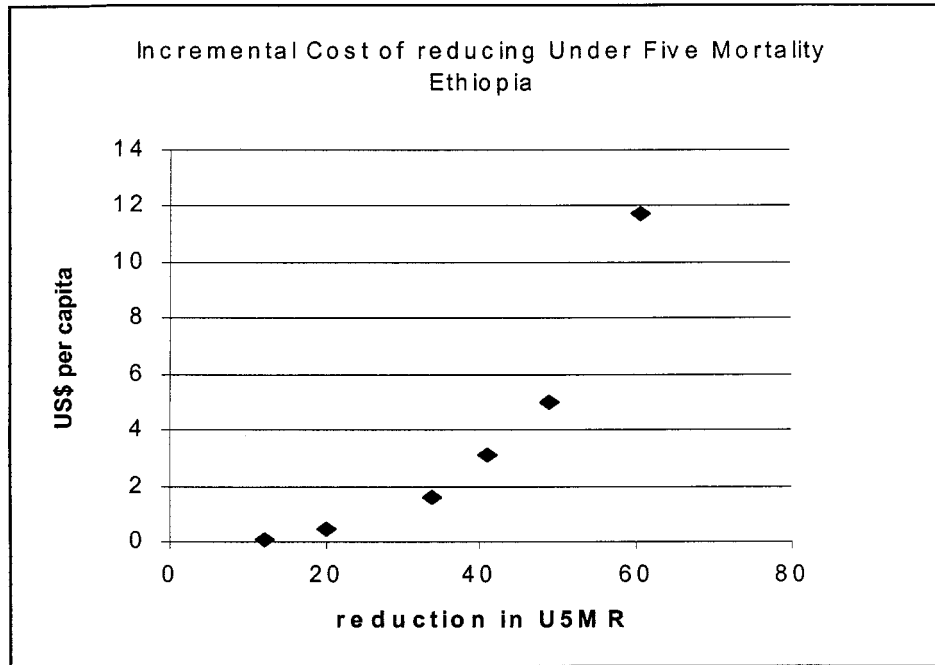
Source: Authors' calculations based on DHS 2001, NHA and MOH data

7.33   Figure 7-7 shows that the three delivery mode packages respond differently to health coverage increases, and therefore show different returns for both child and maternal mortality reductions. Meanwhile, the cost required by each delivery mode also differs substantially. These statistics not only validate the usefulness of the stratification of the three delivery modes, but also imply a strong policy effect on prioritizing approaches in service delivery.

Figure 7-7: Cost and Impact of All Three Service Delivery Modes

Estimated Impact and Cost: Health Promoters, family and community services %

Estimated Impact and Cost: Health Extension Package, Outreach Services %

Estimated Impact and Cost: Clinical Services, Individual Oriented Services %
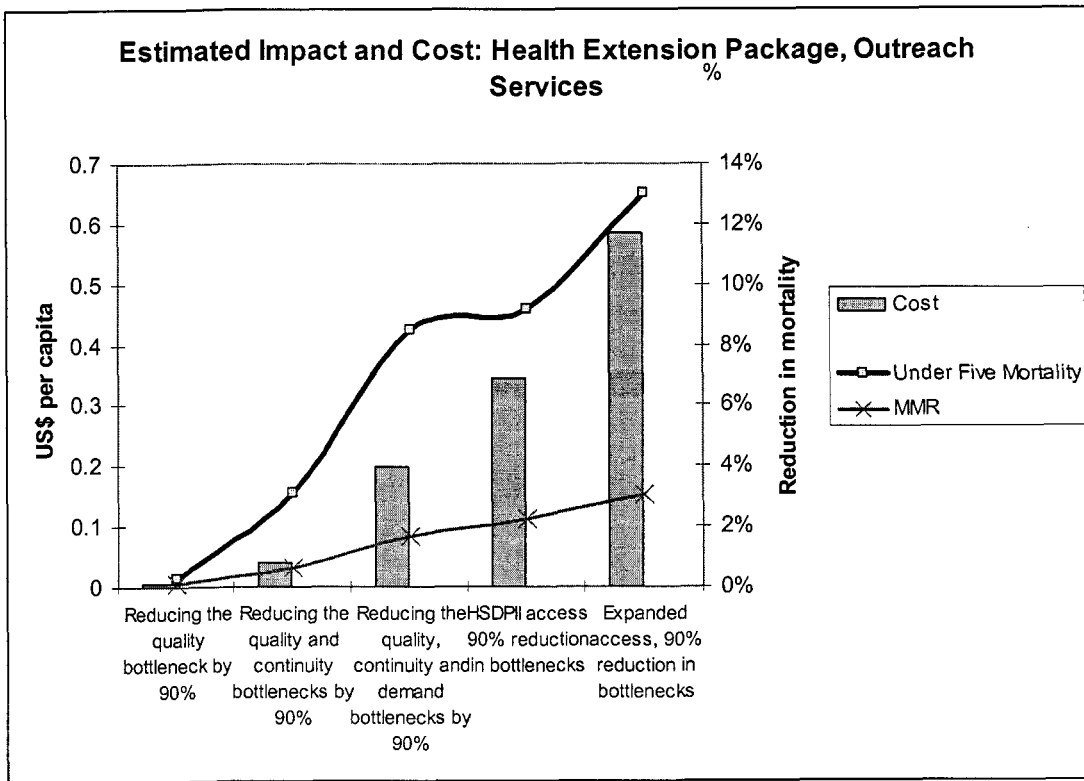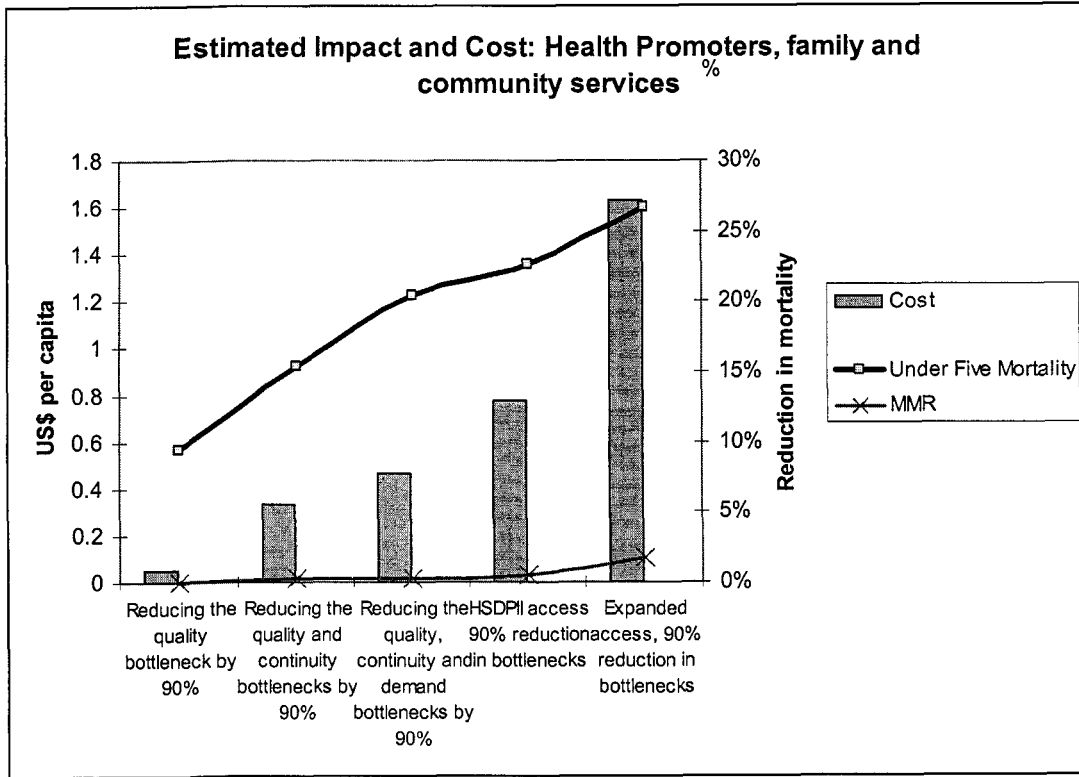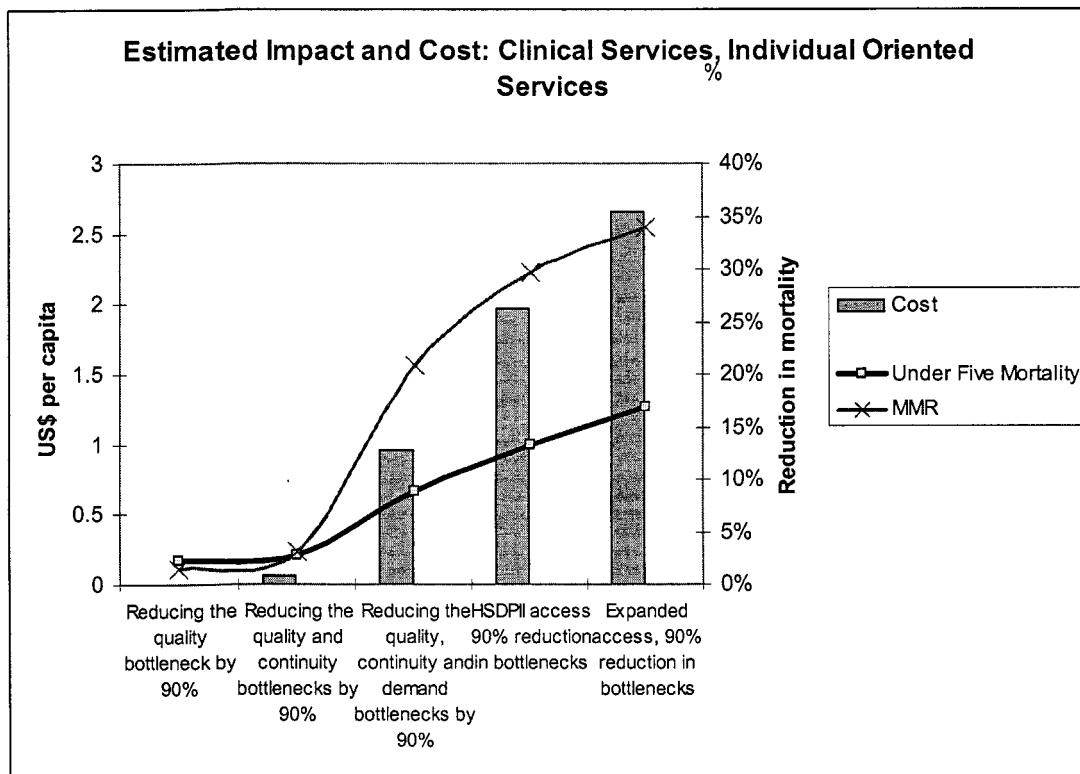
7.34   The HSEP population-oriented delivery approach[73] could potentially contribute to a U5MR reduction of nine percent at a cost of US$0.34 per capita. This could become a very cost-effective approach. However the impact would be likely limited on MMR
(only two percent) as antenatal care services only marginally contribute to maternal mortality. However the use of the maternal mortality ratio (MMR) (as stated in the MDG targets) obscures the impact of family planning on the lifetime risk of dying of mothers; in this area, outreach contributes a potential decrease of 27 percent.

7.35   At each level of access, reducing the bottlenecks in family and community-oriented services has the biggest potential impact on U5MR (20 percent at a cost of US$0.75 per capita). Yet the impact of these services on MMR would be minimal (barely one percent): these services would not even have an impact on the lifetime risk of dying, because community level interventions lack effective ways to address maternal health.

7.36   On the other hand, improving clinical care HSDP targets may reduce maternal mortality by 30 percent. However, it is unlikely to reduce U5MR by more than 13 percent, at an incremental annual cost of nearly US$2.00 per capita.

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[73] For HSDP targets, this translates to reducing bottlenecks by 90% through outreach efforts

7.37   For an incremental increase of US$1.00 per capita per year, it seems that investments will be most effective in the HSEP and community promoters delivery modes, which together reduce both U5MR and the lifetime risk of dying of mothers by around 30 percent. However, the interventions that are provided through these delivery modes will have very little effect on the MMR. Incorporating clinical care (including assisted deliveries and emergency obstetrical care) would substantially contribute to reducing both the MMR and the lifetime risk of dying by 30 percent, and decrease the U5MR by 10 percent. It is important to note that as indicated previously, this strategy would imply improving clinical services, which would require a substantial additional investment greater than that of the other approaches.

Table 7-6: Estimated Impact and Cost of Service Delivery Arrangements for Three Modes: HSEP, Community Promoters & Clinical Care

Delivery mode	Intervention package	Scenario 1: Reduce demand, quality and continuity bottlenecks by 90%, base access				Scenario 2: Reduce demand, quality and continuity bottlenecks by 90%, HSDP target level access				Scenario 3: Increase demand, quality and continuity bottlenecks by 90%, maximized access			
		U5MR Reduction (1)	MMR Reduction (2)	Lifetime Risk of Dying (3)	Cost (per capita)	U5MR Reduction (1)	MMR Reduction (2)	Lifetime Risk of Dying (3)	Cost (per capita)	U5MR Reduction (1)	MMR Reduction (2)	Lifetime Risk of Dying (3)	Cost (per capita)
1. "Health Pomoters strategy":or Family/Community-oriented Services		0%	0.2%	0%		1%	1%	1%		4%	2%	2%	
	Preventive Infant & Child Care	16%	0%	0%		16%	0%	0%		17%	0%	0%	
	Management of Maternal, Neonatal & Childhood Illness	6%	0%	0%		8%	0%	0%		9%	0%	0%	
	Total Family/Community Care	20%	0.2%	0%	$0.47	23%	1%	1%	$0.77	27%	2%	2%	$1.63
2. " Health Services Extension Package," Population-oriented Outreach or scheduled clinic sessions	Preventive care for Adolescent Girls & Women of Childbearing age	5%	0%	19%		6%	0%	26%		8%	1%	35%	
	Preventive Care for Pregnant and Newborn	0%	1%	1%		1%	2%	2%		1%	3%	3%	
	Preventive Infant and Child Care	1%	0%	0%		3%	0%	0%		4%	0%	0%	
	Total Outreach	6%	2%	21%	$0.20	9%	2%	27%	$0.34	13%	3%	36%	$0.59

3. Clinical Individual-oriented Care (service must be continuously available)													
Preventive Maternal & Neonatal Care	3%	4%	4%		5%	7%	7%		6%	9%	9%	
Clinical Primary Level Illness Management	5%	0%	0%		8%	1%	1%		10%	1%	1%	
Clinical first referral (PHC/CHC) Illness Management	2%	7%	7%		3%	10%	10%		3%	11%	11%	
Clinical second referral (FRU/DH) Illness management	0%	11%	11%		0%	16%	16%		0%	18%	18%	
Total Clinical	**9%**	**21%**	**21%**	**$0.96**	**13%**	**30%**	**30%**	**$1.96**	**17%**	**34%**	**34%**	**$2.65**
Total of Three Modes	**33%**	**22%**	**37%**	**$1.63**	**41%**	**32%**	**49%**	**$3.08**	**49%**	**37%**	**58%**	**$4.87**

(1) Deaths of children less than 5 over one thousand live births; (2) pregnancy related deaths of women over hundred thousand live births; (3) pregnancy-related deaths of women over hundred thousand women 15-49; (4) marginal cost per capita in US$. Source: Authors' calculations.

7.38   For a country with very limited resources like Ethiopia, it is essential to determine priorities among the various delivery arrangements. One important policy consideration is the different types of capacity and amount of time needed to reach coverage targets each service delivery mode will require. The HSEP strategy is focused on outreach, a service that can be delivered most easily by the public sector, given the network externalities provided by the standardized delivery of services to homogeneous populations. Governments have both international and domestic experience in delivering services such as immunization, family planning and Vitamin A campaigns. The current primary healthcare system in Ethiopia seems quite well-adapted to these types of services, as they have experienced relatively positive results from polio immunization campaigns and vitamin A supplementation programs. Therefore, the targets of the HSEP may be achieved more quickly than those of the other two delivery modes.

7.39   Family/community-oriented services, on the other hand, entail behavior change and require active household participation, which might take longer to develop. For these services, the role of the private sector, both for- and not-for-profit (NGOs, CBOs, retailers, community promoters), is critical. Finally, to improve clinical services, the government must address the gaps in human resource and infrastructure capacity, which translates to a longer lag time for problem solving.

7.40   In Ethiopia's HSDP II, the HSEP is constructed as a key priority for the health sector. The HSDP II is committed first to improving the service coverage of the HSEP at the end of its project cycle (2005). This policy reflects a stepwise approach by the FMOH to first address outreach services (including family/community-oriented services), then resolve problems in the area of clinical services.

7.41   Since the targets for the HSEP can be quickly reached, this method will obviously save more lives of children under-five and mothers. Taking into consideration the factor of speed in reaching the targets, a cost-effectiveness analysis was conducted (measured as by a dollar/death saved ratio) to evaluate the three delivery modes (Table 7-7 and Figure 7-8). A schedule for reaching targets in each delivery mode is as follows: 2005 for HSEP outreach services; 2010 for community promoter services; and 2015 for clinical services. Outreach services emerge as the most cost-effective method for reducing U5MR (US$1,578 per death saved) and maternal deaths (US$150,347 per death saved). Family/community-oriented services are also efficient options for improving child health (US$7,269 per death saved).

Table 7-7: Cost-effectiveness Analysis of the Service Delivery Packages - I

Service delivery mode	U5MR (2000)	MBB Predicted reduction	Time Schedule for target reached	Cases saved based on the time schedule	Cost ($/capita/year)	$/death avoid ratio
1. Outreach services	166	10.00%	2005	46922	0.22	1578
2. Family/community based services	166	19.00%	2010	24071	0.52	7269
3. Clinical based services	166	12.00%	2015	4504	1.24	92632

Service delivery mode	MMR (2000)	MBB Predicted reduction	Time Schedule for target reached	Case saved based on the time schedule	Cost ($/capita/year)	$/death avoid ratio
1. Outreach services	871	2.00%	2005	492	0.22	150347
2. Family/community based services	871	0.50%	2010	36	0.52	4901600
3. Clinical based services	871	29.00%	2015	2035	1.24	205060

Source: authors' calculations

Figure 7-8: Cost-effectiveness Analysis of the Service Delivery Packages - II

Dollar/Death Case Saved Ratio

Source: Authors' calculations
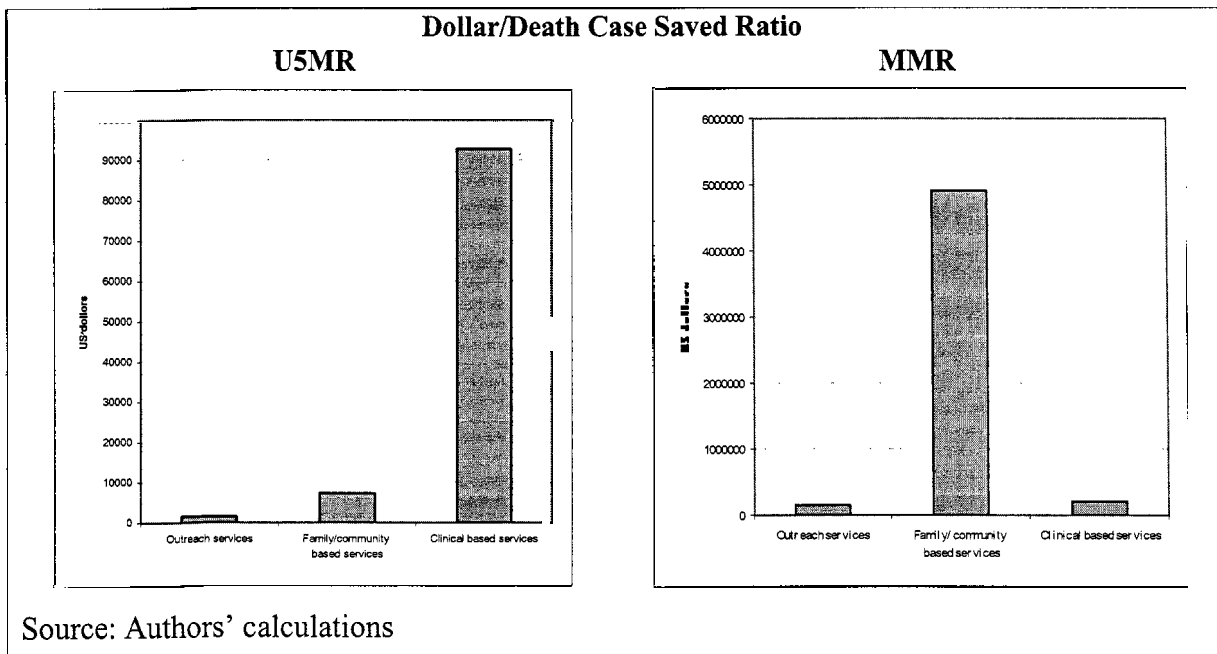
7.42   This analysis reaffirms that, in general, Ethiopia's strategy of focusing on utilizing the HSEP is realistic and promising.   The HSEP not only includes outreach services such as immunization, family planning, Vitamin A supplementation, etc., but also serves as a foundation for community-oriented programs, as HEWs will be trained to provide support and technical guidance to community promoters.   Therefore, the implementation of the HSEP would lead to an increase in health extension service coverage in the short term, as well as improve family/community-oriented services in the mid term.

Simulating Policy Options: Costs and Benefits of Expanding Treatment

Expanding the Provision of ARI Treatment

7.43   What would happen if health interventions were promoted through alternative delivery modes? To address some of the policy concerns, a simulation exercise is conducted to investigate different policy options (Table 7-9).[74]

7.44   The international community has been promoting community-based management of both malaria and pneumonia, particularly in areas with low access to health services. The first policy simulation therefore investigates the costs and impact of adding basic anti-malarial drugs and antibiotics (cotrimoxazole) for treatment of child Acute Respiratory Infections (ARI) to the family/community-oriented (health promoter) package.

7.45   The simulations show that by adding these interventions to the health promoter package; reducing bottlenecks by 90 percent; and improving access based on HSDP objectives; the U5MR may decrease from 23 percent to 27 percent with an extra cost of US$0.32 per capita ($1.09 as compared to $0.77 per capita).

7.46   The fact that the effects of this change is somewhat limited may appear surprising. This is largely due to the fact that although pneumonia contributes 28 percent to the U5MR, the efficacy of antibiotics at this level is only 40 percent. Thus, although pneumonia is responsible for a large proportion of U5MR, an increase in effective coverage by one third merely results in an attributable reduction in U5MR of three percent.[75] This illustrates how one intervention with limited efficacy is unlikely to singlehandedly cause a major dent in mortality rates, even when addressing one of the major causes of death.

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[74] These policy scenarios are examined in light of the HSDP II targets with an assumed reduction of 90% of quality, continuity and demand bottleneck .

[75] 0.28*0.4*0.3

Expanding the Provision of Malaria Treatment

7.47   For malaria, on the other hand, efficacy of home treatment is high (67 percent). However, since the contribution of malaria to child mortality is small (only six percent), an increase in home treatment does not have a major impact. For a comparable increase in coverage of 30 percent, the expected impact of community-based malaria management in reducing the national U5MR is only one percent.   However, in high malaria endemic areas, in which a larger number of deaths are attributable to this illness, the impact is likely to be higher (as much as ten percent). An increase in community-based malaria treatment would be beneficial in heavily malaria affected areas with low access to health services.

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Table 7-8: Estimated Impact and Costs for Different Policy Options

	Impact on U5MR (percent reduction)				Impact on MMR (percent reduction)				Cost in US$ per capita per year		
	Base, reduction of 90% of BN	HSDPII, reduction of 90% of BN	Expanded Access, reduction of 90% of BN		Base, reduction of 90% of BN	HSDPII, reduction of 90% of BN	Expanded Access, reduction of 90% of BN		Base, reduction of 90% of BN	HSDPII, reduction of 90% of BN	Expanded Access, reduction of 90% of BN
A. Base model: no curative care at the health post and community level	33%	41%	49%		22%	32%	37%		$1.63	$3.08	$4.87
B. Adding anti-malaria and antibiotics (cotrimoxazole) to the community health promoter package	36%	45%	53%		24%	32%	37%		$1.85	$3.39	$5.23
C. Adding basic curative services at the health post level (2) and emergency obstetric care at the health center level	35%	42%	51%		25%	38%	43%		$1.97	$3.28	$5.26

(1) Including EOC and injectables
(2) Assisted delivery, malaria, antibiotics, PMTCT, VCT, STI, no EOC and no injectables
Source: Authors' calculations

Figure 7-9: Impact and Costs of Adding Basic Clinical Care at the HP Level
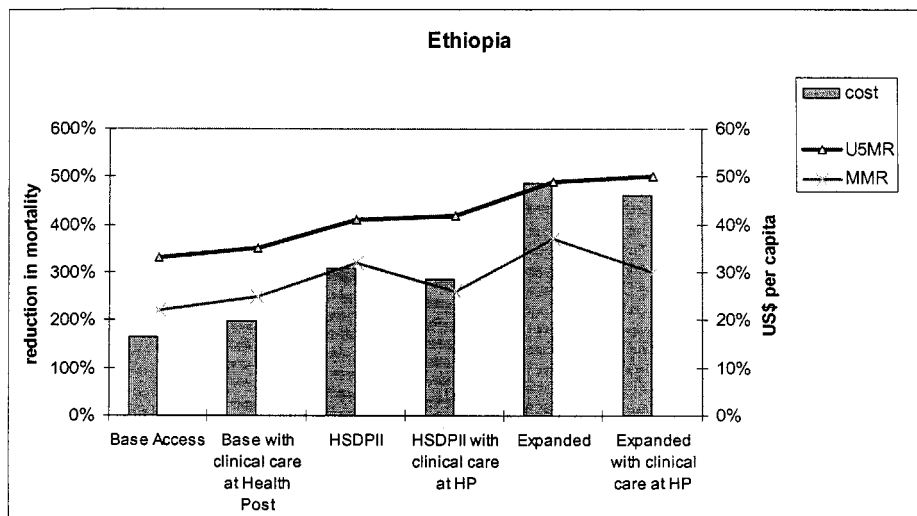
7.48   One key question for the implementers of the HSEP is whether some basic clinical care should also be added at the HP level. A simulation was done to examine the impact of decentralizing curative care to the HP level by adding a junior nurse with clinical skills. The costs and impact of moving a limited clinical package to HPs was estimated (Figure 7-9). The estimate included assisted delivery, malaria treatment, antibiotics, PMCT, VCT and STD;[76] but did not include emergency obstetric care and injection services.

7.49   By following the HSDP targets for HP accessibility (in addition to a reduction of 90 percent in the demand, quality and continuity bottleneck), this second strategy would reduce U5MR by 35 percent (attributable to clinical care); as compared to a reduction of 33 percent if only health centers provided clinical care. Adding a skilled attendant at birth (defined as a person trained in life-savings skills) at the HP level would further reduce MMR from 30 percent to 31 percent. At the expanded access level, adding clinical care to the HP would further reduce U5MR to 50 percent and MMR from 37 percent to 43 percent (Figure 7-9).

7.50   Finally a third scenario, which included enhanced communicable diseases control activities (CDC) has also been examined. The current package of CDC already includes TB/DOTS; simple malaria treatment at the primary level and at the HC level; treatment of complicated malaria at the first referral level; and DOTS for TB treatment at HC level. According to international recommendations, this package could be enhanced[77] with incremental resources. These would include additional time/wages, performance incentives, demand-side subsidies; the cost of additional drugs, defined stock levels of

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[76] PMTCT: prevention of mother to child transmission of HIV; VCT: voluntary testing and counseling; STDs: sexually transmitted diseases.

[77] The enhanced package is composed of malaria combination treatment at primary care level; treatment of drug resistant TB; ARVs (number is based on 3X5 estimates) for treatment of HIV/AIDS and treatment of complications from AIDS at the referral level.

drugs (based on the incidence of malaria, TB, and HIV in Ethiopia); and records of drug utilization levels under different scenarios. The cost of this package is US$9.00 annually per capita at the current level; for access at the HSDP level it is US$13.00; and for expanded access it is nearly US$16.00.[78] The additional impact on maternal and under-five mortality has not been estimated as the literature does not provide an adequate level of proof of the impact of HAART and treatment of multi-drug resistant TB on these indicators. For malaria, the literature does provide evidence on the impact: however, as shown above, because of the low proportion of U5MR at the national level attributable to malaria, the benefits of providing more efficacious treatment is limited, except in high affected areas and during epidemics.

Human Resource Implications of the Chosen Policy Options

7.51 The various scenarios also have different implications in terms of building the HR base for health services. Staffing varies according to each possible scenario, and as access to infrastructure grows, the number of physicians and nurses also increase. Following are the target HR requirements in Ethiopia for the year 2015 under several scenarios (Table 7-9). Any significant increase in access will require major investments in staff training: fortunately, training of HEWs and community promoters can be frontloaded and access can increase rapidly. However, when it comes to clinical care, a significant growth in access requires an increase in clinical nurses and doctors, which requires much more time to produce.

Table 7-9: Additional HR Implications of Expanding Health Service Coverage

	Current number of staff	HSDP level of access and 90% reduced bottlenecks with existing health services	Maximum level of access and 90% reduced bottlenecks with existing health services
Community promoters	10,064	31,600	147,356
Health Extension Workers	1,000	10,120	21,454
Nurses	12,838	21,576	30,667
Physicians	1,888	3,032	4,665

SOURCE: MOH/PPD DATA AND AUTHORS' CALCULATIONS.

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[78] These additional costs are still relatively low because of the low incidence of malaria and relatively low prevalence of HIV. Any increase in the incidence of malaria, HIV and TB or in the level of drug resistance will substantially increase this cost.

Reaching the Health MDGs in Ethiopia

7.52   *Assuming the government can reach its HSEP targets in 2005; then go on to achieve its goals for the family/community-based service targets in 2010; and finally meet the goals for clinically-based service levels in 2015; will this progress be enough to allow Ethiopia to reach the MDGs for child survival?* According to the MBB simulations, the predicted improvement in health service accessibility and quality would speed up the reduction of U5MR. Yet the current government targets are probably still not quite high enough to achieve the MDG's reduction goal of two/thirds for U5MR (Figure 7-10) through enhancing supply and demand for health services. On the one hand, the MBB simulations may underestimate the potential impact of health services because it only takes into account the impact of well-proven interventions. Nonetheless, the opposite might exist because efficacy data of health interventions rely largely on international studies and meta-analysis, not on Ethiopia-specific data. Based on past experience, and despite planned progress in efficiency, it is most likely that health sector improvements under SDPRP objectives alone would not achieve both the child and maternal mortality MDGs targets

Figure 7-10: Predictions in Achieving MDGs for Child Survival
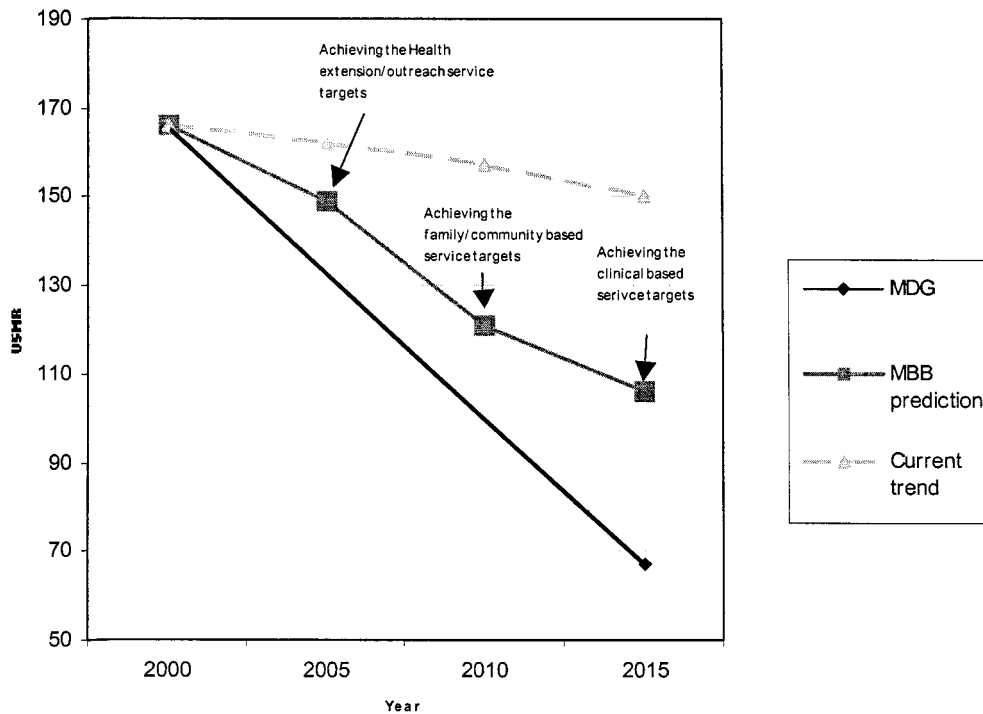
7.53   The question remains: what can be achieved and what resources are needed if the GOE adopts the more ambitious goal of reaching all of the health MDGs. To answer this question, in July 2004, the GOE embarked on an exercise to cost the contribution of the health services to the MDGs; taking as a basis the initial estimates conducted above, yet developing additional service delivery expansion scenarios to be able to reach the health MDGs though expansion only of health services.[79]

7.54   This section summarizes the results of this exercise and attempts to estimate how much extra money would be needed to increase the health coverage from the current level to the 2015 MDG horizon (should funding not be a constraint), yet taking into account the specific geographic, human and institutional context of Ethiopia, a country that is evolving in an increasingly globalized market.[80]

7.55   Reaching the health MDGs implies not only a dramatic expansion of the production of key high impact health services, but also the implementation of mechanisms to ensure adequate demand for and use of those services. On the basis of the HSDP II plan and other GOE policy documents, five steps for further service expansion have been considered. These steps are described in Box 7-2 and displayed in Table 7-10. Each step allows for a progressive upgrade of services, strengthening both supply and demand for high impact services.

7.56   The costing of the health services contributions to the MDGs has been conducted for each step of health services development using an incremental approach (Table 7-2). The costing has taken into account the common costs of removing the bottlenecks to implementation, as well as the costs for scaling-up the various service delivery arrangements. The expenditure for each step adds cumulatively upon the previous one. Each step corresponds to increasingly higher levels of coverage of health services and associated improvements in health outcomes.

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[79] This is a multi-sectoral exercise aiming at costing the contribution of other sectors to the health MDGs. This exercise has been conducted by the Government of Ethiopia with the support of UNDP's Millenium Project, the World Bank, WHO, UNICEF, Italian and IrishAid and USAID. The USAID supported ESHE project provided extensive technical support.

[80] It takes into account, for example, that the annual wage of an MD in OECD is 70 to 150 times what it is in Ethiopia; that recent estimates point out that more than 50% of MDs trained in Ethiopia have been migrating in the past 10 years; and that recent statistics indicate a likely increase in the migration of highly qualified health staff from low-income to high-income countries in the future. It also considers the potential decrease in cost of new vaccines such as HiB and HSEP B vaccines, as well as new drugs, such as HAART, over the next few years.

Box 7-2: Five Steps of Health Services Expansion in Ethiopia

1. The first step, **Information and social mobilization for behavior change,** includes all activities related to general health information through the media (TV and radios), social marketing strategies and other social mobilization events. It includes activities outside health services at the workplace, in schools as well as in youth clubs. This step supports activities that trigger awareness of critical health issues as well as behavior change. The expansion of those services supports prevention of HIV as well as prevention of other communicable and non-communicable diseases by promoting behavior change, such as increasing hand-washing, use of condoms or bed nets, or utilization of safe water systems. Those services particularly aim at enhancing the level of health specific information among women, a critical activity to substitute for a generally low level of female literacy in Ethiopia.[81] Specific health education of mothers has an important effect on child mortality in the same way that general awareness and education on safe sex have been demonstrated to have a significant impact on HIV. These services also aim at promoting the dissemination of key commodities (condoms, bed nets, ORT packets) through the retail and commercial network (kiosk, retailers, pharmacy outlets etc.)

2. The second step is implementation of the **Health Services Extension Program (HSEP),** which entails all the key activities of the flagship health program developed by the Government of Ethiopia over the last few years. This health services development program includes three major components: 1) An outreach program centered around the rapid one-year vocational training of Health Extension Workers HEWs (2 per kebele) and construction and equipment of HPs (12,249 new HPs will be constructed and equipped, resulting in a total of 13,635). These HEWs are civil servants and will offer key technical services, such as immunization and family planning, to each kebele (5000 inhabitants). 2) A community promotion program centered around volunteer/private sector community promoters/ traditional birth attendants (TBAs) (1 for every 50 households or 250 inhabitants) working under the supervision/ guidance of the HEWs and providing support to households for behavior change (i.e. breastfeeding, supplementary feeding, use of bed nets, clean delivery etc.). 3) A program strengthening the quality of and demand for clinical care [particularly treatment of Acute Respiratory Infections (ARI) and malaria in children, assisted delivery, HIV testing and counseling as well as prevention of mother to child transmission (PMTCT)] in existing health stations and HCs.

3. The third step is a **Clinical First Level Services Upgrade, which** includes the expansion of HCs throughout the country as well as the upgrading of HPs to offer basic clinical care. It involves the construction and equipment of 563 new HCs and the upgrading of 2,167 existing health stations to HCs, in addition to the already existing 423 HCs.[82][83] It also implies the recruitment of one additional staff with clinical skills in each HP and the adequate staffing of registered nurses in all new and old HCs. This step would lead to an increase in the access to clinical care at less than a one hour walk from the household (from 31 percent to 80 percent) and increased access to first level clinical care for adults (including TB DOTS treatment, malaria treatment with ACT, treatment of sexually transmitted infections (STIs) and opportunistic infections, expansion of HIV voluntary testing and counseling (VTC); and basic emergency obstetrical care including transport). HIV and malaria testing is made available through the use of rapid tests.

4. The fourth step, a **Clinical Services Upgrade of Comprehensive Emergency Obstetric Care (CEOC),** requires the operationalization of comprehensive emergency obstetrical care in all new and old

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[81] Although significant efforts are currently being made by the Government of Ethiopia to increase enrollment and primary school completion rates among girls, the benefits of increased formal education among girls are not going to kick in fully by 2015; the new cohorts of educated girls not having yet reached the reproductive age. Some benefits may however be expected from delays in early marriage, with a slight decrease in early pregnancies to be anticipated after 2010.

[82] Creating a total of 3,153 HCs at the end of 2008.

[83] MOH. An Accelerated Expansion of Primary Healthcare Facilities in Ethiopia (2004 – 2008). 2004. Planning and Programming Department, Addis Ababa, Ethiopia.

HCs of the country. This implies equipping all HCs with an operation theater and staffing it with the appropriate number of nurse midwives and health officers with EOC and surgical skills. This step also entails establishing adequate means of transport, setting blood banks in all HCs and upgrading existing hospitals into full referral centers for emergency obstetrical care.

5. The fifth step is the **Expansion and Upgrade of Referrals of Clinical Care**, which entails the expansion and upgrading of referral services, including all woredas and zonal hospitals. This step would allow Ethiopian health services to upgrade their equipment and lab facilities to offer quality follow-up for HIV patients receiving HAART,[84] and also expand referral services for neonatal care and complex emergency obstetrical care, thus contributing further to the reduction of under five and maternal mortality. This would include the renovation and construction of district hospitals (1 for 250,000 people) to include intensive care neonatal centers, as well as the equiping hospitals and HCs with lab facilities that would allow for the adequate provision and monitoring of HAART, as well as resistant strains of TB and malaria. Lab equipment would include automated hematology analyzers, flow cytometers and deep freezers for all new and old HCs and hospitals. This phase also includes the training of enough MDs and registered specialized nurses to adequately deliver, supervise and monitor the provision of quality referral clinical care.

Table 7-10: Health Services Expansion Strategies in Ethiopia			
	Ethiopia's strategy	**Components**	**Channels**
Step 1	**Information and social mobilization for behavior change**	Media : Information, education and communication (IEC) and behavior change for communication (BCC)	TVs, Radio: national and rural
		Social marketing	
		School and youth programs, workplace and health,	
		High risk groups	
Step 2	**Health Services Extension Program (HSEP)**	Community promotion	Community promoters, TBAs
		Outreach: HPs and mobile strategies	HEWs
		Clinical: increase quality and demand for child health and reproductive health clinical services including basic emergency obstetric care	Drugs, support to demand, midwifery
Step 3	**1st level clinical services upgrade**	Clinical: improve access and quality of services for all adults including ACT, STI and OI treatment Upgrade of health posts to offer clinical care	Drugs, & training
Step 4	**Clinical services upgrade: comprehensive emergency obstetric care**	Clinical: 1. Expand and upgrade HCs to offer CEOC (including c-sections) 2. Upgrade HPs to include midwifery services 3. Improve quality of woreda hospitals	Expansion of midwifery & obstetric care Management including surgery at HC level
Step 5	**Clinical services expansion and upgrade: referral clinical care**	Clinical: 1. Upgrade HCs, expand and upgrade woredas hospitals 2. Expand treatment of chronic diseases including HAART	MDs, registered nurses, hospitals, drugs

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[84] HAART= Highly Active Antiretroviral Therapy

Table 7-11: Key Investment and Recurrent Costs for Each Step of the Health Services Expansion Strategy			
	Ethiopia's strategy	Major Investments	Major Recurrent charges
Step 1:	Information and social mobilization for behavior change	IEC production Training Radios for households	Air time Transfer to NGOs: salaries, IEC material Subsidy to commodities (condoms, ITNs, etc) Supervision, monitoring
Step 2	Health Services Extension Program (HSEP)	Commodity stocks, bicycles Basic training of community promoters	Annual training of community promoters, TBAs Commodities, bed nets, ORT Supervision, monitoring
		Construction, equipment of HPs and mobile strategies Motorbikes Training of HEWs Stocks of commodities	Salaries of HEWs Commodities, vaccines, contraceptives Supervision, monitoring Subsidies to demand for immunization, family planning
Step 3	First level clinical services upgrade	Renovation/upgrading of health stations Additional stock of drugs Training of nurses	Malaria tests, ACT, OI, STI treatments, supervision, monitoring, medicines
Step 4	Clinical services upgrade: comprehensive emergency obstetric care	HC Construction Upgrade of HC to include CEOC Upgrade of referral hospitals Training of additional midwives and health officers Cars/ ambulances	Salaries, commodities, transport, supervision, monitoring Upgrade of quality of existing hospitals. Subsidies to transport for EOC, contingent demand side subsidy for assisted delivery Training and salary of midwives and health officers
Step 5	Clinical services expansion and upgrade: referral clinical care	Renovation and building of woreda hospitals, lab services, stocks of commodities, training, additional MDs and nurses	Salary of MDs and cost of drugs, additional salary, lab upgrade

7.57   Table 7-12 displays the average cost per capita over the period 2005-2015.[85] Figure 7-11 shows the gradual increase in cost over time along progressive implementation and gradual investment in construction, equipment and training.

7.58   Step 1 (Information and Social Mobilization for Behavior Change), would cost an average of US$1.5 per capita over the next ten years, peaking at US$2.11 in 2015. This approach could potentially contribute to reversing the HIV incidence from 0.66 to 0.55 per 100,000 people and maintaining the HIV prevalence at 4.4 percent. It could also contribute to an increased level of information for mothers on child health practices and augment the coverage of key child survival interventions (including use of ITNs, hand-washing and water handling, breastfeeding and nutrition) The scaling up of this service delivery arrangement would likely create a five to ten percent decrease in U5MR, primarily by affecting the level of information and influencing the use of key commodities of households through social marketing, information and targeted subsidies.[86] In terms of HR development, this step involves the training of communication specialists as well as peer educators among the young and high-risk groups.

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[85] Cost figures are displayed in US$ per capita in 2004.
[86] By keeping the HIV epidemic controlled, this program affects child survival by mainly avoiding an increase in child mortality due to HIV, as has been observed in other countries of East Africa with much higher levels of HIV prevalence than Ethiopia (e.g Zambia, Kenya & Zimbabwe)

Table 7-12: Scaling-up Coverage of Health Services in Ethiopia: Resource Implications, Costs, and Potential Benefits					
Ethiopia's strategy	Expansion of facilities (private facilities included)	Human resource implications (for both public and private sector)	Average incremental annual cost per capita bet. 2005-2015	Estimated impact	MDG achieved
Step 1: Information and social mobilization for behavior change	Increase in number of radios at kebele level by 308,239	Communication specialists and peer educators increase by 5 fold	US$1.5	HIV incidence decrease from 0.66 to 0.55 per 100,000 people. Reduction of U5MR of 5-10%	Reverse trend in HIV incidence. Stabilize trend in HIV prevalence.
Step 2: Health Services Extension Program (HSEP)	# of HPs increases from 1,386 to 13,635 (9.8 fold increase)	Health promoters (2 weeks training per year) increase from 14,527 to 260, 000 (17 fold) Increase in HEWs from 2800 in 2005 to 23,225 in 2015 (8.3 fold). # nurse midwives increase from 1,559 to 10,590 (5.8 fold).	US$3.54	Reduction of child mortality by 60-70%. Reduction of maternal mortality by 10%. Reduction of maternal deaths (lifetime risk of dying) by 40%. Decrease in child and maternal mortality due to malaria.	Decrease in under 5 and infant mortality by two thirds.
Step 3: First level clinical upgrade	# of HCs increases from 423 to 2590 (6 fold)	Nurse midwives increase from 1,559 to 15,088 (8.7 fold).	US$1.72	Reduction of mortality due to malaria by more than 50%. Reduced morbidity due to STI	Further decrease of morbidity and mortality due to malaria
Step 4: comprehensive emergency obstetric care: expansion and upgrade	# of HCs offering CEOC increases from less than 100 to 3121.	Number of nurse midwives increase from to 1559 to 19,443 (by 11.5 fold). Number of health officers increase from 632 to 4,154 (by 5.6 fold).	US$3.50	Reduction of maternal mortality by 75%. Reduction of child mortality by 70%-80%.	Reduced maternal mortality by 75%
Step 5: Referral expansion and upgrade	# of second referral hospitals increases from 36 to 419 (11.6 fold)	Number of nurse midwives increase from 1559 to 22,964 (by 14 fold). Number of medical doctors increase from 2,032 to 9,626 by 4.7 fold	US$9.79	Reduced mortality of HIV+ patients. Reduced child mortality by 75-85%	
Total:			**US$20.05**		
NB: Health Extension workers: 1 year of training in vocational schools; Nurse midwives: three years training BA level; Health Officers 4 years of training, Master Level, MDs, 7 years of training Doctoral Level.					

7.59   Step 2, the **Health Services Extension Program**, would cost an additional US$3.54 per capita on average over the period 2005-2015, peaking at US$5.2 per capita in 2015. The outreach and community-oriented program (Ethiopia's HSEP) would be the main vehicle for reducing infant and child mortality, potentially permitting Ethiopia to reach the child mortality MDG targets. Other benefits of scaling-up this program include an important contribution to the malaria MDG through the increased use of insecticide treated bed nets among children less than five years old and women, in addition to increased treatment of malaria at community level[87]. It also contributes to reaching the HIV MDG target by introducing HIV testing and PMTCT in all existing HCs and health stations. This approach is, on the other hand, unlikely to contribute much to the reduction of the MMR[88] (likely not more than 10 percent). However, by addressing the contraceptives supply bottleneck to respond to current unmet need for family planning services, the HSEP would contribute to a reduction of 40 percent in the number of maternal deaths (lifetime risk of dying)[89]. HR development for this step would involve increasing the number of community promoters/FLHWs (trained for 3-4 weeks) by 17 fold, and increasing the number of HEWs, (having at least a tenth grader education and trained for one year) by a factor of eight. This expansion is already planned and should not pose difficulties over a ten year period given the relatively low level of training required and assuming resources would be available. The training and supervision of low-skilled workers, as well as the strengthening of clinical referral to support these health extension services, would be more challenging. This would require an increase in the number of nurses midwives (having at least a 12th grade education and trained for three years at the BA level) by almost six fold by 2015. This implies producing an additional 1,500 nurse midwives per year over a period of six years, at least doubling the current level production. This could potentially happen through the augmented number of private schools of nursing.

7.60   Step 3, Upgrading First Level Clinical Care," would cost an incremental average of US$1.72 in addition to the HSEP number, peaking at US$3.29 per capita in 2015. This step would strengthen the quality of and demand for first level clinical care at HP, clinic and HC levels, leading to an increase in coverage of malaria treatment (including for adults) and treatment of STI; as well as prevention[90] and treatment of opportunistic infections (including TB DOTs). This program would achieve the malaria MDG target by reducing malaria-specific mortality by about 50 percent, and the TB MDG target by ensuring appropriate treatment of all non-resistant identified TB cases. This step would require the upgrading of HPs and health stations with an adequate number of clinical health workers with one year of training (upgrading of HEWs or existing junior/assistant nurses).

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[87] Using chloroquine as per the current Ethiopia policy

[88] The MMR is measured as the number of maternal deaths over the number of live births; as such it is sensitive to interventions occurring during pregnancy and labor.

[89] By reducing the number of pregnancies, family planning leads to fewer deaths of women linked to pregnancy and labor. But family planning does not directly affect the MMR, which is the risk of mothers of dying once pregnant.

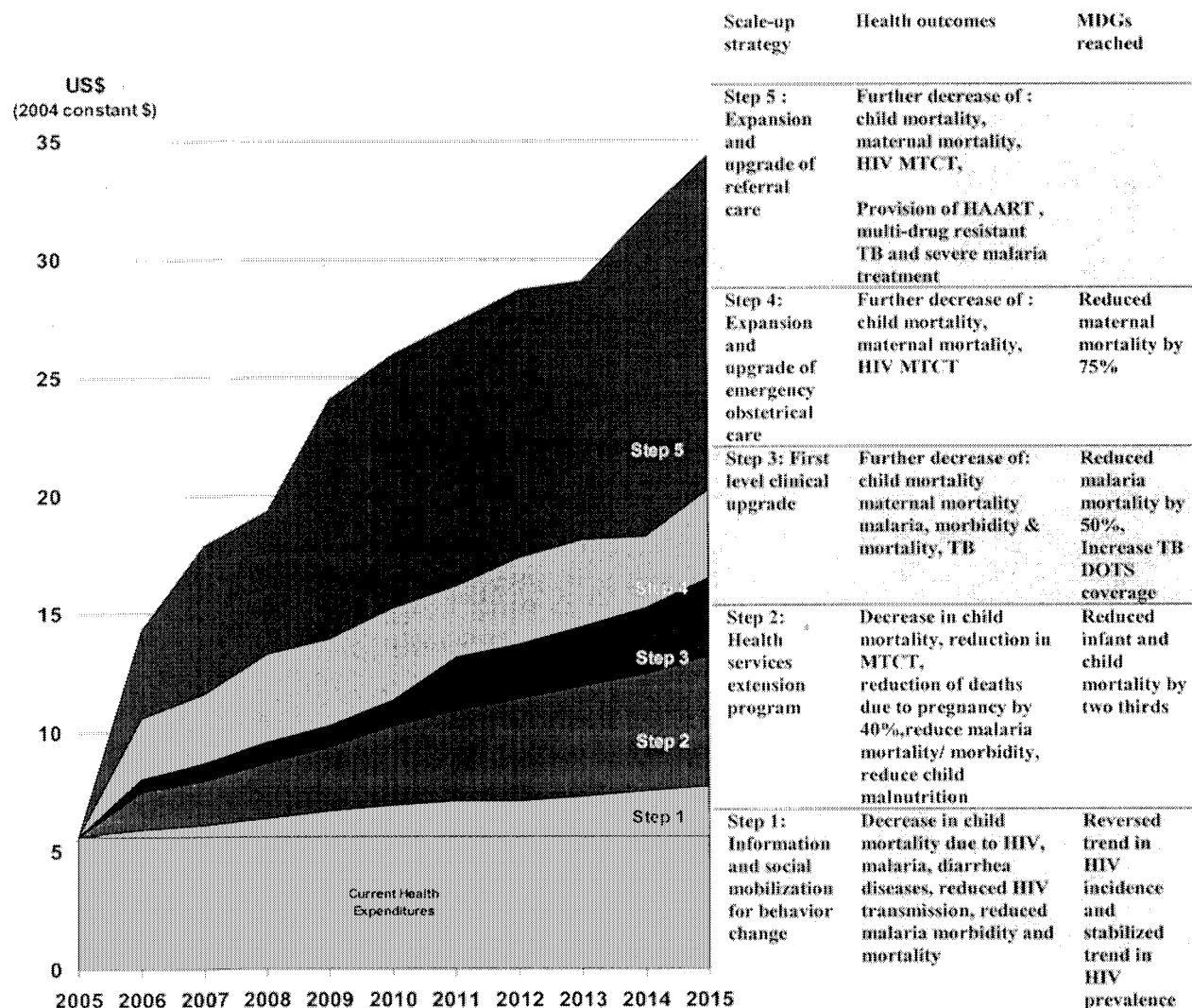[90] Mainly PCP prophylaxis for a cost of about US$10 per patient per year

7.61   Step 4, Expansion and Upgrade of Comprehensive Emergency Obstetrical Care, would cost an incremental US$3.50 per capita over 2005-2015, peaking at US$ 4.10 per capita in 2015. This step would establish access to and demand for CEOC in each HC as well as provide assisted delivery services at the HP level. This approach is critical working to achieve the MMR MDG target. It would also provide additional benefits in terms of the reduction of neonatal mortality, leading to further decreases in U5MR. The HR implications of this step are important. The number of registered BA level nurses and midwives would have to increase by more than 11 fold implying a tripling of current production over a period of six years. Another major challenge would be the production of health officers at the master level, trained to conduct and oversee CEOC at HC level. To sustain this step, the number of health officers would have to increase by almost six fold. This would require quadrupling the training of health officers for a period of five to six years; a significant challenge. For both these categories, the costing takes into account a 35 percent hardship allowance for working in rural areas.[91]

7.62   Step 5, Expansion and Upgrade of Referral Care would cost an incremental US$ 9.79 per capita over the period 2005-2015, peaking at US$14.1 per capita in 2015. This step would upgrade referral care in all woredas, providing for the establishment of a district hospital with referral diagnostic and monitoring capacity to provide support to the HCs. This service upgrade approach would obtain additional gains in under five and maternal mortality rates, and would also ensure quality provision of HAART to all those identified as eligible. The HR requirements for this step are particularly demanding taking into account the targeted five fold increase in the number of MDs by 2015. Given that MD training takes seven years, this would suggest increasing the entry of students into medical schools in 2006 and 2007 by at least 40 fold; without accounting for the brain drain/migration factor.[92] These statistics indicate that the only way to achieve this step will be to import MDs into Ethiopia. As Ethiopia is currently an exporter rather than an importer of MDs due to the high quality of its medical training, this would call for a major strategic shift in order to retain local physicians and attract international ones.

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[91] This is based on initial data collected for a health worker study.
[92] Available evidence suggests that Ethiopia trains two MDs for every one that stays in Ethiopia and three for every one that remains in the public sector.

Table 7-13: Costs of Scaling-up Health Services in Ethiopia:
Incremental Cost per capita 2005-2015 Needed to Reach the MDGs

	Scale-up strategy	Health outcomes	MDGs reached
	Step 5 : Expansion and upgrade of referral care	Further decrease of : child mortality, maternal mortality, HIV MTCT, Provision of HAART , multi-drug resistant TB and severe malaria treatment	
	Step 4: Expansion and upgrade of emergency obstetrical care	Further decrease of : child mortality, maternal mortality, HIV MTCT	Reduced maternal mortality by 75%
	Step 3: First level clinical upgrade	Further decrease of: child mortality maternal mortality malaria, morbidity & mortality, TB	Reduced malaria mortality by 50%, Increase TB DOTS coverage
	Step 2: Health services extension program	Decrease in child mortality, reduction in MTCT, reduction of deaths due to pregnancy by 40%,reduce malaria mortality/ morbidity, reduce child malnutrition	Reduced infant and child mortality by two thirds
	Step 1: Information and social mobilization for behavior change	Decrease in child mortality due to HIV, malaria, diarrhea diseases, reduced HIV transmission, reduced malaria morbidity and mortality	Reversed trend in HIV incidence and stabilized trend in HIV prevalence

US$
(2004 constant $)

Chart values on Y-axis: 0, 5, 10, 15, 20, 25, 30, 35

Chart regions labeled: Step 5, Step 4, Step 3, Step 2, Step 1, Current Health Expenditures

X-axis: 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

7.63   To reach all of the health MDGs and expand HAART provision, all service scale-up steps must be implemented. However, as can be seen in Table 7-13, some MDGS (such as reduction of child mortality or reversing HIV incidence and prevalence) can be achieved at a somewhat lower level of the supply curve than others (such as MMR and HAART provision. An example is provided below for child health (Figure 7-11).

Figure 7-11: Projected Cost and Associated Reduction in Child Mortality Linked to Implementation of Services Scale-up Strategies: Ethiopia 2006-2015
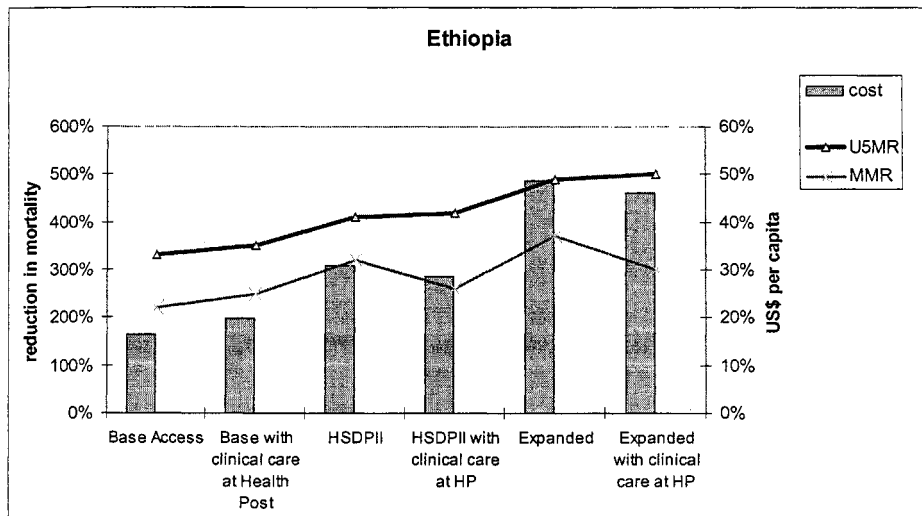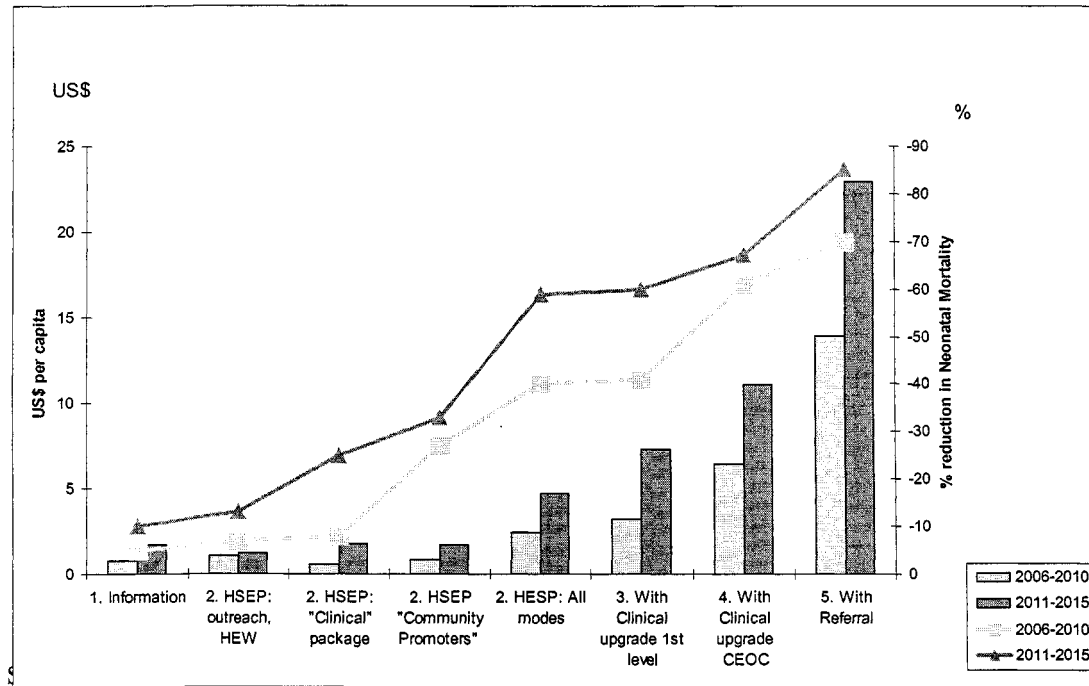
CONCLUSION

7.64   Overall, this analysis shows that the Health Services Extension Package (HSEP), and the associated Community Promoters Strategy proposed by the GOE, should be supported if health services are to significantly contribute to reaching the under-five mortality reduction goal. If an annual incremental US$1.00 per capita can be mobilized for Ethiopia's health services, resulting investments should be channeled towards outreach and community services provided by the HSEP and Community Promoters Package that were successfully tested in the Tigray and SNNPR regions. Together these strategies could potentially reduce both the U5MR and the lifetime risk of maternal death by about 30 percent (on the basis of realistic assumptions regarding increase of access along the set targets of HSDP II). These results are consistent with the experience of neighboring countries such as Tanzania where a targeted incremental US$0.5 per capita invested at district level led to a reduction of mortality by 40-45 percent, a significantly larger decrease in the intervention districts than average gains in the country's mortality rates.[93] (Figure 7-12).

Figure 7-12: Evidence of the Impact of Incremental Investments on Strengthening of High Impact Interventions (Tanzania EHIP)

Child Mortality Declines in
Evidence-based Planning Districts, Tanzania

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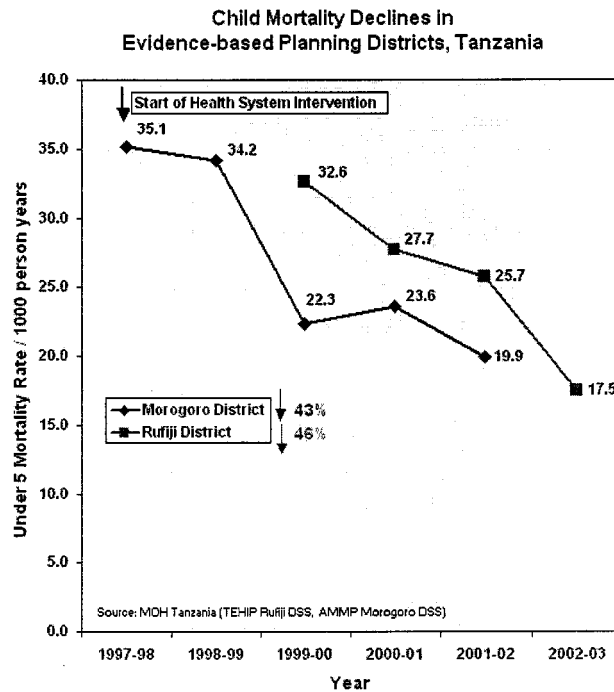
[93] Source: The Tanzania Essential Health Interventions Project IDRC TEHIP (2004). Latest statistics show that the U5MR dropped by 43% in Morogoro District between 1997 and 2003 and by 46% in Rufiji District between 2000 and 2003. These impressive gains come in the two districts where TEHIP has helped to improve local healthcare planning.

7.65   This analysis also points out that the first priority for Ethiopia health services is to maximize the reduction of existing bottlenecks in quality, continuity and demand for high-impact interventions delivered through innovative service delivery strategies. Tackling these bottlenecks only (without expansion of access) could potentially be achieved at an annual cost of about US$1.6 per capita, resulting in a reduction of the U5MR by about one third and the MMR by nearly a quarter. Using the same amount of funds to boost geographical access only, without addressing the bottlenecks, would merely result in a ten percent reduction in the U5MR, and a one percent reduction in the MMR.

7.66   If resources could be mobilized up to US$3.00 annual per capita, in order to achieve HSDP access targets and reduce bottlenecks by 90 percent, the U5MR could potentially be reduced by 40 percent and the lifetime risk of mothers dying by 50 percent. A more ambitious scenario can be envisioned if approximately US$5.00 per capita per year could be mobilized, which would reduce U5MR by 49 percent and the lifetime risk of mothers dying by 58 percent. Adding the provision of additional second generation CDC and treatment (include treatment for multi-drug resistant TB, resistant malaria, and HAART for AIDS patients) would increase the costs significantly (up to an additional US$16.00 per person per year), resulting in an impact that is difficult to estimate given the lack of solid evidence on the effect of these interventions on MDG goals.

7.67   Adding clinical care services (mainly for malaria, pneumonia and assisted deliveries) either at the community level or at the HP level will provide some benefits, but will also incur significant additional costs. However, the marginal benefits of adding these services is limited; except probably in heavily malaria-affected areas. Benefits must also be balanced in relation to the significant HR development and managerial challenges produced by the provision of these services. As discussed in the above section focused on HR,[94] it is potentially more complex for the system to produce and retain personnel with clinical skills than those with standard public health profiles, particularly in rural areas. Clinical services are also more challenging to monitor, supervise and regulate given their highly discretionary and transaction-intensive natures; monitoring and evaluation services would be more efficiently provided in a secondary phase after the implementation of the HSEP and Health Promotion Package has triggered capacity-building, institutional development and the establishment of a backbone for the health system.

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[94] See Chapter 5

7.68   Under current Ethiopian health policies working towards the health services extension objectives of HSDP II, the contribution of health services to the achievement of MDG targets could be substantial. By doubling the current public spending on health, health services could contribute to reducing child mortality and the life time risk of dying of mothers by about 40-45 percent Yet, this number would be hardly enough to reach the MDGs. More ambitious objectives, in terms of health service delivery coverage permitting Ethiopia to reach all of the MDGs, would require significantly more resources, especially human and financial resources. Limiting the spread of HIV in addition to reducing child mortality by two-thirds could potentially be achieved at an annual cost of US$5 per capita, doubling current total health expenditures. Reaching the malaria MDGs for adults would add about US$1.72 per capita. Achieving the maternal health MDG targets would be the most challenging in terms of mobilizing human resources; likely requiring an additional US$3.5 per capita. Finally, expanding referral and hospital care and providing treatment for chronically ill patients (including highly effective anti-retrovirals for HIV patients) would be the most expensive component, amounting to an additional US$9.8 per capita.

8. BUILDING ON EXISTING STRENGTHS AND ADDRESSING POLICY ISSUES FOR IMPROVED HEALTH OUTCOMES

8.1   This section outlines strengths in the health sector that could be targeted to reinforce health sector objectives. It also identifies key policy and strategic issues for further discussion with the GOE.

8.2   The GOE recognizes health as a vital component in poverty reduction and seeks to incorporate health on policy, strategic and operational levels. Despite its position as one of the poorest countries in the world, Ethiopia has been able to improve some key health indicators. Infant and child mortality rates have declined and are lower than those in other countries with similar per capita incomes. Malnutrition rates have also decreased over time, although these rates are still among the highest in the world. Ethiopia has also been particularly successful in increasing coverage rates for certain standardized interventions (i.e. polio immunizations and vitamin A distribution) and in creating awareness around family planning and HIV/AIDS. However, *while the country has made progress in these areas; Ethiopia has not been successful in implementing other low-cost interventions, including the use of ORT during diarrhea episodes and the use of bed nets.* In addition, Ethiopia has not been able to capitalize on its success in conducting a polio immunization campaign to deliver other immunizations; nor has it achieved increased awareness of STDs at a level comparable to HIV/AIDS awareness levels (despite the development of successful information campaigns for the latter). While generating awareness and demand for family planning, the approach has not been as successful in meeting the demand for contraceptives. These deficiencies require improvements in information exchange and service delivery channels.

8.3   Thus, it is essential to work *to maximize existing information and service delivery channels that are successful.* On the topic of HIV/AIDS, for example, village meetings were the most frequently cited sources of information (80 percent of women and 71 percent of men) in the DHS. An effective strategy would study the ways these meetings and other village forums could be used to disseminate other types of useful information and services. Analyses also indicate that mother's exposure to media is positively associated with improved maternal healthcare and children's nutritional status, as well as improved knowledge and use of family planning. However, media coverage is not extensive in Ethiopia,[95] which suggests that increasing access simply to rural radios, for example, could contribute to behavior change and would likely have an impact on child mortality. The cost and impact simulations show that there is a strong potential for decreasing U5MR by supporting family-oriented services and providing both information

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[95] Only 14 % of women and 27 % of men have access to some form of mass media. Radio is the most common media source that men and women are exposed to although only 10% of women and 25 % of men listen to the radio on a weekly basis (DHS 2000).

and subsidies for key commodities. Yet the question remains: how should be the incremental resources for the sector support information and community based services?

8.4   *Improvement of coordination among different health services is an essential issue to address;* for example, existing implementation capacities must be taken into account when adding activities to successful programs.

8.5   *Inequities exist in terms of outcomes and utilization rates between rural-urban areas, income levels and regions.* Urban-rural differences are more marked in terms of outcomes and prevalence rates: urban areas have lower diarrhea and acute respiratory prevalence rates for young children, as well as inferior infant mortality and stunting rates. Urban areas also have greater physical access to health facilities: at least 94 percent of households are within five km of facilities that provide curative services, compared to only 30 percent in rural areas. Regional differences in terms of access to facilities and health personnel are also prominent: Afar and Somali generally fare the worst, especially in terms of health personnel-to-population ratios. *Although utilization rates of health services vary according to income levels, absolute utilization rates are still low across all income quintiles.* Income differentials are more striking in terms of service utilization rates; for example, the richest quintile benefits from higher immunization rates and assisted delivery services relative to the poorest quintile. While wealth-based inequalities exist, these are still relatively low compared to those in other countries. The use of services, even among the richest households, is consistently quite low. While the rich-to-poor ratio is 27 in terms of assisted deliveries, the utilization rate of this service for the richest quintile is only 24 percent.

8.6   The low coverage and utilization rates underscore the need for strategies that will increase access to and quality of services. *Access to a nearby facility and a high quality of service are the two major motivational factors leading to increased use of facilities.* Thus, the augmentation in the number of facilities must be accompanied by increases in the availability and quality of drugs and well-trained staff. Supply of family planning services also need to catch up with rapid demand creation. There is concern as to how to ensure the financing and implementation of the main supply-side intervention currently proposed by the GOE in the HSEP within the current decentralization context. To strengthen the HSEP, especially during the initial implementation stage, the addition of other outreach activities (i.e., additional mobile teams, or child or family health days) is suggested; if adequate need and space exist for this type of strategy.

8.7   *Demand-side interventions also need to complement supply-side interventions.* Very low utilization of services by the poor in urban areas (i.e., the low percentage of assisted deliveries and utilization of available services such as antenatal care) suggests that supply-side interventions are inadequate if implemented in isolation. The budgeting-impact simulations indicate that investing in demand side interventions may prove more effective in-and-of-themselves than expanding access and quality only. The GOE plans to address these issues through the expansion of a combination of community-based approaches (the health promoters package) and enhanced use of the media. Health promoters are trained to support activities that promote behavior and value change by utilizing resources from both the public and the private sectors. Creating awareness

assists in generating demand for services. For example, in order to address malnutrition, mothers should be informed about appropriate feeding practices, use of locally available food items, and other healthy behaviors such as hand-washing. These activities will require partnerships between the public and private sectors, communities and NGOs in order to ensure access to commodities such as bed nets, condoms, and ORT, as well as to create an enabling environment for behavior change. One practical way that these sectors could partner is through the social marketing of soap and safe water systems. The level of subsidy provided to these activities, as well as to the modes/mechanisms for applying transfers, must be determined. *Thus the following series of questions arises:* Which community promotion activities should be financed by the government, i.e., training of promoters; cost of bed nets and ORS; and information campaigns? What other demand-side interventions could prove to be potentially promising in Ethiopia? Can cash transfers or vouchers be utilized on a trial basis? And can those transfers be linked to the use of other activities (i.e., a free bed net for women who attend antenatal care or packets of ORT given to children who come for immunization)?

8.8   The degree to which these interventions could succeed also depends largely on the ability of implementing agencies to monitor and evaluate household compliance with the established actions. Improvements in monitoring and evaluation are also needed to measure impact and to document lessons learned. As part of the development of a national action plan for child survival and to facilitate HSEP roll-out, there is ongoing collaboration between the GOE, UNICEF, WFP, USAID, and the WB regarding implementation of an enhanced community promoters package to strengthen the delivery of an integrated prevention and essential nutrition package. A small pilot OCS program will be initiated in SNNPR in 56 woredas and later expanded to 325 food-insecure woredas nationwide. Female community members will volunteer to promote vaccination and growth monitoring/nutritional screening. Discussions are also underway with WFP regarding food supplementation for malnourished children. Recent discussions seem to indicate that the nutrition screening and food supplementation activities will take place separately; however it would be worth considering combining these interventions as an integrated package that could be provided to households.

8.9   ***Both supply- and demand-side interventions must take into account regional differences.*** For example, the WB Country Economic Memorandum underscores the fact that malaria and other tropical diseases affect the lowlands; and trypanosomiasis also has severe consequences (both for livestock and people) in the western lowlands and the valleys leading down to them. From a economic development perspective, investing in malaria and tsetse fly control in these areas could result in significant economic returns.

8.10   ***The reality that Ethiopia has a low per capita income and limited skilled human resources must be recognized when discussing the need for supply- and demand-side interventions.*** It will therefore be important to examine strategies for the short to medium term; while ensuring that a long-term approach is also established. In terms of human resource capacity, as the Ethiopian educational system can feasibly only produce a limited number of physicians and nurses in the short- to medium-term, the country will provisionally implement utilizing a predominantly low-skilled population. The MOH has been particularly resourceful in defining alternative skill mixes that correspond with the

national epidemiological situation and implementation constraints. To some extent, the health officer assists in addressing the shortage of general practitioners. In addition, the HSEP has adapted to delivering low technology standardized services that do not require diagnostic or therapeutic skills. It relies on a cadre of eight to tenth graders with one year of training to provide outreach services for high impact services such as immunization, family planning services or vitamin A supplementation. The profile of health promoters (usually community members with primary education) is well adapted to the Ethiopian context.

8.11   However, *there is still a gap in the human resource development strategy, as the approach lacks personnel that are able to perform skilled deliveries and other slightly more complex clinical functions.* Reducing the MMR is among the key objectives of the Ethiopia SDPRP. Although the HSEP program (when combined with community extension services) is expected to reduce child and infant mortality rates (therefore also decreasing the number of women dying in childbirth); it will actually have limited impact on the MMR. A reduction in the MMR will only occur if there is an increase in the availability of skilled health professionals who can perform clinical services (particularly skilled deliveries but also basic emergency obstetrical care). Actions must also be undertaken to improve abortion safety.[96] However, several questions remain: What actions can be taken by the Ethiopian government to ensure the availability of skilled staff? Should the GOE also entertain the use of a phased approach by providing additional training to some of the HEWs in the short-term in order to build HR capacity to perform clinical services ?

8.12   *How can Ethiopia attract and retain higher skilled workers?* Available evidence indicates that salary differentials for those who work in rural areas (i.e., the hardship allowance received for working in emerging regions) is not sufficient. Career development and training opportunities have been frequently cited as major concerns of health workers. The issue of staff deployment and possibly staff rotation will need to be seriously considered in order to create more attractive rural postings. Strategies to ensure that female workers feel safe when working in remote rural areas must also be implemented. Thus, the next question is: Aside from developing appropriate safety guidelines and providing adequate protective supplies such as gloves, what additional actions can be taken to address the concern of professionals of contracting HIV/AIDS in the workplace if they decide to work in the area of clinical services?

8.13   Positive health outcomes resulting from relatively easy access to health facilities is expected in urbanized regions such as Addis Ababa, Dire Dawa and Harari. Tigray's respectable performance in terms of several indicators (i.e., immunization coverage, vitamin A supplementation, awareness of family planning methods, low rate of female circumcision) should be examined for lessons learned (despite the fact that the region has the highest poverty head count ratio in the country). Tigray is known for its strong community-based organizations (CBOs), which are used to address the region's high incidence of ARI and malnutrition in young children and mothers. The region also has

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[96] Actions would also be needed to prevent unwanted pregnancies through increased awareness and use of family planning methods.

the highest number of FLHW-to-population ratio in the country. In Tigray, staffing and equipment are determined based on the location of a particular facility, (i.e., more surgery-related staff in a remote HC compared to an urban HC). In contrast, the MOH staffing standard only provides for health officers and general practitioners in district hospitals. Based on this experience and those from other regions such as Oromia; this report asks: *Is there potential to modify national staffing guidelines to be more flexible, allowing regions to modify their staffing standards to accommodate local conditions? To what extent could the MOH accommodate such a request, and how would quality assurance be monitored?*

8.14   *The roles of the private sector and NGOs vis-à-vis public sector must be addressed.* As can be seen from the available data, the private sector plays an important role in the provision of healthcare services, especially in the form of pharmacies and drug shops. Most of the larger private facilities such as hospitals and health clinics tend to be in urban areas. There is also clearly a role for the public sector in preventive services, as well as in the provision of health services in poor and remote areas. In terms of comparative advantage, the public sector should focus principally on the delivery of the HSEP; while the private sector could be mobilized to play a more significant role in community health promotion (i.e., the development of social marketing activities that maximize local channels to provide clinical/curative services to various segments of the population). In doing so, it will be important to ensure that the poor are not marginalized. One potential strategy is to revise the exemption system in order to minimize leakages and to increase user fees for those who can afford to pay.

8.15   *Non-profit NGOs could also profit from a more enabling environment encouraging them to operate in areas that are unattractive to for-profit private establishments.* The government has expressed its interest and policy commitment to increasingly involving NGOs in achieving health sector goals. Legal procedures and guidelines exist for NGO licensing and operation. However, reports indicate that actual progress has been slow and varies across regions. Project formulation, appraisal and final agreement all take time because of the organization of NGO licensing and legal procedures. Lack of coordination between various stakeholders; procedural differences across regions; human resource shortages; and bureaucratic red tape further limit NGO activities.

8.16   *There is general agreement that Ethiopia's per capita allocation and health care spending is very low.* The MBB makes a strong case for increasing funding to health services. For example, just an increase in US$1.6 per capita invested in community-based health promotion activities could reduce U5MR by 27 percent. An augmentation of US$ 4.87 to finance health extension/outreach, family community-based programs, and clinical services could reduce U5MR by 49 percent and MMR by 37 percent. These favorable outcomes make a compelling case for channeling additional funds to the health sector.

8.17   At the same time, it is important to address the reasons for low budget execution rates in order to ensure that additional funds earmarked for the sector are spent as planned to meet sectoral objectives. While HSDP data show a few cases (Oromia, Afar and

Tigray) of regions exceeding or fully spending budgeted funds from 1996/97 to 2001/02; there are very few exceptions to the over-all pattern of underspending. *What can be done to improve budget execution rates?* It has been argued that one possible reason for underspending is the existence of complicated donor procedures that cause delays in spending. The PER (2003) estimates that about ten to 15 percent of grants and loans are channeled through government budgets. The average spending rate across all the regions was approximately 44 percent, indicating that even government budgets (i.e. non-donor funds) were not completely disbursed. Another factor potentially responsible for underspending in health is the weak capacity for program planning/budgeting and management at the regional, zonal and woreda levels. The GOE must invest in strengthening the capacity for planning, budgeting and implementation at all levels, especially at the woreda level where responsibilities are increasingly being devolved.

8.18   *The need to achieve an adequate balance between expansion and maintenance of adequate service delivery standards has been discussed extensively in different HSDP reviews.* Coverage levels in Ethiopia remain low, and given the needs of the population, the expansion targets are not overly ambitious. Yet it will be important to ensure that recurrent spending keeps pace with facility expansion. Discussions with RHB staff during field visits indicate that two factors have contributed significantly to the flawed financing of HSDP I (outside of the intra-sectoral priorities set out in the program): (1) HSDP's inadequate integration of planning and budgeting processes;[97] and (2) a costing system that is based on historical expenditure trends rather than the strategic directions outlined in HSDP. *Moving forward: this reports asks: How does the government plan to address these issues?*

8.19   While decentralization is intended to foster local ownership and management of government services, there are practical challenges that are inherent in Ethiopia's implementation of its decentralization policy. These encompass, but also go beyond, the health sector, and ways to motivate the woredas to focus their attention on health priorities must be identified. At present, as the system is still in transition, woredas still greatly depend on the regional and central levels for many health system functions, including the recruitment and allocation of health personnel and the procurement and distribution of supplies. However, woredas are expected to decrease their reliance over time on the higher administrative levels. As this transition occurs, it will be is essential to monitor the process to ensure that health sector development objectives continue to be met. The following questions also must be addressed: What mechanisms can be used to motivate and influence local planning and implementation? Will performance-based agreements and matching grants be feasible? (SNNPR, for example, has started piloting performance-based contracts with its woreda officers. The experiences from this region could provide guidance as other regions transition.)

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[97]The health budget has been developed using four separate processes: recurrent budget; capital budget financed through treasury resources; capital budget financed through loans and external assistance; and off-budget resources. It has been difficult to relate annual HSDP outputs and budgets with these three processes, especially since the budget process has generally been focused more on incremental increases, which are based on historical requirements, rather than on sufficient analysis of resource requirements. The overall FDRE budget process is also usually based on a one-year time frame, while HSDP is planned over a five-year period (HSDP Review 2003).

8.20   As part of its strategy to address land degradation, growing population pressure, and increasingly smaller farm sizes, the government plans to resettle 2.2 million vulnerable people in areas with low population densities over a three-year period (2002-2005) through a voluntary program. People are resettled only within their administrative regions, and resettlers have the right of return to their region of origin if they are dissatisfied with conditions in the resettled area. About 170,000 people were resettled in the Amhara, Oromiya, Southern Nations and Tigray regions in 2003, and an additional 200,000 people had been resettled as of March 2004. *An assessment of resettlement conditions in 2004 indicates that positive conditions existed in areas where adequate planning, preparation and resources were available.* However, other areas (especially in Oromiya where the most resettlement has taken place) faced inadequate food and water supplies as well as a lack of health care to address problems requiring urgent action.

8.21   Past experience has shown that despite planned improvements to improve sector efficiency, the health sector improvements under SDPRP objectives along will not achieve the child and maternal mortality MDGs. This report finds a strong correlation between a mother's level of education (as well as improved knowledge gathered through other sources such as the media), infant mortality rates and a child's nutritional status. Additionally, a mother's educational level is indicative of the likelihood that she will avail herself of health services such as immunization, antenatal care and family planning services. *Thus, in conclusion, the success of health sector interventions relies on the coordination between interventions in other sectors, particularly those taken to improve the status and role of women in Ethiopian society.*

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10. ANNEXES

Annex 1: Tables A1-A3

Table A 1: Poverty, Development, and Per Capita Revenue Indices by Region

Region	Poverty Index[b]	Rank (1=least poverty)	Development Level Index[c]	Dev rank (1=most developed)	Per capita revenue (Birr) 2000/01 (rank 1=highest)	
Tigray	0.133	11	0.0972	6	20.8	(6)
Afar	0.1190	8	0.1501	10	12.7	(8)
Amhara	0.1303	10	0.1344	9	11.3	(10)
Oromia	0.0797	5	0.1202	7	15.2	(7)
Somali	0.0795	4	0.1771	11	8.2	(11)
Benishangul-Gumuz	0.1093	7	0.0897	5	24.2	(5)
SEP	0.1298	9	0.1211	8	11.5	(9)
Gambella	0.0960	6	0.0690	4	35.6	(4)
Harari	0.0669	3	0.0103	2	54	(3)
Dire Dawa	0.0565	2	0.0307	3	71.7	(2)
Addis[a]	-	1	-	1	580	(1)

Source: WB. *Public Expenditure Review*. 2001, Annex II, pages 43-45.

[a]Addis is not included in the Federal subsidy but is assumed to be the most developed region/administration.

[b] The poverty index reflects variations in food consumption and food insecurity and hence the expenditure requirements for the agricultural sector. Index is derived from 1995/96 HICES and 1996 WMS. However, these surveys excluded non-sedentary populations in the predominantly pastoralist Afar and Somali regions, thereby underestimating the poverty level in these areas.

[c] The Development index is comprised of two sets of variables. First set is comprised of sectoral indicators reflecting the level of development; and second set uses unit expenditure variables reflecting different expenditure needs. It also includes administrative cost based on area and number of woreda. While this index tries to strike a balance between level of development and expenditure needs, it is also complex and non-transparent. A better alternative would be regional per capita income but this would have to wait for more accurate and statistically robust regional income estimates.

Table A 2: Distribution of Health Workers and % of Female Staff across Regions (2002/03)

Profession	Tig	Afar	Amh	Orom	Som	Ben	SNNPR	Gam	Har	A/A	DD	Cent	NGO	OGA	Private (a)	Total
Physicians	85	17	162	232	46	21	187	12	53	200	41	248	49	309	370	2032
Females	2	1	9	NA	0	0	15	0	6	56	4	46	1	NA	39	179*
Health Officers	55	8	129	169	9	19	123	6	3	7	6	4	2	71	20	631
Female	10	2	13	NA	2	3	13	1	2	2	2	1	0	NA	0	51*
Pharmacists	4	0	6	17	2	2	18	2	1	2	2	16	7	34	12	125
Female	2	0	1	NA	0	0	2	0	0	1	0	4	0	NA	3	13*
Nurses	1222	215	1593	2531	325	201	1661	158	201	825	137	606	433	4015	37	14160
Female	794	51	602	NA	77	42	469	44	84	573	80	376	306	NA	28	3526*
Env. Health W.	93	13	283	283	51	25	192	4	7	2	19	23	4	55	0	1054
Female	22	0	20	NA	4	1	18	0	1	0	5	5	0	NA	0	76
Lab Tech.	159	20	268	375	46	27	309	10	32	121	17	45	42	444	230	2145
Female	58	1	32	NA	2	2	40	2	7	43	5	6	9	NA	42	249*
Radiographer	16	1	26	40	5	6	26	1	7	25	4	25	1	56	32	271
Female	1	0	2	NA	0	6	0	0	1	2	0	6	0	NA	4	22*
Pharm. Tech.	139	15	145	196	13	14	114	5	13	75	7	18	12	261	19	1046
Female	45	2	23	NA	2	0	16	0	4	40	0	6	2	NA	6	146*
Health Ass.	885	60	1220	2115	114	97	1126	39	62	383	67	284	103	301	0	6856
Female	416	22	388	NA	9	5	232	3	43	249	35	170	25	NA	0	1597*
**FLHW	7070	162	837	161	248	88	469	39	43	91	12	0	360	4927	0	14,507
Female	4348	39	393	NA	152	37	103	17	32	77	5	0	274	NA	0	5477*

Source: MOH/PPD. Health and Health-Related Indicators. 2002/03. Addis Ababa

*total does not have data from Oromia and OGAs.

**FLHW includes CHA. TBA and PHW

Data for private institutions are only for Addis Ababa

Table A 3: Staffing Norms by Types of Healthcare Institutions

Category (population)	PHCU (25,000)	District Hospital (250,000)	Zonal Hospital (1 million)	Special Hospital (5 million)
Health officer	1	1	-	-
GP		4	14	68
Surgeon		-	1	5
Internist			1	5
Pediatrician			1	5
Gynecologist			1	5
Anaesthesiologist			1	5
Radiologist			1	3
Ophthalmologist				3
Other Specialists				4
Total doctors	*1*	*5*	*20*	*100*
PHW	5			
CHA	5			
TBA	5			
Primary midwife	1			
Junior env. HW	?			
Senior Env. HW	1	1	1	2
Junior PH nurse	1			
Senior PH nurse	1	2	2	5
Junior Cl. Nurse	1	10	16	90
Senior Cl. Nurse	1	5	30	180
Junior Midwife	1	2	8	20
Senior Midwife		4	12	40
N. Anaesthetist		2	2	5
J. Radiographer		2	2	3
S. Radiographer		1	1	6
J. Lab Tech	1	2	4	2
Sr. Lab Tech		1	2	4
J. Pharm tech	1	2	1	2
S. Pharm Tech		1	2	4
Pharmacist			1	2
Total other HC workers	*24*	*35*	*77*	*365*

Annex 2: The Marginal Budgeting for Bottlenecks (MBB) Tool

The Marginal Budgeting for Bottlenecks tool (MBB) is an analytical costing and budgeting mechanism developed by teams from the World Bank (Africa Region, South Asia Region and HNP Anchor) and UNICEF and the WHO. The tool has been developed in the context of HIPC and PRSP to respond to the request of low-income countries asking for a method to be able to plan, cost and budget marginal allocations for health services and assess their potential impact on health coverage and MDGrelated health outcomes of the poor.
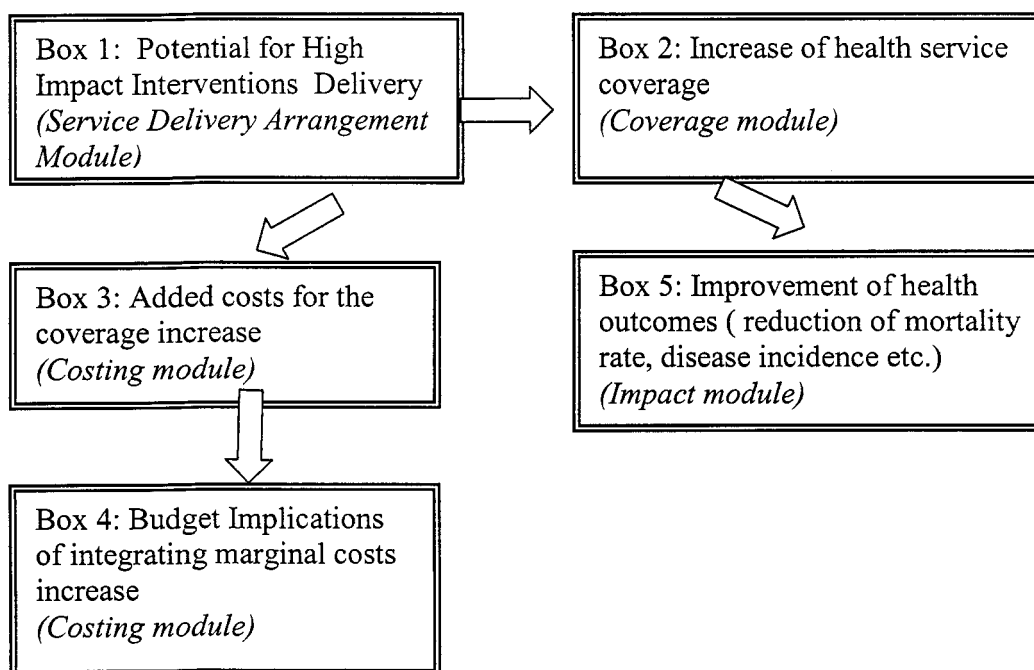
The tool helps to a) assess the allocative, technical and input efficiency of various options to utilize resources in the health sector; b) plan and forecast the potential cost and impact of scaling up investments to increase the intake, coverage and quality of high impact health interventions; and c) prepare results-oriented expenditure programs and health budgets.

The tool has been used at country level to prepare Mid Term Expenditures Frameworks in Benin, Mali, Mauritania and Rwanda. In Ethiopia, it has been used to assess the cost and potential impact of various service delivery options to enhance the contribution of health services to the MDGs. In Madagascar and India, it is currently used as a planning tool for reallocating funding within the health sector as well as orienting expenditures of a newly developed national health project supported by a World Bank loan.

The MBB principally addresses the following six sets of questions:

- *Who does what?*
- *Which high impact interventions can be integrated into existing provider/service delivery arrangements to accelerate progress towards achieving the health MDGs?*
- *What are the major hurdles or "bottlenecks" hampering the delivery of health services, and what is the potential for overcoming them?*
- *How much money is needed to achieve the expected results?*
- *How much can be achieved in terms of health outcomes (i.e., mortality reduction) by removing the bottlenecks?*
- *Which types and what amounts of financing are possible to mobilize, and how should these funds be allocated and channeled?*

MBB is comprised of five modules: (1) a health services delivery arrangements module; (2) a health service coverage module (sometimes also called bottleneck identification module, but referred to as a coverage module in short hereafter); , (3) a costing module; (4) a budgeting module; and (5) an impact module. Conceptually, the five modules are embedded into the following framework:

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┌─────────────────────────────┐        ┌─────────────────────────────┐
│ Box 1:  Potential for High  │        │ Box 2: Increase of health   │
│ Impact Interventions Delivery│  ──▷  │ service coverage            │
│ (Service Delivery Arrangement│       │ (Coverage module)           │
│ Module)                     │        │                             │
└─────────────────────────────┘        └─────────────────────────────┘
             ◁                                      ▷
┌─────────────────────────────┐        ┌─────────────────────────────┐
│ Box 3: Added costs for the  │        │ Box 5: Improvement of health│
│ coverage increase           │        │ outcomes ( reduction of     │
│ (Costing module)            │        │ mortality rate, disease     │
│                             │        │ incidence etc.)             │
│            ▽                │        │ (Impact module)             │
└─────────────────────────────┘        └─────────────────────────────┘
┌─────────────────────────────┐
│ Box 4: Budget Implications  │
│ of integrating marginal costs│
│ increase                    │
│ (Costing module)            │
└─────────────────────────────┘
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Most recent scientific research[98] provides increasingly solid evidence of how and to what extent specific health interventions can improve health outcomes. These "high impact interventions" can be integrated into various service delivery arrangements already in place in a given country (Box 1). The design of the MBB tool reflects the scientific findings in a marginal way. By acknowledging the current health service coverage, the coverage module of the MBB tool (Box 2) captures how much high impact intervention coverage can increase current levels of coverage; reaching the "production frontiers" by identifying and removing key bottlenecks to implementation. The costing module (Box 3) calculates the amount of marginal inputs (and marginal cost) that would need to be mobilized to remove the obstacles in achieving the "production frontier." The budgeting module (Box 4) estimates the additional resources to be mobilized on top of the current funding for removing obstacles to increasing health service coverage (marginal financing). Finally, the impact module (Box 5) helps to quantify the extent of health outcome improvement vis-a-vis the current situation, (i.e., the expected contribution to reducing the U5MR) that could be obtained though an increase in health service coverage.

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[98] Becker & Black; The Lancet Child Survival Series.

The MBB tool is an excel spreadsheet program, actually quite a simple computer program. (). Users can employ this tool by inputting the required data in the input sheets and interpreting the results. The MBB computer tool can execute a variety of policy and budgeting simulations and quantifications. For example, it can rate the amount of inputs needed to achieve a certain level of improvement of coverage in a given context and the contribution of the increased coverage to health impact; or alternatively, it is able to estimate the increased coverage and potential impact that can be achieved by budgeting additional resources.

The MBB becomes increasing appealing to countries for the following unique characteristics that distinguish it from other costing exercises:

- *Explicitly results-driven*
- *Costing of bottlenecks not packages*
- *Focus on the entire health service delivery mode rather than specific interventions*
- *Marginal costing and budgeting*
- *Country specific model*

The elaboration of the manual is one of the key activities of a larger work-program aiming at a) developing and disseminating knowledge on planning and budgeting for enhanced health services contribution to reaching the MDGs; b) providing technical support to countries for costing the health services component of the Poverty Reduction Strategy; and c) building capacity for developing results-oriented Mid-Term Expenditures Frameworks (MTEF) in the health sector. This program has three main components:

A. **Research and Development:** This component includes further development of the MBB, including the development of a nutrition, HIV/AIDS and TB impact model; further elaboration on the costing functions of service delivery; as well as further detailing of the budgeting module in line with the ongoing NHA exercises.

B. **Support to Countries:** This element includes providing technical support to the preparation of cost and impact simulation models as an input into health projects and PRSC operations; as well as the preparation of results-oriented MTEFs and MDG plans. (In Ethiopia, for example, this entails linking the MBB model to the MAMS (Maquette for MDG Simulations) macro-micro consistency model in collaboration with the Chief Economist's Office).

C. **Capacity Building:** This component includes the preparation of the manual, as well as the organization of regional workshops (one Francophone and one Anglophone workshop in FY04 and FY05).