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FINAL REPORT

**Impact Evaluation of Ethiopia's National
Response to HIV/AIDS, Tuberculosis and Malaria**

The 2008 Ethiopian Global Fund Health Impact Evaluation (EGFHIE) was conducted by Ethiopian Health and Nutrition Research Institute (EHNRI), assigned by CCM-Ethiopia, under the auspices of the Global Fund and Macro International evaluation team.

Impact Evaluation of Ethiopia's National Response to HIV/AIDS, Tuberculosis and Malaria

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Acronyms

| | |
|---------------|--|
| ACT | <i>Artemisin based Combination Therapy</i> |
| AIDS | <i>Acquired Immunodeficiency Syndrome</i> |
| ANC | <i>Antenatal Care</i> |
| ARI | <i>Acute Respiratory Infections</i> |
| ART | <i>Anti Retroviral Therapy</i> |
| ARV | <i>Anti-retroviral Drugs</i> |
| BCG | <i>Bacillus Calmette Guerin vaccine</i> |
| CCM | <i>Country Coordination Mechanism</i> |
| CDR | <i>Case Detection Rate</i> |
| CECS | <i>Comprehensive Evaluation Country Studies</i> |
| CMR | <i>Child Mortality Rate</i> |
| CPT | <i>Cotrimoxazole Preventive Therapy</i> |
| CSA | <i>Central Statistical Agency</i> |
| HCT | <i>HIV Counseling and Testing</i> |
| DACA | <i>Drug Administration and Control Authority</i> |
| DOTS | <i>Directly Observed Treatment, Short Course</i> |
| DPT | <i>Diphtheria Pertussis Tetanus vaccine</i> |
| EA | <i>Enumeration Area</i> |
| EC | <i>Ethiopian Calendar</i> |
| EDCA | <i>Ethiopian District Comprehensive Assessment</i> |
| EDHS | <i>Ethiopian Demographic and Health Survey 2005</i> |
| EFY | <i>Ethiopian Fiscal Year</i> |
| EHNRI | <i>Ethiopian Health and Nutrition Research Institute</i> |
| EHSP | <i>Essential Health Service Package</i> |
| EMIS | <i>Ethiopian Malaria Indicator Survey</i> |
| ENHFS | <i>Ethiopia National Health Facility Survey</i> |
| EQA | <i>External Quality Assurance</i> |
| FBOs | <i>Faith Based Organizations</i> |
| FDRE | <i>Federal Democratic Republic of Ethiopia</i> |
| FHAPCO | <i>Federal HIV/AIDS Prevention and Control Office</i> |
| FMoH | <i>Federal Ministry of Health</i> |
| EPI | <i>Expanded Programs on Immunization</i> |
| GC | <i>Gregorian Calendar</i> |

| | |
|------------------------|---|
| GDP | Gross Domestic Product |
| GFATM | Global Fund to fight AIDS, TB & Malaria |
| GLRA | German Leprosy and TB Relief Association |
| GNI | Gross National Income |
| GNP | Gross National Product |
| HAART | Highly Active Anti Retroviral Treatment |
| HAPCO | HIV/AIDS Prevention and Control Office |
| HBC | High Burden Country |
| HC | Health Center |
| HCU_s | Health Care Units |
| HESP | Health Extension Service Package |
| HEWs | Health Extension Workers |
| HF | Health Facility |
| HFS | Health Facility Survey |
| HIV | Human Immunodeficiency Virus |
| HMIS | Health Management Information System |
| HP_s | Health Posts |
| HS | Health Station |
| HSDP | Health Sector Development Programme |
| HSEP | Health Service Extension Programme |
| HW | Health Worker |
| IEC/BCC | Information, Education and Communication/ Behavior Change Communication |
| IMCI | Integrated Management of Childhood Illness |
| IMR | Infant Mortality Rate |
| ITN | Insecticide Treated Nets |
| Lab. | Laboratory |
| M&E | Monitoring and Evaluation |
| MAP | Multi-Country HIV/AIDS Program |
| MDGs | Millennium Development Goals |
| MDT | Multi-Drug Therapy |
| MDR | Multi-Drug Resistant |
| MMR | Maternal Mortality Rate |
| MOFED | Ministry of Finance and Economic Development |
| NAC | National AIDS Control |
| NGOs | Non-Governmental Organizations |
| NTLCP | National TB and Leprosy Control Programme |
| NTP | National TB Programme |

| | |
|---------------|---|
| ORS | Oral Re-hydration Salts |
| ORT | Oral Re-hydration Therapy |
| PASDEP | Plan for Accelerated and Sustained Development to End Poverty |
| PDP | Project Development Plan |
| PEPFAR | President's Emergency Plan for AIDS Relief |
| PHCU | Primary Health Care Unit |
| PLWHA | People Living with HIV/AIDS |
| PMTCT | Prevention of Mother-to-Child Transmission |
| PPS | Probability Proportional to Size |
| PRSP | Poverty Reduction Strategy Paper |
| PTB | Pulmonary Tuberculosis |
| QC | Quality Control |
| RH | Reproductive Health |
| RHB | Regional Health Bureau |
| SACS | Secondary Analysis Country Studies |
| SDPRP | Sustainable Development and Poverty Reduction Programme |
| SNNPR | Southern Nations Nationalities and Peoples Region |
| SOP | Standard Operating Procedures |
| SPM | Strategic Planning & Management |
| SPSS | Statistical Package for Social Sciences |
| SSA | Sub Saharan Africa |
| STI | Sexually Transmitted Infection |
| TB | Tuberculosis |
| TERG | Technical Evaluation Reference Group |
| TFR | Total Fertility Rate |
| TOR | Terms of Reference |
| TOT | Training of Trainers |
| U5MR | Under Five Mortality Rate |
| UNAIDS | Joint United Nations Programme on HIV/AIDS |
| VCT | Voluntary Counseling and Testing |
| WHO | World Health Organization |

Foreword

The 2008 Ethiopian Global Fund Health Impact Evaluation (EGFHIE) was conducted by Ethiopian Health and Nutrition Research Institute (EHNRI), assigned by the Country Coordination Mechanism (CCM-Ethiopia), in close collaboration with the Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM) and Macro International evaluation team.

The primary objective of the 2008 EGFHIE was to provide a comprehensive assessment of the collective impact that GF and other national and international partners have achieved in reducing the disease burden of HIV, tuberculosis and malaria as well as to provide up-to-date information to donors, policy makers, planners, researchers and programme managers for planning, implementation, monitoring and evaluation of the three diseases.

The Impact Evaluation involved a series of data collection approaches which can provide information about how well the program activities have met the expected objectives. Information was primarily collected through systematic review of national records/ documents, health facility assessment and Ethiopian District Comprehensive Assessment (EDCA). The findings of this evaluation revealed that there are encouraging and promising progress in terms of increased funding and service expansion and provision for the three diseases in the past five years.

EHNRI would like to acknowledge the contribution of a number of organizations and individuals for the successful completion of the 2008 EGFHIE. The Institute is grateful for the commitment of the FMOH and the generous funding support by the GFATM. We also appreciate all the partners and stakeholders, mainly, UNAIDS who played secretarial role for the Task Force, TB and Malaria Departments of FMOH, FHAPCO, WHO, PEPFAR/CDC, Tulane University, Italian Cooperation/HIV-AIDS Donors' Forum, and Central Statistics Agency (CSA) who participated as members of the Task Force and Core Group.

We would also like to thank Macro International for technical assistance in all aspects of the survey. Particularly our appreciation goes to Prof Amy Tsui from Johns Hopkins University. The Institute extends a special thanks to FMOH and FHAPCO in providing all available secondary data, Tulane University in providing computers, data entry clerks and contributing to the successful completion of the survey. Special thanks also go to CSA, which handled the selection of survey districts and enumeration areas (EA), providing EA maps, selecting and training data collectors and EA listing. We also wish to acknowledge the tireless effort of all members of EHNRI staff who made this survey a success.

Finally, we highly appreciate all the Regional health bureaus and the field staff and, more importantly, the survey respondents, who were critical to the successful completion of this survey.

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Executive Summary

Evaluation Background

This report presents the results of the Ethiopian impact evaluation pertaining to the scale-up to fight AIDS, TB and Malaria with special reference to the GFATM.

At its 14th meeting in November 2007, the GFATM Board of Directors approved the launch of the Five-Year Evaluation of the GFATM. Ethiopia has been selected to participate in this impact evaluation as one of the 8 Comprehensive Evaluation Countries Study (CECS) countries, where primary data collection has been carried out to evaluate the health impact of the GFATM on HIV/AIDS, TB, and Malaria.

In Ethiopia, EHNRI, assigned by CCM-Ethiopia, has facilitated and played a leadership role for this impact evaluation supported by a Task Force composed of selected representatives of major stakeholders and has worked closely with the global evaluation team. The Task Force is the entity responsible for validating the results from this impact evaluation.

The main objective of this study is to provide a comprehensive assessment of the collective impact that GFATM and other national and international partners have contributed to reducing the disease burden of HIV, tuberculosis and malaria. The following paragraphs summarize the main findings of the work.

The design of the Impact Evaluation activities comprise of planning the evaluation, data collection, analysis and dissemination. All activities except the data dissemination were performed according to the designed plan of activities.

The Ethiopian Impact Evaluation data collection was divided into three components: systematic national records/ documents collection and review, Health facility assessment and EDCA.

Household Health Care Expenditure

The average household expenditure in the 12 months preceding the survey was high in regards to inpatient care (about 21 Birr) compared to the minimum household expenditure on voluntary health insurance (about 1 Birr). On the other hand, the highest percentage of household health expenditure was for outpatient care (12%) and minimum with voluntary health insurance expenditures (1.5%).

The average amount of money a household spent in the 12 months preceding the survey ranges from 18 Birr for inpatient non-communicable diseases to 0.4 Birr for outpatient pregnancy follow-up and delivery. The maximum average amount of money households spent for different types of health care was 29 Birr at public hospitals while a minimum amount of 0.2 Birr was spent for home visits.

Generally, the poorest and rural households do not seem to utilize health care to such an extent as urban and well-off households.

HIV/AIDS

The first evidence of HIV infection in Ethiopia was found in 1984 and the first two AIDS cases reported to the FMOH in 1986 (FMOH, 2006b). Since then the HIV epidemic has evolved into a generalized epidemic. The national adult prevalence rate of HIV in Ethiopia was estimated at 2.1 % in the year 2007 (FHAPCO & FMOH, 2007).

The Government of the Federal Democratic Republic of Ethiopia and its partners have been working hard to contain the epidemic. Particularly in the last five years, partners such as the GFATM, PEPFAR and the World Bank have provided considerable financial and technical support to the national HIV/AIDS response.

The evaluation employed both primary and secondary data to assess the input, output, outcome and impact of HIV/AIDS programs such as HCT, ART and PMTCT. Moreover, trends in women's knowledge of HIV/AIDS and risky sexual behavior were assessed.

Result indicates that the financial input on the national HIV/AIDS programs increase markedly in the last five. Particularly, the Global Fund annual spending on HIV/AIDS program increases from 91,209,956.4 Birr in 1996 EFY to 1,126,644,612 Birr in 2000 EFY - a more than 12 fold increment over 1996 EFY spending. Moreover, in the last two years, the spending showed a more than 100% increment per year. The number of HCT service offering sites that were 525 in 2004 increases to 1,230 in March 2008. The number of people tested for HIV also shows a more than 6 fold increment in the last five years. The spectacular increases, however, were observed between the year 2005 and 2008. The number of people tested annually for HIV reached nearly 2.3 million in the year 2007/08, which is 400% increases over 2005/06 and 50% increases over 2006/07. The DCA data of this evolution (primary data) also demonstrates that among the health facilities studied (157) about 85% are providing HCT service. Similarly, the number of ART sites increase from 3 in 2005 to 329 in 2008. Moreover, the number of clients ever started ART which was only 8,276 in 2005, sharply increased and reached to 131,360 in May, 2008. Besides, the primary data demonstrates that the levels of women's knowledge about the transmission of AIDS virus improves and use of condom at higher risk sex increases considerably. Trend analysis of the national HIV prevalence between 2004 and 2008 indicated the prevalence appears to be stable. Moreover, the urban epidemic exhibit plateauing or even declining trends. The increasing trend in Global Fund spending on HIV/AIDS programs well coincides with the trends in scale up of HCT and ART service.

Tuberculosis

Tuberculosis is one of the major health problems and one of the leading causes of morbidity and mortality in Ethiopia. In order to curb the impacts of TB, the Government has carried out various interventions including fully integrating TB diagnosis and treatment into the general health service system and decentralizing TB service delivery to the peripheral health units at Woredas.

In support of the Government's efforts in expanding treatment access and mitigating the impact of tuberculosis, funding provided from the GFATM and other donors has increased by substantial amounts during the period 2002–2008.

As a result of expansion of TB services, Woreda coverage has increased from 50% to 90%. In addition, the number of zones in which Directly Observed Treatment, Short Course (DOTS) strategy had been introduced has risen from 39% in 2001 to 100%. Similarly the potential DOTS/Multi-Drug Therapy (MDT) coverage of public health facilities that implement the DOTS strategy has remarkably increased.

As a consequence of efforts made by the Government to improve availability and quality of TB services, notable changes had been achieved in the past successive years, though there are some areas left behind to reach the national and global targets.

In order to achieve the goals set in the coming years and strengthen TB control efforts in all aspects, focus must be made on improving observed weaknesses. An accelerated pace of improvement to deal with challenges that emerged in the course of implementation and to achieve the target set for tuberculosis control can be maintained through a stepwise scale-up in financial resources.

Malaria

Funding for malaria from the GFATM and other development partners has significantly increased over the past five years, helping Ethiopia to implement an accelerated scale up of insecticide treated nets (ITNs) and artemisin based combination therapy (ACT) distribution to beneficiaries. The coverage of insecticide residual spraying (IRS) for houses in malaria risk areas (altitude < 2000 m) of the country rose to 20 % in 2007 from 17.3% in 2005. Furthermore, the utilization of ITNs by children under five years of age and pregnant women has increased significantly in the past three years with declining malaria morbidity in the country. However, in order to keep the momentum of the current achievement, adequate budget allocation by partners and the government for the malaria prevention and control should continue in the years to come.

Non HIV/AIDS, Tuberculosis and Malaria Health Services

Family Planning

Thirty-four percent of currently married women were using a method of contraception. Modern methods were more widely used than traditional methods, with 33% of currently married women using a modern method and about 1% using a traditional method. The most popular modern injectable method was used by one in four currently married women.

In the eight year period between 2000 Ethiopian Demographic and Health Survey (EDHS) and 2008 Ethiopian District Comprehensive Assessment (EDCA), current use of contraceptive methods dramatically increased from 8 to 34%. The increase was particularly considerable for modern method which has increased more than five fold in the past eight years. The trend was mostly attributable to the recent rapid rise in the use of injectables from 3% in the 2000 EDHS to 25% in the 2008 EDCA.

Poor, rural, uneducated women were less likely to use family planning, because their lack of knowledge and limited accessibility to family planning methods. Extra effort is required so that all Ethiopian women will have access to the same information and resources to achieve related goals of family planning.

Child Health

In the two weeks preceding the survey, 3 % of children under the age of five showed symptoms of Acute Respiratory Infection (ARI). Use of a health facility for the treatment of symptoms of ARI was relatively low as only 36% of children were taken to a health facility or a health provider.

Nationally, 10% of children under the age five had diarrhea at some time in the two weeks before the survey. Around nine out of twenty children were taken to a health provider. Some 37% of children

with diarrhea were treated with Oral Re-hydration Therapy (ORT) and 40% were treated with ORT or increased fluids; 3% were given increased fluids and continued feeding.

Receiving timely and appropriate treatment during illness is vital. In this survey, few children with ARI and or diarrhea were taken to a health provider, and limited number of ARI or diarrhea were treated with antibiotics or ORT, respectively. ARI and diarrhea are not always preventable; therefore, effective, affordable and accessible treatment options are necessary in order to maintain the health of children.

Twenty-three percent of children aged 12-23 months had been fully vaccinated before the survey. Sixty-three percent had received BCG vaccination, and 55% had been vaccinated against measles. The coverage for the third dose of Polio was relatively high (52 %). However, only 32% received the third dose of DPT. Polio vaccination coverage was much higher than DPT because of the success of the national immunization day campaigns during which polio vaccines are administered. Generally, vaccination coverage in Ethiopia has improved over the past eight years. The percentage of children 12-23 months fully vaccinated increased from 14% in the 2000 EDHS to 23% in the 2008 EDCA.

In general, vaccine preventable illnesses are major causes of childhood death, and yet only 23% of Ethiopian children were fully vaccinated. Although this is still relatively low, it represents a significant improvement over the last eight years. Therefore, continued improvement in vaccination coverage will have a great impact on reducing childhood morbidity and mortality.

Antenatal Care

The findings of this evaluation revealed that the utilization of health facilities for antenatal care in the five years preceding the 2008 EDCA has increased compared to previous surveys like EDHS 2005. The 2008 EDCA survey revealed that 48% of mothers received antenatal care from health professionals (doctor, nurse, mid-wife) for their most recent birth in the five years preceding the survey.

Significant proportions of women also visited health facilities and received antenatal care and delivery assistance from health professionals during pregnancy. Nearly 31% of women made four or more antenatal care visits during their entire pregnancy. However, in order to achieve further success high impact intervention in antenatal care usage should be continued and strengthened.

1 Impact Evaluation Introduction

1.1 Evaluation Background

The scale and focus of the GFATM provides the opportunity for donors to invest in impact against HIV/AIDS, TB and malaria. In the past five years, the GFATM and other donors have increased the amount of global resources directed at fighting and reducing the burden of the three diseases. This increase in resource allocation is expected to have had a significant contribution and impact on the availability and quality of services for the three diseases as well as on intervention coverage and outcomes and consequently, on disease burdens.

At its 14th meeting in November 2007, the GFATM Board of Directors approved the launching of the Five-Year Evaluation of the GFATM. The design of the Five-Year Evaluation foresees work in and with 20 countries to evaluate impact. This work comprises two groups of countries: 8 countries which are selected as appropriate for an in-depth analysis including primary data collection and categorized as Comprehensive Evaluation Country Studies (CECS) and 12 countries which are chosen for impact analysis based on secondary data and categorized as Secondary Analysis Country Studies (SACS). Ethiopia has been selected to participate in this impact evaluation of the GFATM as one of the 8 CECS countries, where primary data collection has been carried out to evaluate the health impact of the GFATM.

Under the guidance of the Technical Evaluation Reference Group (TERG), the Five-Year Evaluation of the GFATM is expected to shed light on whether the expectations for the increased funding are being realized. In particular, the Five-Year Evaluation calls for an Impact Evaluation to assess the reduction in the burden of the three diseases associated with the collective scale-up of prevention and treatment activities by all partners. Recognizing that it is not possible to separate the effects of different donors and funding streams, the evaluation will not attempt to attribute the detected effects to the GFATM, although it can speculate about the overall contribution of the GFATM to the achievements so far.

In Ethiopia, EHNRI, assigned by CCM-Ethiopia, played a facilitating and leadership role for the establishment of Task Force which works closely with the global evaluation team in the implementation at country level and to carry out all the Impact Evaluation activities. The Task Force was responsible for coordination, oversight, advice and decision-making on all major aspects of the Impact Evaluation undertaken. The Task force was also accountable to mobilize in-country institutions and partners to be involved in the impact evaluation activities and to organize a core group which comprises technical experts from among the Task Force members' institutions.

The designed Impact evaluation activities were divided into four phases: planning the evaluation, data collection, analysis and dissemination. All activities were performed according to the designed plan of activities.

1.1.2 Objectives of the Impact Evaluation

The main objective of the 2008 Health Impact Evaluation study, by and large, is to comprehensively assess the collective impact that Global Fund and other national and international partners have achieved on reducing the disease burden of HIV, tuberculosis and malaria at the national level.

The specific objectives are:

1. To measure the national HIV, Malaria and TB program effect on disease morbidity and mortality,
2. To lay the foundation for improved monitoring and evaluation in the future,
3. To get baseline information for future impact evaluation.

1.1.3 Impact Evaluation Questions

The Impact Evaluation focused on answering the following questions:

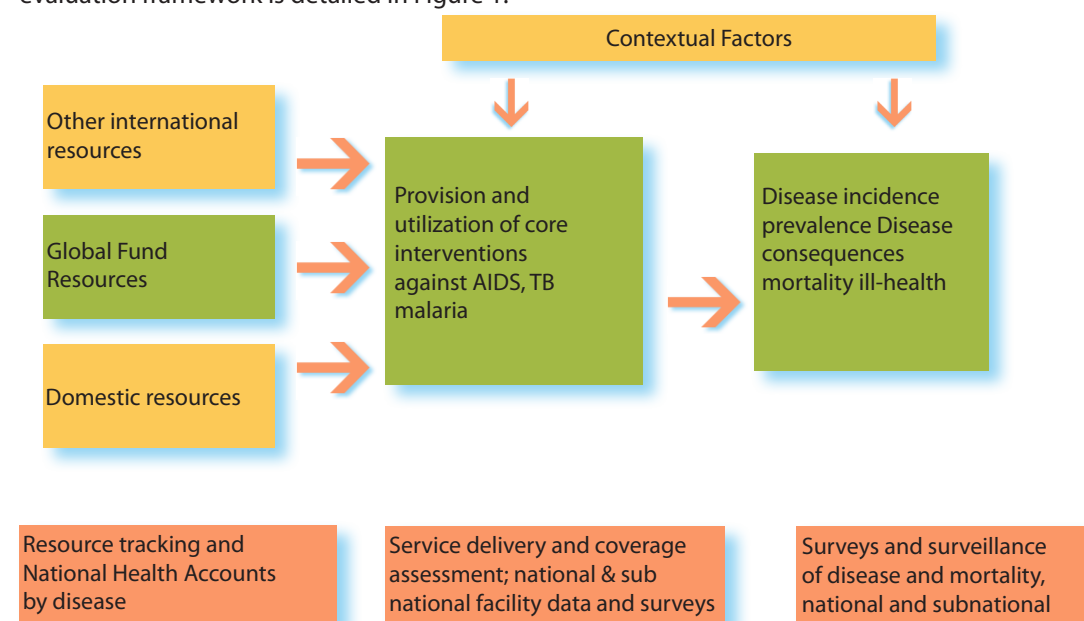
- What collective impact did Global Fund and other national and international partners have on reducing the disease burden of HIV, tuberculosis and malaria in Ethiopia?
- What overall program effect on disease morbidity and/or mortality, brought about by all control initiatives and programs combined irrespective of their financing source(s)?

Specifically, the evaluation emphasized on answering these questions:

- Has funding/spending increased for HIV/AIDS, TB and Malaria programs?
- Has the availability of quality HIV/AIDS, TB and Malaria services increased?
- Has the coverage of HIV/AIDS, TB and Malaria services improved?

1.1.4 Impact Evaluation Framework

The Health Impact Evaluation was designed to determine the impact of available financial resources on the delivery of services, coverage of those services, and the burden of the three diseases. The evaluation framework is detailed in Figure 1.



1.1.5 Impact Evaluation Components

Efforts of abstracting and collecting data for the Impact Evaluation involved a series of data collection approaches which can provide information about how well the programs activities have met with the expected objectives. Ethiopian Impact Evaluation data collection was divided into three components which are described below.

National Records/Documents Review

A systematic national records/documents (reports at the national level) collection and review, which focused on the three diseases between the periods of 2000-2007, has been carried out under the responsibility of the Project Office implemented by the EHNRI.

Health Facility Assessment

Health facility assessment was conducted in the selected health facilities in the Woredas that were selected for the EDCA.

Ethiopian District Comprehensive Assessment (EDCA)

The Ethiopian District Comprehensive Assessment (EDCA) was employed as a key data collection and analysis instrument of the Evaluation Study. This kind of approach helps in providing in depth information on the three diseases and a data platform that can be used for future studies and evaluations. The main purpose of the EDCA was to fill up the gaps and to recognize the sub national differentials. Thus during the processes it was possible to ascertain data quality and biases.

The EDCA survey was designed and carried out in a way it would be nationally representative (population based) covering the three diseases. The EDCA was actually a National assessment although represented by the Woredas. The EDCA has two components that cover the three diseases. These components are: a) Household coverage survey and b) Women's coverage assessment.

Data processing and analysis of the EDCA was carried out using Epi-Info version 3.3.2 and CSPro 3.3.

1.2 Sampling methodology of districts for the District Comprehensive Assessment (DCA)

1.2.1 District Sampling

The EDCA was aimed at a district equivalent, with population size of 250,000 to 500,000. In Ethiopia this involves combining of 5 woredas to form a cluster of EDCA size, as a woreda has a population of about 100,000. Hence, clusters of 5 woredas were selected and completely covered. This provided a measure of size to the cluster aggregate that ensure coverage of an adequate number of referral hospitals, health centers and health posts. Therefore, the 799 woredas in the country came to be 160 woreda clusters (district).

The following clustering sampling steps were used:

1. Woredas were grouped, by Region, to form "district" like groups (each with 5 woredas), which yields a total number of 160 woreda clusters. Each woreda group had one index cluster with an ART hospital. Four woredas closest to the index woreda are selected to form one woreda cluster together with the index woreda.

2. Accordingly 35 woreda clusters were selected across the Regions, using Probability Proportional to Size (PPS) procedures. The total number of groups were 35 ($35/175 = 22\%$). The samples were distributed to each of the 11 Regions based on PPS. Regions with few facilities had at least 1 hospital, hence that hospital and its health facility network were completely enumerated.

3. For each woreda cluster, 3 EAs per woreda were selected. There were 525 EAs across the country, which was somehow similar to size of the EDHS survey. About 17 households were selected randomly per EA making a total of 8750 households. The 8750 households were divided across the 35 woreda groups proportionally. The total households allocated to each cluster were distributed to the woredas based on PPS.

4. Within each woreda, one urban EA was selected with the other two EAs being rural. This gave roughly 35 urban EAs and 315 rural (or 1:9), which is similar to the overall urban-rural distribution of the population.

5. The EDCA design was nationally representative, hence valid analysis and interference would be made at national level. Interferences and conclusions can not be drawn at Regional or smaller administrative unit due to the size of the sample. Particularly, smaller or historically disadvantaged Regions who have just one network (cluster) will not have sufficient sample size for comparison. The number of households in the Regions range from 50 to 400.

6. In order to ensure the accuracy of estimates from the EDCA, an update master sample of EAs was used based on the 2007 census results. The Central Statistical Agency's (CSA) latest EA maps and household listings were used to enable systematic sampling of households. The eligible respondent at the household level were a females aged 15 to 49 years.

1.2.2 District health facility Profile

The health service delivery in the country is organized into four levels. The first level is primary health care unit which comprises of a health center and an average of five satellite health posts. Hospitals are classified into first, second and tertiary levels. EDCA site selection was based on the availability of hospitals which provide ART services. Thus, of all available health facilities in the country 123 rural plus urban health centers and 34 hospitals serving at different levels were considered in the present evaluation study.

Table 1.1 Type of facilities by region

| Number of facilities by type of facility by region, Ethiopia 2008 | | | | | | | | | | | | |
|---|---------|--------|-------|--------|--------|-------------|------|------------------|-----------|----------|--------|-------|
| Type of facility | Region | | | | | | | | | | | Total |
| | Oromiya | Amhara | SNNPR | Tigray | Somali | Addis Ababa | Afar | Benshangul Gumuz | Dire Dawa | Gambella | Harari | |
| Third level (tertiary) hospital | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 |
| Second level referral Hospital | 7.0 | 4.0 | 1.0 | 2.0 | 0.0 | 2.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 20.0 |
| First level Hospital | 0.0 | 1.0 | 5.0 | 2.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 10.0 |
| Urban Health Center | 11.0 | 18.0 | 12.0 | 11.0 | 0.0 | 12.0 | 3.0 | 0.0 | 2.0 | 3.0 | 2.0 | 74.0 |
| Rural health Center | 16.0 | 4.0 | 11.0 | 5.0 | 4.0 | 0.0 | 1.0 | 4.0 | 2.0 | 0.0 | 2.0 | 49.0 |
| Total Number of facilities | 34.0 | 27.0 | 29.0 | 20.0 | 5.0 | 18.0 | 5.0 | 5.0 | 5.0 | 4.0 | 5.0 | 157.0 |

1.2.3 District individual characteristics

Number of household and number of respondents by region and residence type

Table 1.2 shows the results of household and individual interview response rates for the EDCA survey by residence and Region. A total of 8,514 households were selected, and 8,427 (99%) households were found occupied. Among these the total number of households interviewed was 8,325, yielding a household response rate of 99 %. A total of 8,358 eligible women were identified in these households and interviews were completed for 7,457 women, yielding a response rate of 89.2 %. Low response rate (81.1%) was found among the Addis Ababa women, compared to the other Regions.

Table 1. 2 Results of the household and individual interviews

| Number of households, number of interviews ('respondents' is more appropriate???) and response rates, according to residence, Ethiopia 2008 | | | | | | | | | | | | | | |
|---|-------|-------|---------|--------|-------|--------|--------|-------------|------|------------------|-----------|----------|--------|-------|
| Residence | | | Region | | | | | | | | | | | |
| Result | Urban | Rural | Oromiya | Amhara | SNNPR | Tigray | Somali | Addis Ababa | Afar | Benshangul Gumuz | Dire Dawa | Gambella | Harari | Total |
| Household interviews | | | | | | | | | | | | | | |
| Households selected | 4,261 | 4,253 | 1,753 | 1,257 | 1,204 | 1,001 | 255 | 1,828 | 256 | 205 | 247 | 252 | 256 | 8,514 |
| Households occupied | 4,215 | 4,212 | 1,730 | 1,251 | 1,197 | 992 | 255 | 1,801 | 252 | 205 | 239 | 251 | 254 | 8,427 |
| Households interviewed | 4,144 | 4,181 | 1,724 | 1,237 | 1,184 | 979 | 252 | 1,768 | 251 | 200 | 228 | 251 | 251 | 8,325 |
| Household response rate | 98.3 | 99.3 | 99.7 | 98.9 | 98.9 | 98.7 | 98.8 | 98.2 | 99.6 | 97.6 | 95.4 | 100.0 | 98.8 | 98.8 |
| Individual interviews: women | | | | | | | | | | | | | | |
| Number of eligible women | 4,529 | 3,829 | 1,518 | 1,140 | 1,249 | 819 | 275 | 2,326 | 260 | 163 | 187 | 219 | 202 | 8,358 |
| Number of eligible women interviewed | 3,932 | 3,525 | 1,397 | 1,061 | 1,122 | 766 | 257 | 1,886 | 232 | 157 | 174 | 212 | 193 | 7,457 |
| Eligible women response rate | 86.8 | 92.1 | 92.0 | 93.1 | 89.8 | 93.5 | 93.5 | 81.1 | 89.2 | 96.3 | 93.0 | 96.8 | 95.5 | 89.2 |

Table 1.3 shows the basic background characteristics of the women interviewed in the 2008 EDCA Household Survey. The 2008 EDCA collected information from all women that were identified as aged 15–49 in the households. Relatively high proportions of women were in the age groups of 25–39, and two-fifths are younger, under age 25.

Table 1.3 Background Characteristics of Respondents

| Percent distribution of women 15-49 by background characteristics, Ethiopia 2008 | | | |
|--|------------------|-----------------|-------------------|
| Background characteristic | Weighted percent | Weighted number | Unweighted number |
| Age | | | |
| 15-24 | 39.8 | 2,971 | 2,971 |
| 25-39 | 47.2 | 3,522 | 3,522 |
| 40-49 | 12.9 | 964 | 964 |
| Education | | | |
| No education | 42.9 | 3,197 | 3,197 |
| Primary | 29.0 | 2,166 | 2,166 |
| Secondary+ | 24.1 | 1,794 | 1,794 |
| Missing | 4.0 | 300 | 300 |
| Wealth index | | | |
| Lowest | 18.3 | 1,368 | 1,368 |
| Second | 18.5 | 1,377 | 1,377 |
| Middle | 18.5 | 1,377 | 1,377 |
| Fourth | 18.5 | 1,380 | 1,380 |
| Highest | 24.6 | 1,836 | 1,836 |
| Missing | 1.6 | 119 | 119 |
| Residence | | | |
| Urban | 52.7 | 3,932 | 3,932 |
| Rural | 47.3 | 3,525 | 3,525 |
| Region | | | |
| Oromiya | 18.7 | 1,397 | 1,397 |
| Amhara | 14.2 | 1,061 | 1,061 |
| SNNPR | 15.0 | 1,122 | 1,122 |
| Tigray | 10.3 | 766 | 766 |
| Somali | 3.4 | 257 | 257 |
| Addis Ababa | 25.3 | 1,886 | 1,886 |
| Afar | 3.1 | 232 | 232 |
| Benshangul Gumuz | 2.1 | 157 | 157 |
| Diredawa | 2.3 | 174 | 174 |
| Gambella | 2.8 | 212 | 212 |
| Harari | 2.6 | 193 | 193 |
| Total | 100.0 | 7,457 | 7,457 |

The proportion of women declined after age 39. Forty-three percent of women respondents have never been to school. Twenty nine percent of women had attended only primary education, and 24 percent of women had at least some secondary education or higher. Nearly one fourth of the women were found in the highest wealth index, and by Region 25% of women were from Addis Ababa.

Table 1.4 presents a description of the basic characteristics of the women interviewed. It provides the background for interpreting findings presented later in the report. The table shows how women respondents classified by age, education and wealth quintiles by Region.

Compared to other Regions, relatively high proportions and of women from Addis Ababa were found in the younger age groups; 46% had attended secondary, 48% had higher education level and 71% were in the highest wealth quintiles. By age category, two fifth of women from SNNPR, Gambela and Tigray were found in the younger age category (15-24) sharing the second to fourth ranks following women from Addis Ababa, while most (40-58 %) of women from all Regions found in the age groups 25-39. High percentages of women from Somali (85%), Afar (64%) and Amhara (57%) Regions had never been to school.

Table 1. 4 Age, Education and Wealth quintile of women by type of district

| Percent distribution of women age 15-49 by age, education and wealth quintile, according to type of district, Ethiopia 2008 | | | | | | | | | | | | | | |
|---|-------------|-------------|-------------|--------------|-------------|-------------|------------|--------------|-------------|-------------|-------------|-------------|------------|-----------------|
| Type of District | Age | | | Education | | | | Wealth index | | | | | | |
| | 15-24 | 25-39 | 40-49 | No education | Primary | Secondary + | Missing | Lowest | Second | Middle | Fourth | Highest | Missing | Number of women |
| Region | | | | | | | | | | | | | | |
| Oromiya | 37.1 | 50.6 | 12.3 | 47.9 | 30.4 | 16.2 | 5.5 | 26.9 | 21.8 | 25.7 | 17.3 | 6.8 | 1.4 | 1,397 |
| Amhara | 34.2 | 49.7 | 16.1 | 56.9 | 25.0 | 15.3 | 2.8 | 24.2 | 21.2 | 28.3 | 19.1 | 5.6 | 1.6 | 1,061 |
| SNNPR | 41.8 | 46.0 | 12.2 | 41.4 | 36.6 | 17.7 | 4.2 | 23.2 | 25.8 | 20.8 | 17.7 | 9.5 | 3.0 | 1,122 |
| Tigray | 40.1 | 46.1 | 13.8 | 52.7 | 27.4 | 16.7 | 3.1 | 17.6 | 31.2 | 26.5 | 15.9 | 8.0 | 0.8 | 766 |
| Somali | 38.5 | 45.9 | 15.6 | 85.2 | 8.6 | 4.3 | 1.9 | 35.4 | 24.9 | 13.6 | 14.8 | 5.4 | 5.8 | 257 |
| Addis Ababa | 46.2 | 41.8 | 12.0 | 18.1 | 30.6 | 48.3 | 3.1 | 0.8 | 1.0 | 4.1 | 21.7 | 71.4 | 1.0 | 1,886 |
| Afar | 34.9 | 45.7 | 19.4 | 63.8 | 11.6 | 6.0 | 18.5 | 30.6 | 28.9 | 12.9 | 17.2 | 8.2 | 2.2 | 232 |
| Beni-Gumuz | 39.5 | 51.0 | 9.6 | 45.9 | 38.9 | 14.0 | 1.3 | 13.4 | 35.7 | 24.2 | 17.8 | 8.9 | 0.0 | 157 |
| Dire Dawa | 33.9 | 56.9 | 9.2 | 52.3 | 23.6 | 21.8 | 2.3 | 23.0 | 12.6 | 12.6 | 20.1 | 31.6 | 0.0 | 174 |
| Gambella | 40.6 | 54.7 | 4.7 | 42.5 | 43.9 | 11.8 | 1.9 | 37.7 | 27.8 | 18.9 | 11.3 | 3.3 | 0.9 | 212 |
| Harari | 29.0 | 57.5 | 13.5 | 48.7 | 18.1 | 30.1 | 3.1 | 11.4 | 16.6 | 20.2 | 20.7 | 30.6 | 0.5 | 193 |
| Total | 39.8 | 47.2 | 12.9 | 42.9 | 29.0 | 24.1 | 4.0 | 18.3 | 18.5 | 18.5 | 18.5 | 24.6 | 1.6 | 7,457 |

Similarly, compared to the other Regions' respondents, very low proportions (9% and 4.3%) of women from Somali had attended primary and secondary and higher education. The wealth quintile distribution among women shows large variations among Regions. Following high percentage of the women from Addis Ababa who are in the highest wealth quintile, women from Dire Dawa and Harari relatively score the second and third place by having highest wealth quintiles.

On the other hand, relatively high proportion of women in such Regions as Gambela (38 %), Somali (35.4 %) and Afar (31 %) are in the lowest wealth quintile.

1.2.3 District household expenditures

From an economic perspective, an individual's interest to utilize health care is determined by the costs of utilization and the perceived benefits of health care. Since costs mainly are determined by the allocation of health care resources, utilization will in practice be determined by the interaction between demand and provision of health care (McGuire et al, 1988). The average annual Ethiopian Household Expenditure on medical and health care from their total household expenditures was only 0.9 percent (50 Birr). This percentage is small compared to food expenditure shares (CSA , 2000).

Table 1.5 and figure 1.1 below shows the average household health care expenditures especially on mandatory health insurance, voluntary health insurance, other health related items, inpatient care, and outpatient care in the 12 months preceding the survey.

Based on this table, the average expenditure was high on inpatient care (21.1 Birr) which was followed by outpatient care (15.8 Birr), mandatory health insurance premiums and prepaid health plans (9.3 Birr), health related items (4.3 Birr) and on voluntary health insurance (1.3 Birr). Looking at the percentage of households with different health care expenditures, it was high in outpatient care (12%) followed by inpatient care (4.1%), mandatory health insurance (3%), health related items (2.5%) and voluntary health insurance (1.5%).

Considering in detail the average household health care expenditure on inpatient care, population of both urban and rural areas had more average household health care expenditures on inpatient care that is 26.7 and 15.7 Birr, respectively. The average inpatient care expenditure among Regions showed large variations, average expenditures with more than 20 Birr were in Regions of Addis Ababa (39.2 Birr), Amhara (24.6 Birr), Harari (22.9 Birr), SNNPR (20.8 Birr) and Gambela (20.7 Birr). On the other hand, the average inpatient care expenditure increases with wealth. That is in poorest, second poorest, middle, second richest and richest wealth quintile the average expenditures were 7.9 Birr, 11.7 Birr, 14.6 Birr, 28.9 Birr and 44.4 Birr, respectively. Proportion of households with expenditures on outpatient care was high in urban population (14.6%) compared to that of rural population (9.4%). It also varies among Regions, ranging from 6% in Somali to 27.5% in Gambela.

Table 1.5 Average amount of money households spent on mandatory health insurance, voluntary health insurance,

| Health related items, inpatient care, and outpatient care for all households according to background characteristics, Ethiopia DCA 2008 | | | | | | | | | | | |
|---|---|--|--|--|--------------------------------------|---|---|---|--|--|----------------------------|
| Background Characteristics | Household Out-of-Pocket Expenditure | | | | | | Average expenditures on inpatient and outpatient care | | | | Total number of households |
| | Average cost of mandatory health insurance premiums and pre-paid health plans | Percent of HH with mandatory health insurance expenditures | Average cost of voluntary health insurance | Percent of HH with voluntary health insurance expenditures | Average cost of health-related items | Percent of HH with expenditures on health-related items | Average expenditure on inpatient care | Percent of HH with expenditures on inpatient care | Average expenditure on outpatient care | Percent of HH with expenditures on outpatient care | Total number of Households |
| Residence | | | | | | | | | | | |
| Urban | 9.3 | 2.9 | 1.8 | 1.6 | 7.9 | 3.3 | 26.7 | 4.5 | 21.7 | 14.6 | 4,144 |
| Rural | 9.3 | 3.0 | 0.8 | 1.4 | 0.8 | 1.7 | 15.7 | 3.8 | 10.0 | 9.4 | 4,181 |
| Region | | | | | | | | | | | |
| Oromiya | 4.9 | 0.4 | 0.0 | 0.2 | 0.2 | 0.2 | 12.3 | 2.6 | 14.4 | 10.0 | 1,724 |
| Amhara | 3.7 | 2.4 | 2.2 | 1.4 | 1.5 | 1.6 | 24.6 | 2.8 | 5.4 | 6.3 | 1,237 |
| SNNPR | 15.3 | 5.8 | 4.9 | 3.4 | 3.6 | 4.1 | 20.8 | 4.3 | 16.3 | 12.8 | 1,184 |
| Tigray | 32.9 | 9.8 | 2.0 | 4.1 | 0.4 | 3.9 | 15.4 | 4.1 | 10.6 | 10.0 | 979 |
| Somali | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.6 | 1.6 | 9.3 | 6.0 | 252 |
| Addis Ababa | 7.7 | 1.2 | 0.1 | 0.6 | 16.6 | 4.6 | 39.2 | 5.0 | 28.9 | 17.4 | 1,768 |
| Afar | 0.3 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 3.6 | 11.1 | 10.8 | 251 |
| Benshangul Gumuz | 2.5 | 9.0 | 0.0 | 7.5 | 0.0 | 7.5 | 3.0 | 3.5 | 6.4 | 14.0 | 200 |
| Diredawa | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 2.2 | 12.4 | 11.0 | 228 |
| Gambella | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 20.7 | 18.3 | 11.8 | 27.5 | 251 |
| Harari | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 22.9 | 5.2 | 28.3 | 12.4 | 251 |
| Wealth index | | | | | | | | | | | |
| Poorest | 5.5 | 2.5 | 1.1 | 1.0 | 1.0 | 1.5 | 7.9 | 3.1 | 6.7 | 8.0 | 1,653 |
| 2nd Poorest | 11.7 | 3.6 | 0.8 | 1.5 | 1.0 | 1.9 | 11.7 | 3.5 | 11.1 | 10.4 | 1,619 |
| Middle | 4.6 | 2.9 | 1.2 | 2.0 | 0.7 | 2.1 | 14.6 | 4.1 | 11.5 | 11.0 | 1,635 |
| 2nd Richest | 15.7 | 3.1 | 0.7 | 1.4 | 2.7 | 2.1 | 28.9 | 4.9 | 15.8 | 13.4 | 1,634 |
| Richest | 8.0 | 2.9 | 2.7 | 1.8 | 16.6 | 5.2 | 44.4 | 5.1 | 34.5 | 17.3 | 1,635 |
| Missing | 22.1 | 1.3 | 1.3 | 0.7 | 1.3 | 1.3 | 3.6 | 2.0 | 10.9 | 11.4 | 149 |
| Total | 9.3 | 3.0 | 1.3 | 1.5 | 4.3 | 2.5 | 21.1 | 4.1 | 15.8 | 12.0 | 8,325 |

Fig. 1.1 Percentage of household, with different health care expenditures, Ethiopia, 2008

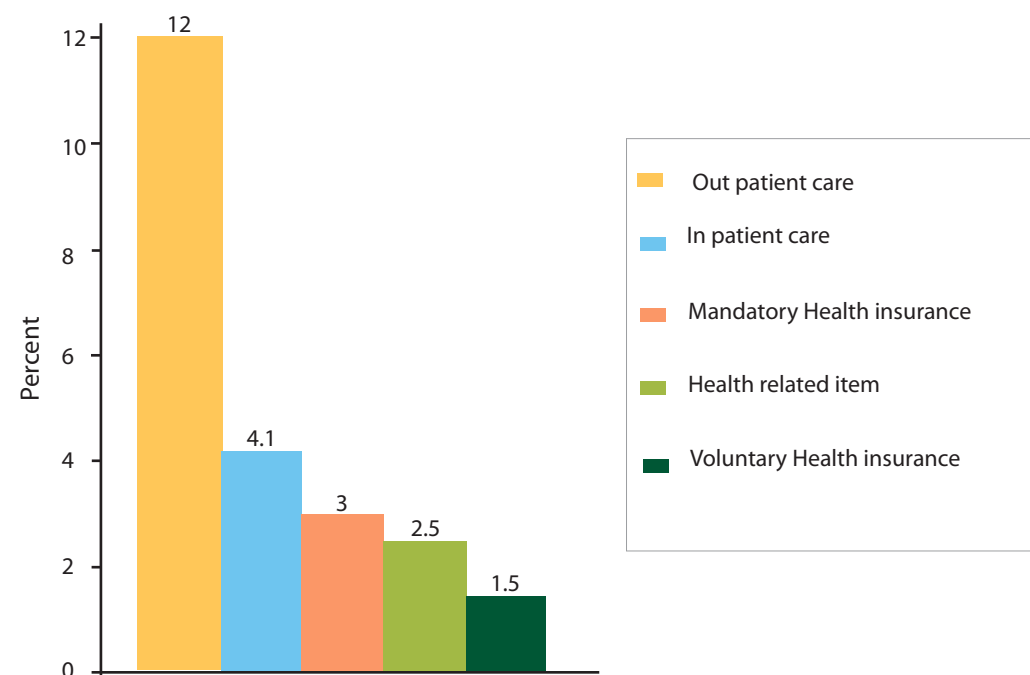


Table 1.6 below shows average amount of money households spent on inpatient and outpatient care for infectious disease, pregnancy delivery prenatal, non communicable disease and other conditions.

The result in this table implicitly shows that high average expenditure goes for inpatient non-communicable diseases (17.8 Birr) followed by inpatient other conditions (13.5 Birr), outpatient non communicable diseases (9.2 Birr), outpatient infectious disease (4.4 Birr), outpatient other conditions (4 Birr), inpatient pregnancy delivery prenatal (3.4 Birr), inpatient infectious disease (3.1 Birr) and lastly outpatient pregnancy delivery prenatal (0.4 Birr).

Considering the highest average expenditure, which is on non-communicable diseases, it was more prevalent in urban population (25.4 Birr) compared to rural population (10.3 Birr). It also showed more or less an increasing trend with wealth index that is 4.6 Birr, 7.8 Birr, 6.9 Birr, 17.2 Birr and 54.3 Birr among households with poorest, second poorest, middle, second richest and richest wealth quintile, respectively. The average expenditure on non-communicable disease among Regions shows large variations, average expenditures of more than fifteen Birr were identified in the Regions of Addis Ababa (46.8 Birr), Harari (17.8 Birr), Gambela (15.5 Birr) and Amhara (15.1 Birr).

Table 1.6: Average amount of money households spent on inpatient and outpatient care for infectious disease, pregnancy delivery prenatal, non communicable disease and other conditions, according to background characteristics, Ethiopia DCA 2008

| Diseases categories | | | | | | | | | Total number of household |
|--|-----------|------------|--|------------|--|------------|--|------------|---------------------------|
| Average expenditures on Infectious disease | | | Average expenditures on Pregnancy delivery perinatal | | Average expenditures on Non communicable disease | | Average expenditures on other conditions | | Total number of Household |
| Background characteristics | Inpatient | Outpatient | Inpatient | Outpatient | Inpatient | Outpatient | Inpatient | Outpatient | |
| Residence | | | | | | | | | |
| Urban | 3.9 | 6.8 | 4.5 | 0.7 | 25.4 | 12.3 | 24.2 | 4.6 | 4,144 |
| Rural | 2.2 | 2.1 | 2.3 | 0.1 | 10.3 | 6.2 | 3.0 | 3.5 | 4,181 |
| Region | | | | | | | | | |
| Oromiya | 0.9 | 2.9 | 1.2 | 0.2 | 9.1 | 9.5 | 4.5 | 4.4 | 1,724 |
| Amhara | 0.7 | 2.0 | 4.6 | 0.1 | 15.1 | 2.2 | 3.3 | 1.3 | 1,237 |
| SNNPR | 5.6 | 2.8 | 2.0 | 0.2 | 9.9 | 8.1 | 8.1 | 7.0 | 1,184 |
| Tigray | 1.4 | 1.6 | 2.5 | 0.7 | 9.5 | 4.3 | 3.0 | 7.7 | 979 |
| Somali | 0.0 | 0.0 | 3.8 | 0.0 | 2.6 | 9.6 | 0.2 | 0.4 | 252 |
| Addis Ababa | 7.2 | 11.4 | 8.0 | 1.0 | 46.8 | 16.6 | 48.6 | 3.8 | 1,768 |
| Afar | 0.3 | 3.6 | 0.0 | 0.1 | 3.1 | 9.7 | 0.8 | 1.1 | 251 |
| Benshangul Gumuz | 1.5 | 1.0 | 1.1 | 0.0 | 0.1 | 5.4 | 0.2 | 0.5 | 200 |
| Diredawa | 0.7 | 5.4 | 0.6 | 0.0 | 2.9 | 4.0 | 1.0 | 3.1 | 228 |
| Gambella | 5.7 | 5.4 | 0.0 | 0.0 | 15.5 | 6.5 | 1.2 | 1.3 | 251 |
| Harari | 1.2 | 2.4 | 0.0 | 0.2 | 17.8 | 24.3 | 5.0 | 1.5 | 251 |
| Wealth index | | | | | | | | | |
| Poorest | 3.2 | 1.6 | 1.6 | 0.2 | 4.6 | 3.7 | 0.9 | 2.6 | 1,653 |
| 2nd Poorest | 2.0 | 2.7 | 0.9 | 0.4 | 7.8 | 7.2 | 2.8 | 3.9 | 1,619 |
| Middle | 1.2 | 2.2 | 1.5 | 0.3 | 6.9 | 6.7 | 5.8 | 3.8 | 1,635 |
| 2nd Richest | 1.2 | 2.8 | 4.0 | 0.1 | 17.2 | 7.5 | 14.8 | 6.7 | 1,634 |
| Richest | 7.9 | 13.1 | 9.2 | 1.0 | 54.3 | 21.5 | 44.3 | 3.2 | 1,635 |
| Missing | 0.2 | 2.3 | 0.0 | 0.8 | 0.0 | 5.0 | 3.4 | 4.9 | 149 |
| Total | 3.1 | 4.4 | 3.4 | 0.4 | 17.8 | 9.2 | 13.5 | 4.0 | 8,325 |

Fig. 1.2 Average amount of money households spent on different disease categories, Ethiopia, 200

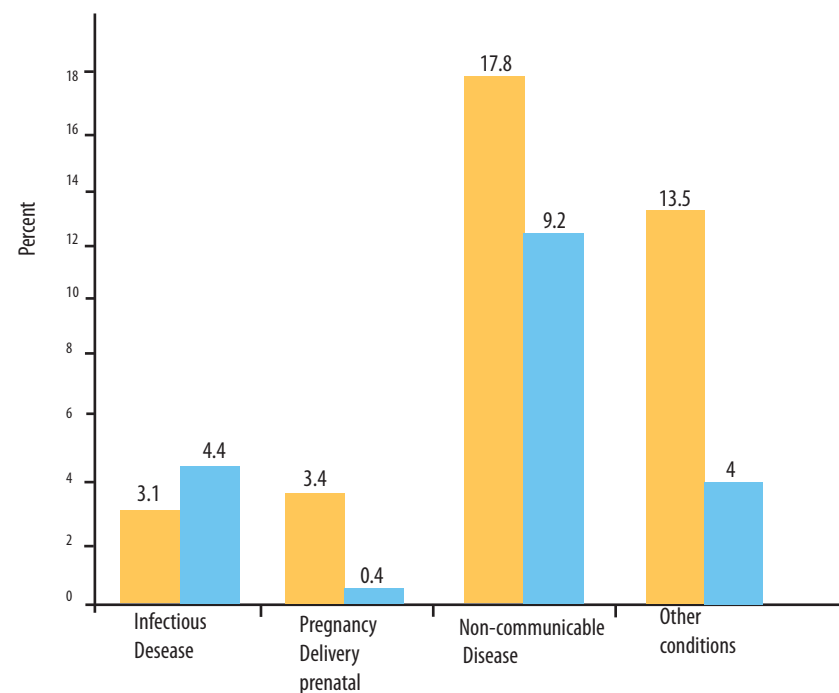


Table 1.7 below shows that high average amount of money households spent for mandatory health insurance, voluntary health insurance, other health related items, inpatient care, and outpatient care in the 12 months preceding the survey. The highest amount was spent on public hospitals (29 Birr) followed by private hospital (16.3 Birr), public clinic (2.9 Birr), private doctors (2.7 Birr), charity or faith based clinic (1.5 Birr), both charity, or faith based hospital and other (0.6 Birr) and finally home visit (0.2 Birr).

Considering the public hospital user's average expenditure, it was higher for the urban population (39.6 Birr) than rural population (18.5 Birr). Looking by Region, the highest proportion of money that households spent to public hospital was in Addis Ababa (67.2 Birr) followed by SNNPR (26.4 Birr) and Amhara (24.5 Birr). The average amount of money spent for mandatory health insurance, voluntary health insurance, other health related items, inpatient care, and outpatient care specifically to public hospitals increases with household's wealth index. That is in poorest, second poorest, middle, second richest and richest wealth quintile the proportions are 12.5 Birr, 13.4 Birr, 18.4 Birr, 30.2 Birr and 72.9 Birr, respectively.

Similarly, private hospital user's average expenditure was higher by urban population (29.5 Birr) than rural population (3.3 Birr). Considering Regions, the highest proportion of money households spent to private hospital lie in Addis Ababa (54.2 Birr) followed by Harari (13.5 Birr) and SNNPR (10.4 Birr).

The proportion of money spent for mandatory health insurance, voluntary health insurance, other health related items, inpatient care, and outpatient care specifically to private hospital more or less increases with household's wealth index. That is in poorest, second poorest, middle, second richest and richest wealth quintile the proportions are 1.7 Birr, 4.5 Birr, 3.9 Birr, 15.9 Birr and 56.4 Birr, respectively.

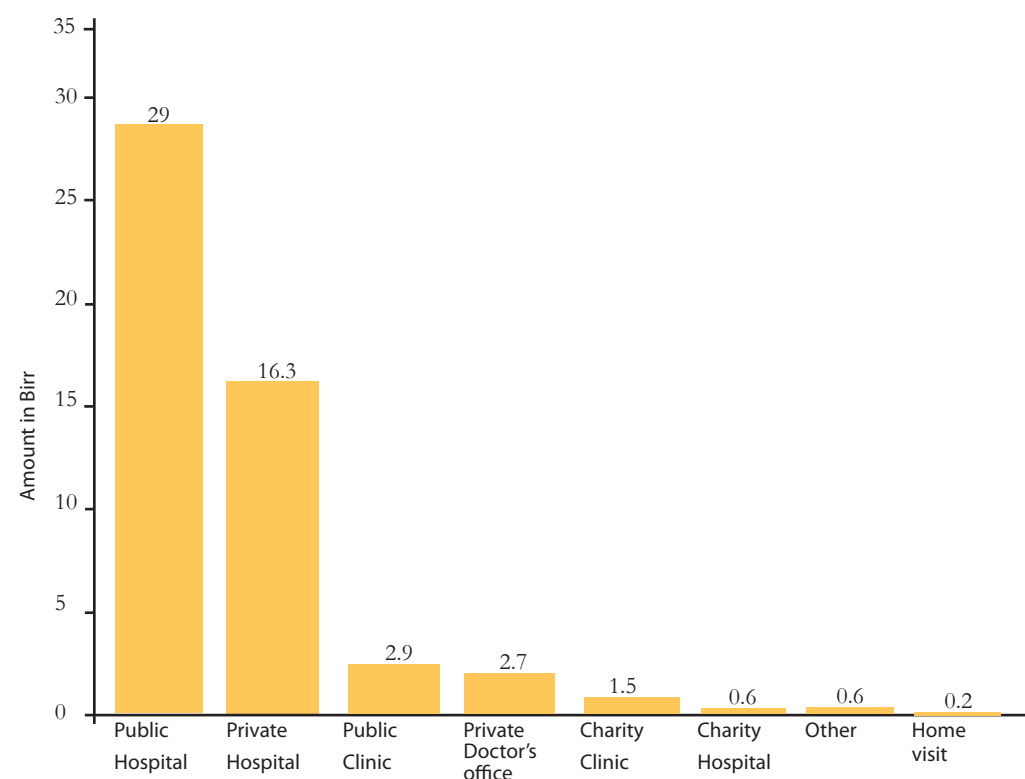
In conclusion, it may be deduced that the poorest and rural households do not seem to utilize health care to such an extent as well-off and urban household do, respectively. Since there is no

other related survey in Ethiopia for comparison purpose, the results of this survey may be used in the future as a baseline.

Table 1.7: Average amount of money(in Birr) households spent in different types and levels of provider institutions in the 12 months preceding the survey according to background characteristics, Ethiopia DCA 2008

| Type of Institution | | | | | | | | | | Total number of household |
|----------------------------|----------|--------|----------|-----------------|--|--------|------------|-------|--------------------|----------------------------|
| | Public | | Private | | Charity or faith based clinic/hospital | | Other | | Don't know/missing | |
| Background characteristics | Hospital | Clinic | Hospital | Doctor's office | Hospital | Clinic | Home visit | Other | Don't know/missing | Total number of Households |
| | | | | | | | | | | |
| Residence | | | | | | | | | | |
| Urban | 39.6 | 2.5 | 29.5 | 3.8 | 0.4 | 2.6 | 0.0 | 1.2 | 3.3 | 4,144 |
| Rural | 18.5 | 3.2 | 3.3 | 1.6 | 0.7 | 0.4 | 0.5 | 0.1 | 1.5 | 4,181 |
| | | | | | | | | | | |
| Region | | | | | | | | | | |
| Oromiya | 16.4 | 2.2 | 5.2 | 4.3 | 0.6 | 2.3 | 0.0 | 0.3 | 1.4 | 1,724 |
| Amhara | 24.5 | 2.1 | 2.8 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1,237 |
| SNNPR | 26.4 | 4.2 | 10.4 | 1.1 | 0.7 | 0.6 | 0.0 | 0.0 | 1.0 | 1,184 |
| Tigray | 18.6 | 4.2 | 6.2 | 1.4 | 0.0 | 0.1 | 0.0 | 0.0 | 0.5 | 979 |
| Somali | 5.6 | 0.0 | 9.2 | 1.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 252 |
| Addis Ababa | 67.2 | 3.2 | 54.2 | 5.2 | 0.7 | 3.5 | 0.0 | 2.6 | 6.8 | 1,768 |
| Afar | 5.8 | 1.9 | 9.4 | 0.1 | 0.0 | 0.5 | 0.0 | 0.0 | 2.3 | 251 |
| Benshangul Gumuz | 3.3 | 1.9 | 1.1 | 0.1 | 0.0 | 2.3 | 0.0 | 1.0 | 0.1 | 200 |
| Diredawa | 12.1 | 0.9 | 0.1 | 2.5 | 0.1 | 2.0 | 0.0 | 0.0 | 0.0 | 228 |
| Gambella | 17.6 | 5.4 | 3.5 | 1.4 | 5.3 | 1.1 | 0.0 | 0.0 | 1.3 | 251 |
| Harari | 16.6 | 0.9 | 13.5 | 1.1 | 1.1 | 0.7 | 8.0 | 0.0 | 10.4 | 251 |
| | | | | | | | | | | |
| Wealth index | | | | | | | | | | |
| Poorest | 12.5 | 2.0 | 1.7 | 0.7 | 0.8 | 0.5 | 0.0 | 0.0 | 0.2 | 1,653 |
| 2nd Poorest | 13.4 | 5.0 | 4.5 | 0.9 | 0.6 | 0.2 | 1.2 | 0.2 | 1.7 | 1,619 |
| Middle | 18.4 | 2.7 | 3.9 | 1.7 | 0.5 | 0.5 | 0.0 | 0.1 | 2.1 | 1,635 |
| 2nd Richest | 30.2 | 1.4 | 15.9 | 3.3 | 0.3 | 0.7 | 0.0 | 0.3 | 2.2 | 1,634 |
| Richest | 72.9 | 3.4 | 56.4 | 7.1 | 0.8 | 5.5 | 0.0 | 2.7 | 5.9 | 1,635 |
| Missing | 3.8 | 1.8 | 7.5 | 0.2 | 0.0 | 1.3 | 0.0 | 0.0 | 2.1 | 149 |
| | | | | | | | | | | |
| Total | 29.0 | 2.9 | 16.3 | 2.7 | 0.6 | 1.5 | 0.2 | 0.6 | 2.4 | 8,325 |

Fig. 1.3 Average amount of money (in Birr) households spent to different health care provider institutions



2 HIV/AIDS

2.1 Background

2.1.1 Historical perspectives of the HIV/AIDS epidemic

HIV/AIDS is the most serious worldwide public health problem of the current generation. Virtually, there are no areas that have not reported cases of infection. Although the infection rate is increasing in other Regions, such as part of Asia and the Caribbean, the worst affected region is Sub-Saharan Africa. Ethiopia is one of the sub-Saharan countries hardest hit by HIV/AIDS.

The first evidence of HIV infection in Ethiopia was found in 1984 and the first two AIDS cases reported in 1986 (FMoH, 2006b). Since then HIV epidemic has evolved into a generalized epidemic. The prevalence of HIV was low in 1980's, however, it dramatically increased and reached a plateau around the mid-1990 and stabilized afterwards.

The national adult prevalence rate of HIV in Ethiopia was estimated at 2.1% in the year 2007 (FHAPCO & FMoH, 2007). The prevalence seems low due to large population size, yet the absolute number of people infected with HIV is considerable. In the same year, there were an estimated 997,349 people living with HIV/AIDS (PLWHA) and there were a total of 125,528 new infections including 14,148 HIV positive births. It implies that each day 343 people were newly infected. The annual death due to AIDS was found to be 71,902 (FHAPCO & FMoH, 2007).

AIDS in Ethiopia is a socioeconomic problem, not just a health issue. Abdulhamid (1998) estimated that income loss due to premature death in Ethiopia between the year 1997 and 2006 is between 1,469 and 2,179 million USD. A study conducted in a major urban setting indicated that mortality among the age group 35-39 years increased five times compared to the early 1980s (Reniers, 2006). Such a high AIDS related mortality among the productive force alters the demographic structure and increase the dependency ratio. Moreover, loss of trained professionals such as teachers, engineers, etc. exacerbates the shortage of trained human resource in the country.

2.1.2 The National Response

The Government of Ethiopia has made notable response to HIV/AIDS since 1985, soon after the first laboratory report confirmed HIV and AIDS cases. The establishment of national task force (NTF) within the FMoH was the first major step taken by the Government. The NTF was given a responsibility of analyzing the situation, developing operational guidelines for prevention, and

assessing the capacity require arresting the spread of HIV infection. Later in 1987, an AIDS control program was established at department level in the FMOH focusing on coordinating the national prevention and control program.

In 1998, the National HIV/AIDS policy was formulated by FMOH and adopted by the council of Ministers. The policy guides activities in the areas of prevention and control as well as facilitating care and support services to those already infected. In 2000, a broad based National AIDS Council (NAC) was established under the chairmanship of the country's President. Moreover, to coordinate the national multi-sectoral response a Secretariat accountable to the Prime Minister's Office was also established. Similar structures with similar constituencies were also established at Regional and Sub-Regional levels. Later on NAC evolved to the current Federal HIV/AIDS Prevention and control Office (FHAPCO).

In 2001, a five-year national strategic framework (2001-2005) was prepared. The major intervention areas in the strategic framework includes: Information, Education and Communication (IEC), Behavior Change Communication (BCC), condom promotion and distribution, Voluntary Counseling and Testing (VCT), Management of Sexually Transmitted Infections (STIs), blood safety measures, universal precautions, Prevention of Mother to Child Transmission (PMTCT) and care and support (NAC, 2001). Besides, in 2005, the national free ART program was initiated. In all these interventions the inputs of partners such as GFATM, PEPFAR and World Bank have been considerable.

To evaluate the impact of the contribution of the partners particularly the GFATM in the national response to HIV/AIDS pandemic, the effect of the health responses programs (VCT, PMTCT and ART) was assessed using both secondary and primary data. To this effect, in the EDCA, quite a number of questions about HIV/AIDS were included in women and health facility questionnaires to assess the achievements gained in different HIV/AIDS prevention and treatment programs.

2.2 HIV/AIDS programs Evaluation questions

2.2.1 Evaluation question 1: Has the funding/spending for the national HIV/AIDS response increased?

Recognizing the need for a multisectoral action, to prevent new HIV infection, expand treatment access and mitigate the epidemic impact the Ethiopian government has taken many measures. These include creating an enabling policies and intervention environment, such as issuing HIV/AIDS policy, preparing and implementing strategic framework and establishing different institutional arrangements for leading and coordinating HIV/AIDS activities.

In support of the government's response to HIV/AIDS global initiative such as, the World Bank's Multi-Country HIV/AIDS Program (MAP), the U.S. government's President's Emergency Plan for AIDS Relief (PEPFAR) and the GFATM to Fight AIDS, tuberculosis and malaria have made a significant resource contribution in the last five years. In addition to these major sources, there are also other organizations that have greatly contributed to the national response.

The support of World Bank focuses on AIDS multisectoral activities through out the country. While the PEPFAR input concentrated on comprehensive HIV prevention, treatment and care programs. GFATM has been providing support to increase access to prevention services, expanding entry points to ART, expanding access to other forms of treatment and care, and improving the supportive environment and crosscutting aspects. Both GFATM and PEPFAR also support infrastructure capacity building, purchase and distribution of ARVs and related commodities and delivery of clinical and laboratory services.

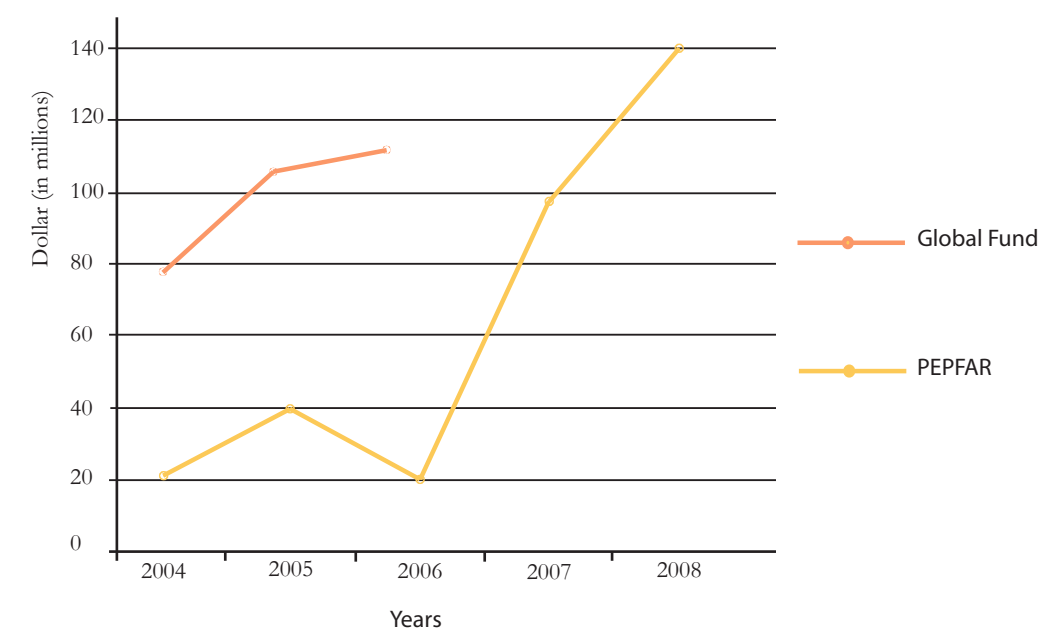
In this evaluation, the last five years of financial input by the government, the above three global initiatives and others was assessed as input for the HIV/AIDS programs implemented in the country. This section presents the trends in the financial input and the magnitude of the contribution of the government and the global initiatives. In the sections that follow, the output, outcomes and impact obtained as the result of this input is presented.

The Government financial contribution towards the national AIDS response was significant; however, it was difficult to estimate all the cost in monetary terms. Among other, the government spending on HIV/AIDS programs include: the salary of staff working on HIV at federal and Regional offices such as HAPCO, FMOH, etc, at the health facility level the recurrent cost of doctors, nurses, lab technicians, etc. working on HIV prevention and control program. It also provided offices at all levels for the HIV/AIDS prevention and control activities.

Although it was not possible to get data that clearly shows the amount of the government spending during the last five years, a study conducted by private consultant firm estimates that the government spending increased from 1,200,000 Birr in 2002 to 10,243,000 Birr in 2005 (Banteyerga H., et.al, 2006). Since, the health response to HIV/AIDS programs mainly use the FMOH infrastructure and human resource, one could assume that the Government input has been increasing in the last five years with the expansion of VCT, PMTCT and ART programs.

Regarding PEPFAR, It was not possible to get data on the utilization fund. Hence, only the amount of money transferred for the Ethiopian HIV/AIDS program is presented. Fig 2.1 presents the amount of money transferred to the Ethiopian HIV/AIDS program from PEPFAR and GFATM. The chart demonstrates that with the increased availability of funds globally, more and more funds were channeled to the Ethiopian HIV/AIDS programs.

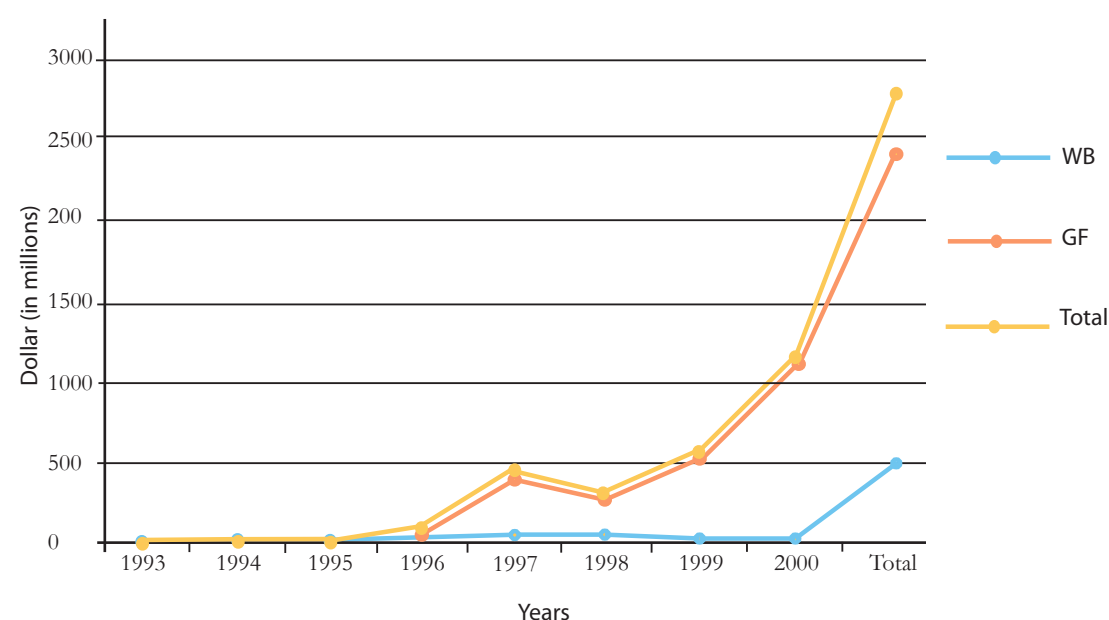
Figure 2.1 Trends in the amount of Fund transferred from Global Fund and PEPFAR to Ethiopia HIV/AIDS programs



Since 1993 EC (2001/02) the World Bank fund amounting approximately 472,119,098.31 Birr was dispersed to the Regional HAPCO and other implementers through FHAPCO (Fig 2.2). Most of the World Bank spending was used for prevention, capacity building, care and support.

With the involvement of GFATM to fight AIDS, Tuberculosis and malaria, the availability of fund has notably increased in the last five years (Fig 2.2). In this section only the GFATM spending in the national HIV/AIDS response is discussed. GFATM use the existing financial management, monitoring and reporting system. Like that of World Bank, the principal recipient of the GFATM money is FHAPCO. All implementing organization gets the money from FHAPCO. Hence, GFATM grant helps FHAPCO to scale up the on-going interventions and to fill gaps that were identified during the implementation of HIV programs.

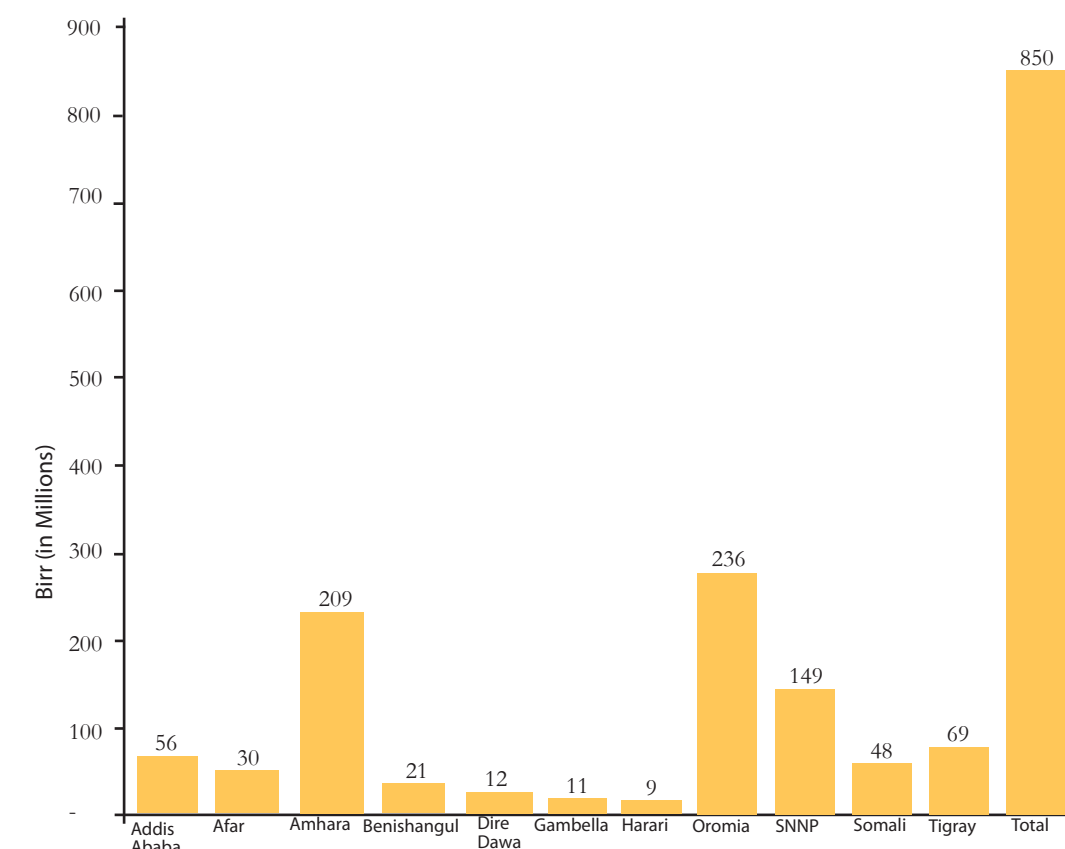
Figure 2.2 Global fund and world bank fund disbursement from 1993 EC (2001/02) to 2000 EC (June 2008)



Since Both GFATM and World Bank uses the government system in utilization of the resource, all the available financial data regarding World Bank and GFATM spending is based on the Ethiopian fiscal year, which starts from July 7. Due to this, in this evaluation the financial data of World Bank is presented based on the Ethiopian fiscal years. As can be seen from the above figure, funding of GFATM was significantly increasing beginning from 1998 compared to that of World Bank.

The GFATM annual spending on HIV/AIDS program has dramatically increased over the past five years. The data indicates that it reached 1,126,644,612 Birr in 2000 EFY - more than 12 fold increment over 1996 EFY spending. Especially, in the last three years, the spending showed more than 100% increment per year (Fig 2.2).

Figure 2.3 Fund disbursed to regions from 1996 EFY (2004) to 2000 EFY (2008), Ethiopia, 2008.



The amount of money disbursed to each Region from FHAPCO mainly depends on the population size of the Regions. Fig 2.3 presents the amount of GFATM money dispersed to each Region. Accordingly, the highest amounts of money was disbursed to Oromia Region while the lowest to Harari Region.

2.3 HIV/AIDS counseling and testing

2.3.1 Evaluation question 2: Has the coverage of HIV counseling and testing service improved

HIV voluntary counseling and testing service provides critical entry point for both HIV/AIDS prevention and treatment programs. At the individual level, knowledge of HIV status helps HIV-negative individuals to initiate and maintain behavior to prevent the acquisition of HIV infection. For those who are infected, knowledge of their status allows them to better protect their sexual partner, to early treatment access, access intervention to prevent MTCT and to plan for their future. Considering the critical role of HIV Counseling and Testing (HCT) in the national HIV/AIDS response, in this evaluation the coverage and the quality of HCT was assessed using both secondary and primary data (EDCA 2008).

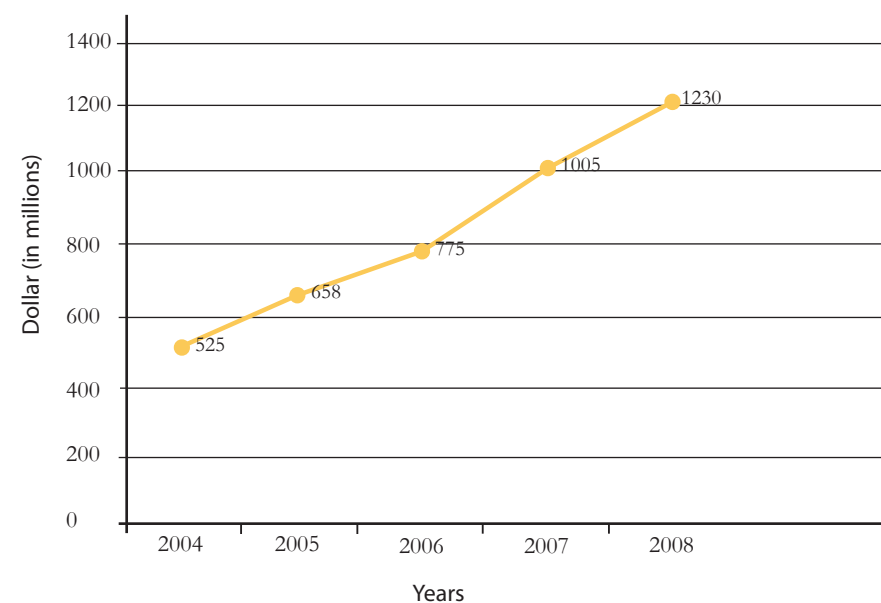
Coverage of HIV Counseling and Testing

In Ethiopia, HIV counseling and testing was introduced in late 1990s in a few major hospitals. Since then the service has been expanding both in public and private health facilities. In this section, however, only the trend of the last five years will be discussed.

As presented in Fig 2.4 the number of sites providing HCT services continuously increased in the last five years. On the average, sites offering HCT increased by more than 20% per annum. In 2004, 525 sites were offering HCT services and by March 2008 HCT service offering sites has increased significantly to 1230 (134%).

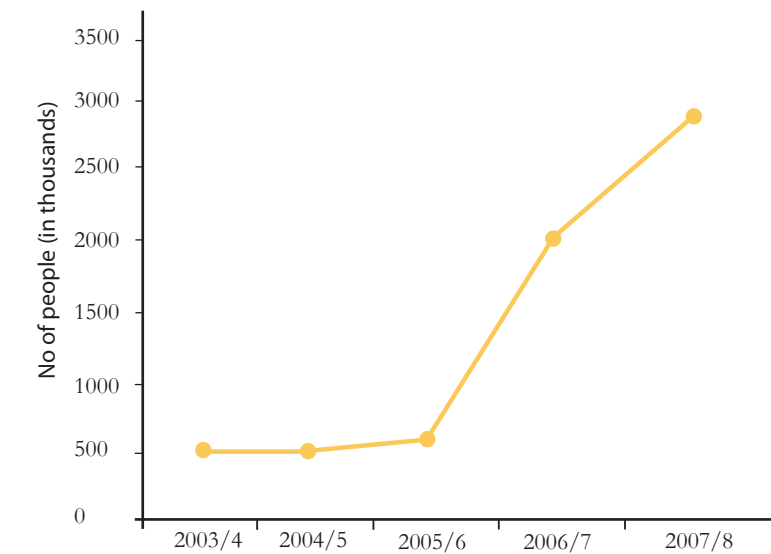
The role of private health facilities in the expansion of the HCT service is profound. Recent reports indicate that, about 209 private health facilities are engaged in the provision of HCT service. Of all hospitals and health centers in the country, about 64% of them offer HCT services (FHAPCO, 2008). The 2008 EDCA data also demonstrates that among the health facilities studied 85% are providing HCT services. This suggests that there has been significant expansion of HCT services and have come to be more available throughout the country.

Figure 2.4 Trends in number of HCT sites, Ethiopia, 2008



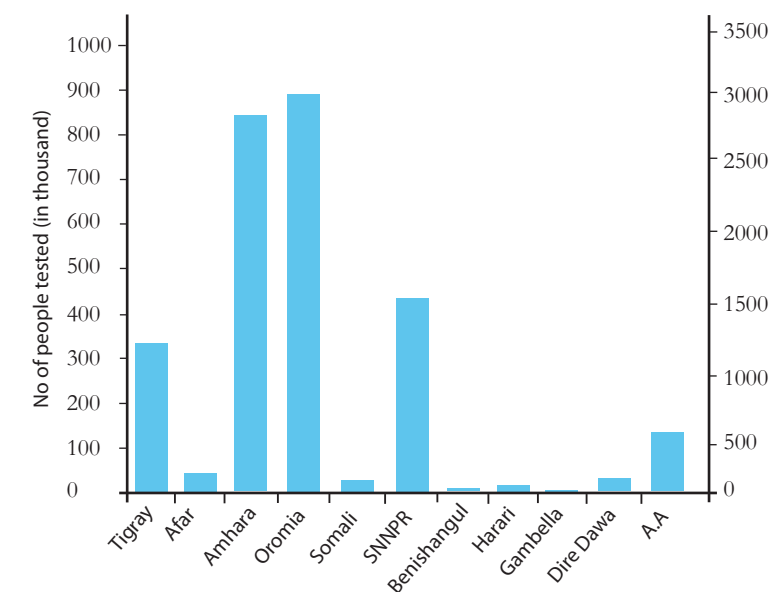
The number of people tested increased more than 6 fold in the last five years. The most significant increases were observed between the year 2005 and 2008. The number of people tested annually for HIV reached nearly 2.3 million in the year 2007/08, which is about a 400% increase over 2005/06 and a 50% increase over 2006/07 (fig 2.5). The increase has mainly come from the National Millennium AIDS campaign which is the latest major initiative with the national response to HIV/AIDS. The campaign had three phases. Phase I from November 2006 to January 2007, Phase II from February August 2007 and Phase III from September 2007 to September 2008. (Ethiopia celebrated its third millennium (2000 EC) from September 11, 2007 to September 10, 2008).

Figure 2.5 Trends in the number of people counseled and tested, Ethiopia, 2008



The HCT sites are well distributed in the Regions. Regions with large population size have relatively large numbers of HCT sites. However, Regions such as Addis Ababa, has a large number of HCT sites relatively to its population size. This might be explained by the fact that the expansion of the HCT sites mainly depends on the number of the health facilities in the Regions and Addis Ababa has large number of health facilities (both public and private) relative to its population. On the other hand, Somali Region has only six HCT sites, which is the lowest in relation to its population size.

Figure 2.6 Number of people tested and HCT sites in 2007/8 by region



In all Regions, the number of people tested in the last five years, particularly in the last two years has notably increased (data not shown). As indicated earlier, the major driving force for the acceleration of the number of people tested in all Regions was the Millennium AIDS Campaign. As presented in the Fig 2.6, Regions with large population size had large number of tested people.

In this evaluation, primary data was also collected regarding HCT coverage. Table 2.1 shows that around three fourths of the respondents know a place where they can get tested for HIV. Knowledge of where to acquire HIV test service was found to be higher among those women who are better-educated and live in wealthier households vis-à-vis women who are little educated and live in poorer households. Knowledge about where to get HIV test is considerably higher among urban women (83%) when compared with rural women (58.3%). The proportion of women who know where to get HIV test varies from 31% in Somali to 86.5% in Dire Dawa.

The recorded 71% of the study population, and more importantly, 58% of the rural population know the location of HCT sites suggests that HCT has been expanded in the rural Ethiopia where 85% of the population resides.

In order to assess the coverage of HIV testing, all respondents were also asked whether they had ever been tested for HIV. Those who had been tested were asked whether they had received the result of their last test. Table 2.1 also shows the proportion of women who have ever been tested and those who were tested and receive the test results. Overall, 28% of the women have been tested for HIV at some time. Coverage of the HIV testing was three fold higher in urban areas (38.8 %) than in rural areas (12.6 %). Wide variations were found across Regions, as the coverage of HIV testing ranged from 3.5% in Somali to 48.5% in Addis Ababa.

Although, as indicated earlier, there is a sample size and sampling difference, between the current survey (EDCA) and EDHS 2005, where the proportion of women ever tested for HIV had increased from 4% to 28% in the current survey. Similar variation was observed across the Regions. However, the proportion of women who had been tested for HIV at sometime in Somali (the lowest) increased slightly from 2% to 3.5% while in Addis Ababa (the highest) it went up from 27% to 48.5%. Interestingly, the proportion of women ever tested in Amhara Region increased from 2% to 18%. This further strengthens the secondary data that indicates the number of people tested has dramatically increased especially in the last three years.

Similar to many other indicators, testing increases with the women's education level and wealth status. Considering age, the highest testing rates were observed among women age 20-29. Never married women are more likely to have been tested for HIV than other women. The data indicates that the variation in testing rate across the above background characteristics is consistent with that of EDHS 2005.

Almost all of the women who were tested reported that they had received the results of their test. Only 1.6 percent of the respondents indicated that they did not receive the test results.

Table 2.1: Coverage of prior HIV testing

| Percentage of women age 15-49 who know where to get an HIV test, percent distribution of women age 15-49 by testing status and by whether they received the results of the last test, the percentage of women ever tested, and the percentage of women age 15-49 who received their test results the last time they were tested for HIV in the past 12 months, according to background characteristics, Ethiopia 2008 | | | | | | | | |
|---|--|----------------------------------|-------------------------------------|--------------|--------------|------------------------|--|-----------------|
| Percent distribution of women by testing status and whether they received the results of the last test | | | | | | | | |
| Background characteristics | Percentage who know where to get an HIV test | Ever tested and received results | Ever tested did not receive results | Never tested | Total | Percentage ever tested | Percentage who received results from last HIV test taken in the past 12 months | Number of women |
| Age | | | | | | | | |
| 15-24 | 75.2 | 28.6 | 2.2 | 69.3 | 100.0 | 30.7 | 16.8 | 2,971 |
| 15-19 | 74.7 | 24.0 | 1.6 | 74.4 | 100.0 | 25.6 | 15.1 | 1,579 |
| 20-24 | 75.8 | 33.8 | 2.8 | 63.4 | 100.0 | 36.6 | 18.8 | 1,392 |
| 25-29 | 72.3 | 32.3 | 1.4 | 66.3 | 100.0 | 33.7 | 17.0 | 1,525 |
| 30-39 | 68.8 | 23.9 | 1.3 | 74.8 | 100.0 | 25.2 | 12.1 | 1,997 |
| 40-49 | 63.3 | 15.4 | 1.0 | 83.6 | 100.0 | 16.4 | 7.8 | 964 |
| Marital status | | | | | | | | |
| Never married | 81.1 | 30.1 | 1.4 | 68.5 | 100.0 | 31.5 | 18.7 | 2,133 |
| Married/living together | 67.0 | 24.6 | 1.6 | 73.8 | 100.0 | 26.2 | 12.6 | 4,294 |
| Divorced/separated/widowed | 73.5 | 27.3 | 1.8 | 71.0 | 100.0 | 29.0 | 13.8 | 855 |
| Missing | 48.6 | 21.1 | 3.4 | 75.4 | 100.0 | 24.6 | 9.7 | 175 |
| Education | | | | | | | | |
| No education | 54.7 | 13.3 | 0.8 | 85.8 | 100.0 | 14.2 | 7.0 | 3,197 |
| Primary | 79.6 | 28.3 | 2.0 | 69.6 | 100.0 | 30.4 | 15.1 | 2,166 |
| Secondary+ | 92.4 | 48.4 | 2.2 | 49.4 | 100.0 | 50.6 | 27.5 | 1,794 |
| Missing | 63.0 | 19.7 | 3.7 | 76.7 | 100.0 | 23.3 | 10.3 | 300 |
| Wealth index | | | | | | | | |
| Lowest | 48.4 | 8.3 | 0.7 | 91.0 | 100.0 | 9.0 | 4.2 | 1,368 |
| Second | 61.5 | 13.0 | 1.5 | 85.5 | 100.0 | 14.5 | 7.3 | 1,377 |
| Middle | 72.8 | 21.5 | 2.1 | 76.4 | 100.0 | 23.6 | 12.1 | 1,377 |
| Fourth | 83.1 | 37.8 | 1.7 | 60.4 | 100.0 | 39.6 | 22.1 | 1,380 |
| Highest | 87.0 | 45.4 | 1.7 | 52.8 | 100.0 | 47.2 | 23.8 | 1,836 |
| Missing | 54.6 | 19.3 | 4.2 | 76.5 | 100.0 | 23.5 | 6.7 | 119 |
| Residence | | | | | | | | |
| Urban | 83.0 | 38.6 | 1.8 | 59.6 | 100.0 | 40.4 | 21.1 | 3,932 |
| Rural | 58.3 | 12.7 | 1.4 | 85.9 | 100.0 | 14.1 | 7.0 | 3,525 |
| Region | | | | | | | | |
| Oromiya | 69.7 | 16.3 | 1.3 | 82.4 | 100.0 | 17.6 | 9.2 | 1,397 |
| Amhara | 69.0 | 17.9 | 1.0 | 81.1 | 100.0 | 18.9 | 9.0 | 1,061 |
| SNNPR | 66.8 | 22.1 | 1.4 | 76.5 | 100.0 | 23.5 | 12.7 | 1,122 |
| Tigray | 68.5 | 21.9 | 2.7 | 75.3 | 100.0 | 24.7 | 14.0 | 766 |
| Somali | 31.5 | 3.5 | 0.0 | 96.5 | 100.0 | 3.5 | 1.9 | 257 |
| Addis Ababa | 85.8 | 48.5 | 1.7 | 49.8 | 100.0 | 50.2 | 25.2 | 1,886 |
| Afar | 61.2 | 13.8 | 4.3 | 81.9 | 100.0 | 18.1 | 5.2 | 232 |
| Benishangul Gumuz | 54.1 | 17.8 | 4.5 | 77.7 | 100.0 | 22.3 | 4.5 | 157 |
| Dire Dawa | 86.8 | 45.4 | 1.7 | 52.9 | 100.0 | 47.1 | 35.1 | 174 |
| Gambela | 49.1 | 9.0 | 0.9 | 90.1 | 100.0 | 9.9 | 3.8 | 212 |
| Harari | 81.3 | 26.4 | 0.5 | 73.1 | 100.0 | 26.9 | 17.1 | 193 |
| Total | 71.3 | 26.4 | 1.6 | 72.0 | 100.0 | 28.0 | 14.4 | 7,457 |

2.4 Prevention of Mother to child Transmission (PMTCT)

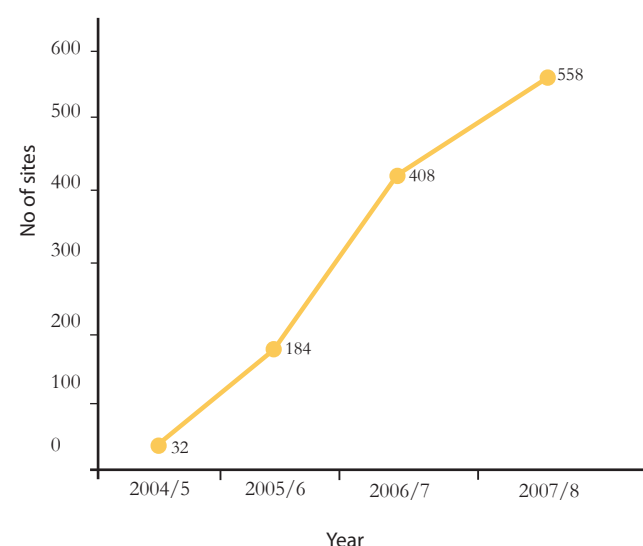
2.4.1 Evaluation Question 3: Has the coverage of PMTCT improved

In Ethiopia, vertical viral transmission from mother to child accounts for more than 90% of pediatric AIDS. To mitigate the impacts of the epidemic in the general population and amongst children in particular, PMTCT program was started in Ethiopia in 2001 as a research project at Tikur Anbessa teaching hospital. In the same year, the national PMTCT Guideline was issued. Later, in 2003 the national ART Guideline was endorsed and subsequently revised in 2004. The guideline promotes the free provision of PMTCT drugs to pregnant women who tested positive.

PMTCT coverage

The PMTCT program which was started at Tikur Anbessa (Black Lion) hospital expanded to four teaching Hospitals in 2001/02. Since then the program has been expanding to hospitals and health centers all over the country. The number of health facilities providing the PMTCT service has increased from 32 in 2003/04 to 558 in 2007/08 (fig 2.7). Unlike HCT, increase in the PMTCT sites in the last four years was not that significant.

Figure 2.7 Trend in the number of PMTCT sites, Ethiopia, 2008



Recent reports indicate that in the year 2007, of 454,407 antenatal care (ANC) clients 241,945 (53.2%) received pre-test counseling. Of those counseled 157,919 (34.8%) were tested. Out of the 7,317 HIV positive pregnant women, only 4,888 received Nevirapine. The number of babies which received Nevirapine was found to be 3,031. When compared with the previous year, the uptake of Nevirapine has shown almost a two fold increase (FHAPCO, 2008). Although this is a remarkable improvement in the performance of the program compared to the previous year, the uptake is still remarkably low. This suggests that implementing the available strategies to prevent MTCT is one of the greatest challenges faced by the country.

In the EDCA of this evaluation, data was collected from respondents about counseling and testing during antenatal care. Table 2.2 presents the findings for the women who gave birth in the last two years preceding the survey. Overall, 28.3% of the women receive HIV counseling and 9.8 % reported that they were offered and accepted an HIV test during antenatal care for their most recent

pregnancy. Of those women who were tested almost all received the test result.

The findings from EDCA suggest that there has been a remarkable improvement in PMTCT program uptake since 2005. The proportion of ANC client who received HIV counseling service increased from 3% in 2005 (EDHS, 2005) to 28% in the current survey. Moreover, the proportion of women who reported that they were offered and accepted an HIV test increased from less than 1% in 2005 to almost 10% in 2007. The observed increase in the service provision is presumably attributable to the expansion of the service to more health facilities.

Counseling and testing during antenatal care appear to be an urban phenomenon, women who live in urban areas are more likely to have received HIV/AIDS counseling and testing services than women who live in rural areas. In general, women who live in Addis Ababa, had a secondary or higher education or in the higher wealth quintile are most likely to receive counseling and testing service during their antenatal care visit.

Table 2.2: Pregnant women counseled and tested for HIV

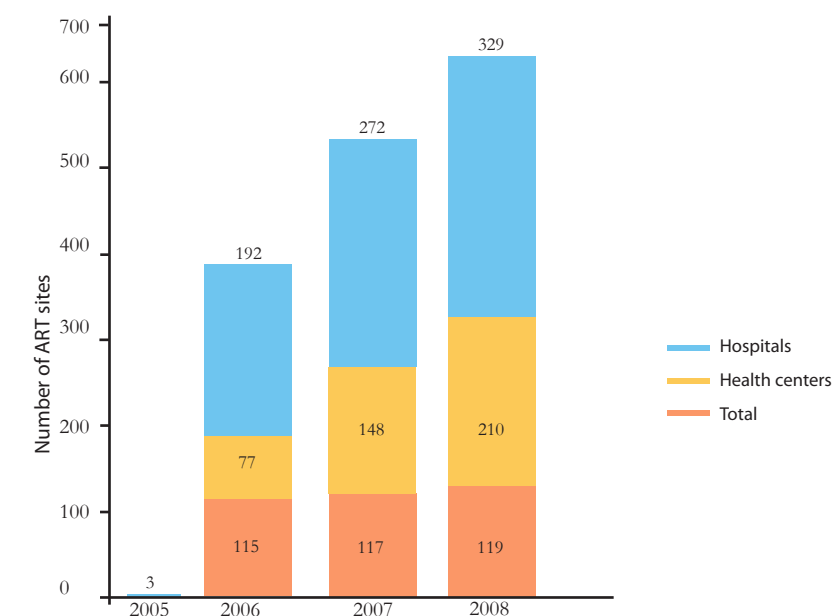
| Among all women age 15-49 who gave birth in the two years preceding the survey, the percentage who received HIV counseling during antenatal care for their most recent birth, and percentage who accepted an offer of HIV testing by whether they received their test results, according to background characteristics, Ethiopia 2008 | | | | | |
|---|--|------------------|-------------------------|--|--|
| Percentage who were offered and accepted an HIV test during antenatal care and who: | | | | | |
| Background characteristics | Percentage who received HIV counseling during antenatal care | Received results | Did not receive results | Percentage who were counseled, were offered and accepted an HIV test, and who received results | Number of women who gave birth in the last two years |
| Age | | | | | |
| 15-24 | 27.7 | 8.6 | 1.1 | 6.9 | 451 |
| 15-19 | 25.2 | 6.5 | 0.9 | 4.7 | 107 |
| 20-24 | 28.5 | 9.3 | 1.2 | 7.6 | 344 |
| 25-29 | 31.3 | 10.9 | 0.6 | 9.0 | 466 |
| 30-39 | 27.7 | 8.6 | 0.2 | 7.5 | 465 |
| 40-49 | 14.7 | 4.4 | 0.0 | 4.4 | 68 |
| Marital status | | | | | |
| Never married | 30.8 | 15.4 | 0.0 | 15.4 | 26 |
| Married/living together | 27.8 | 9.2 | 0.6 | 7.5 | 1,326 |
| Divorced/separated/widowed | 34.1 | 4.7 | 1.2 | 4.7 | 85 |
| Missing | 38.5 | 23.1 | 0.0 | 23.1 | 13 |
| Education | | | | | |
| No education | 16.7 | 5.6 | 0.2 | 4.3 | 836 |
| Primary | 36.4 | 10.6 | 0.8 | 8.8 | 385 |
| Secondary+ | 62.9 | 21.5 | 2.2 | 19.4 | 186 |
| Missing | 30.2 | 11.6 | 0.0 | 11.6 | 43 |
| Wealth index | | | | | |
| Lowest | 8.4 | 2.4 | 0.0 | 1.2 | 332 |
| Second | 17.2 | 3.7 | 0.3 | 2.6 | 348 |
| Middle | 25.2 | 7.0 | 0.3 | 5.3 | 341 |
| Fourth | 50.8 | 19.4 | 0.8 | 16.7 | 252 |
| Highest | 67.3 | 24.5 | 2.5 | 23.9 | 159 |
| Missing | 5.6 | 0.0 | 5.6 | 0.0 | 18 |
| Residence | | | | | |
| Urban | 46.4 | 19.5 | 1.1 | 16.8 | 554 |
| Rural | 17.1 | 2.8 | 0.3 | 2.0 | 896 |
| Region | | | | | |
| Oromiya | 16.6 | 4.7 | 0.0 | 3.9 | 361 |
| Amhara | 21.6 | 3.2 | 0.5 | 3.2 | 185 |
| SNNPR | 24.5 | 7.9 | 1.4 | 4.2 | 216 |
| Tigray | 39.7 | 7.0 | 0.0 | 5.5 | 199 |
| Somali | 5.7 | 0.0 | 0.0 | 0.0 | 70 |
| Addis Ababa | 66.3 | 36.4 | 2.2 | 33.2 | 184 |
| Afar | 18.0 | 4.0 | 0.0 | 4.0 | 50 |
| Benishangul Gumuz | 17.0 | 0.0 | 1.9 | 0.0 | 53 |
| Dire Dawa | 28.2 | 20.5 | 0.0 | 15.4 | 39 |
| Gambela | 25.0 | 3.1 | 0.0 | 3.1 | 32 |
| Harari | 24.6 | 1.6 | 0.0 | 1.6 | 61 |
| Total | 28.3 | 9.2 | 0.6 | 7.7 | 1,450 |

2.5 Anti-retroviral Treatment (ART)**2.5.1 Has the coverage of ART services improved?**

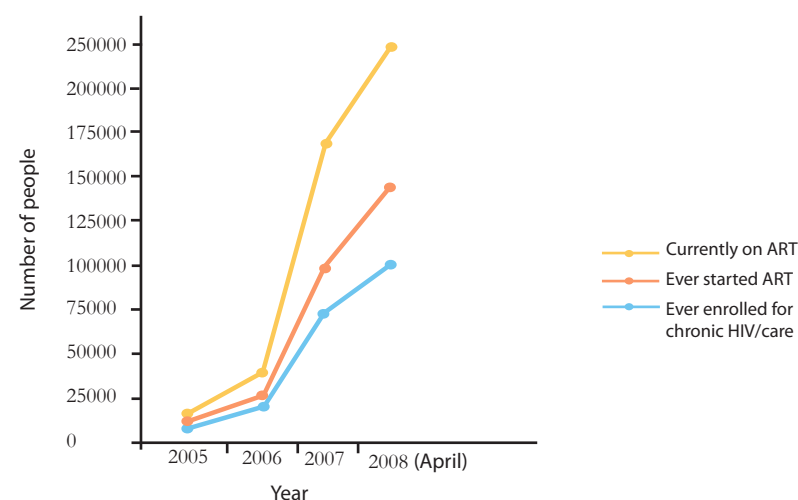
One of the strategies of the national response to HIV/AIDS is providing treatment for those already living with HIV. The Government has undertaken different measures to promote the provision of ART for those in need. These measures include: adoption of ARV drug supply and use policy, development of different technical tools such as national guidelines on the use of ARV drugs (FMOH et al., 2003), and ARV procurement and distribution. In this section the scale up access to antiretroviral drugs (ARV) is outlined.

ART coverage

In early 2004, the first free ART provision was initiated at Humera Hospital, Tigray Region by MSF-Holland. In January 2005, the Ethiopian Government launched the free ART program in order to ensure universal access to ARV treatment. At the beginning of the program ART service was provided by only few hospitals. In the last three years, however, sites providing the ART service have shown radical change. The number of hospitals offering ART service increased from 3 in 2005 to 119 in 2008. Moreover, the service has expanded to health centers since 2006 and reached 210 health centers in 2008. Consequently, the total number of ART sites increased from 3 in 2005 to 329 in 2008 (fig 2.8).

Figure 2.8: Number of ART sites by year, Ethiopia, 2008

It is estimated that 258,264 PLWHA (including 15,716 children) are in need of ART (FHAPCO & FMOH, 2007). The Government and its partners have made a great effort to reach to those in need. Accordingly, in the last three years a sharp increase in the number of people accessing ART was recorded. The number of clients ever started on ART which was only 8,276 in 2005, dramatically increased and reached to 131,360 in May, 2008. It follows that the coverage has grown from 9 % in 2006 to 51 % in May 2008. Similar to HCT, the role of the Millennium AIDS campaign in accelerating the scale up of access to ART was profound.

Figure 2.9 Trends in the number of people accessing ART service, Ethiopia, 2008

2.6. HIV/AIDS Knowledge and Risk Behaviors

2.6.1 Evaluation question 5: Have HIV/AIDS Knowledge and Risk Behaviors Changed?

In Ethiopia, the major mode of HIV transmission is heterosexual, which accounts for 87% of infections. In such sexually driven epidemic, it is important to monitor changes in the sexual behavior that drives the HIV epidemics. Moreover, assessment of changes in the sexual behavior is of paramount importance in evaluating the combined impact of various components of the national response to HIV/AIDS. To this effect, the main objective of this section is to assess the change in the level of relevant HIV/AIDS related knowledge, perceptions, attitudes, and behaviors at the National and Regional level in order to evaluate the combined impact of the National response on the sexual behaviors that drive the epidemic.

AIDS Knowledge

The Knowledge of AIDS has demonstrated continuous improvement since 2000. The proportion of women who have heard of AIDS, increase from 85% in 2000 (CSA & ORC Marco, 2001) to 90% in 2005 (CSA & ORC Marco, 2006) to 93% in 2007. The EDCA finding indicates that more than 93% of the respondents have heard of the disease. This suggests that Knowledge of AIDS is becoming more and more universal.

As indicated on Table 2.3, knowledge of AIDS increased as level of education and wealth status increases. Although the proportion of women who have heard of AIDS in rural areas has decreased, awareness still exceeds the 90 percentile. The level of awareness is lowest in Benishangul Gumuz and Gambela Region while almost all women residing in Addis Ababa have heard of AIDS. The observed trend in Knowledge of AIDS across the background characteristics is consistent with the findings of EDHS 2005.

Table 2.3: Knowledge of AIDS

| Percentage of women age 15-49 who have heard of AIDS, by background characteristics, Ethiopia 2008 | | |
|--|-------------------|-----------------|
| Background characteristics | Has heard of AIDS | Number of women |
| Age | | |
| 15-24 | 94.1 | 2,907 |
| 15-19 | 96.6 | 1,820 |
| 20-24 | 95.5 | 1,521 |
| 25-29 | 94.7 | 1,708 |
| 30-39 | 94.5 | 2,242 |
| 40-49 | 94.9 | 1,074 |
| All age | 95.2 | 8,365 |
| Residence | | |
| Urban | 97.3 | 2,267 |
| Rural | 91.8 | 3,912 |
| Addis Ababa | 99.4 | 2,154 |
| Education | | |
| No education | 90.5 | 3,151 |
| Primary | 95.8 | 2,131 |
| Secondary + | 98.4 | 1,771 |
| Missing | 78.5 | 293 |
| Region | | |
| Oromia | 94.1 | 1,381 |
| Amhara | 93.8 | 1,030 |
| SNNPR | 91.8 | 1,104 |
| Tigray | 93.7 | 756 |
| Somali | 94.9 | 255 |
| Addis Ababa | 97 | 1,863 |
| Afar | 88.3 | 230 |
| Benishangul Gumuz | 70.5 | 156 |
| Dire Dawa | 94.2 | 171 |
| Gambela | 78.9 | 209 |
| Harari | 99.5 | 191 |
| Total | 93.5 | 7,346 |

2.6.3 Knowledge about Transmission

To assess possible misconceptions, women were asked whether they thought it was possible for a person infected with the AIDS virus to look perfectly healthy, whether a person could contract AIDS from a mosquito bite, by supernatural means, or by sharing food with a person who has AIDS. The EDCA result indicated that only 53.2 percent of the women knew that a healthy-looking person can have the virus (Table 2.4). Overall improvements in this important misconception indicator have been recorded vis-à-vis EDHS 2000 (37%) and 2005 (51%). However, recorded misconceptions remain fairly high which has profound implication in the transmission of the virus.

Half of the respondents were aware that the AIDS virus cannot be transmitted through mosquito bite. Large proportion of women knew that the AIDS virus cannot be transmitted by super natural means (67.5%) or though sharing food with an infected person (74.3 %) (Table 2.4).

Table 2:4 Comprehensive knowledge about AIDS

| Percentage of women age 15-49 who say that a healthy-looking person can have the AIDS virus and who, in response to prompted questions, correctly reject local misconceptions about AIDS transmission or prevention, and the percentage with a comprehensive knowledge about AIDS by background characteristics, Ethiopia 2008 | | | | | | | |
|--|--------------------------------|--|--|---|--|--|-----------------|
| Background characteristics | A healthy person can have AIDS | AIDS cannot be transmitted by mosquito bites | AIDS cannot be transmitted by supernatural means | A person cannot be infected by sharing food | Percentage says healthy person can have AIDS and reject two most common local misconceptions | Percentage with a comprehensive knowledge about AIDS | Number of women |
| Age | | | | | | | |
| 15-24 | 58.3 | 57.6 | 72.7 | 79.2 | 34.5 | 15.2 | 2,907 |
| 25-39 | 50.4 | 48.6 | 64.7 | 72.2 | 26.7 | 11.4 | 3,489 |
| 40-49 | 47.8 | 38.4 | 61.8 | 67.3 | 21.3 | 8.5 | 950 |
| Education | | | | | | | |
| No education | 38.4 | 36.3 | 51.8 | 60.2 | 15.2 | 4.6 | 3,151 |
| Primary | 58.6 | 56.7 | 74.4 | 82.9 | 31.1 | 13.6 | 2,131 |
| Secondary+ | 75.0 | 70.9 | 88.8 | 91.2 | 52.5 | 25.6 | 1,771 |
| Missing | 41.3 | 42.3 | 57.0 | 61.8 | 22.5 | 10.6 | 293 |
| Wealth index | | | | | | | |
| Lowest | 34.9 | 38.0 | 46.4 | 55.8 | 15.2 | 3.8 | 1,351 |
| Second | 38.6 | 45.3 | 55.2 | 64.3 | 18.9 | 5.3 | 1,361 |
| Middle | 50.7 | 49.9 | 64.6 | 73.8 | 27.7 | 10.8 | 1,346 |
| Fourth | 61.8 | 58.5 | 78.9 | 84.2 | 35.2 | 17.5 | 1,365 |
| Highest | 73.7 | 59.5 | 86.2 | 89.1 | 43.7 | 21.9 | 1,809 |
| Missing | 45.6 | 50.0 | 63.2 | 67.5 | 28.1 | 12.3 | 114 |
| Residence | | | | | | | |
| Urban | 65.4 | 57.2 | 79.6 | 84.7 | 38.0 | 17.8 | 3,880 |
| Rural | 39.6 | 43.7 | 53.9 | 62.6 | 19.2 | 6.6 | 3,466 |
| Region | | | | | | | |
| Oromiya | 43.8 | 47.1 | 63.3 | 70.7 | 23.8 | 10.4 | 1,381 |
| Amhara | 54.1 | 48.3 | 69.6 | 75.4 | 30.5 | 12.8 | 1,030 |
| SNNPR | 53.3 | 61.4 | 60.2 | 74.2 | 32.4 | 11.6 | 1,104 |
| Tigray | 48.8 | 45.1 | 60.8 | 71.2 | 18.9 | 10.2 | 756 |
| Somali | 12.2 | 39.6 | 29.8 | 26.3 | 7.1 | 2.7 | 255 |
| Addis Ababa | 74.8 | 53.9 | 88.1 | 89.9 | 41.8 | 19.1 | 1,863 |
| Afar | 45.2 | 39.6 | 52.2 | 63.5 | 16.5 | 1.3 | 230 |
| Benishangul Gumuz | 39.1 | 37.8 | 51.3 | 56.4 | 21.2 | 9.0 | 156 |
| Dire Dawa | 36.8 | 55.0 | 50.9 | 77.8 | 21.1 | 10.5 | 171 |
| Gambela | 37.8 | 51.2 | 58.9 | 58.4 | 23.0 | 3.8 | 209 |
| Harari | 29.3 | 57.6 | 59.2 | 62.3 | 22.5 | 16.8 | 191 |
| Total | 53.2 | 50.8 | 67.5 | 74.3 | 29.1 | 12.5 | 7,346 |

Over all only 29.1 percent of the women correctly rejected the two most common misconceptions and said that a healthy-looking person could have the AIDS virus. The findings when compared to EDHS 2005, demonstrates only a 2% increment. Regarding this indicator data was not available in EDHS 2000.

Comprehensive knowledge is defined as: 1) knowing that both condom use and limiting sex partners to one uninfected person are HIV/AIDS prevention methods, 2) being aware that a healthy-looking person can have HIV, and 3) rejecting the two most common local misconceptions—that HIV/AIDS can be transmitted through mosquito bites and by sharing food. In the current survey, comprehensive knowledge about the prevention and transmission of HIV/AIDS has not increased when compared to the result of EDHS 2005 (12.5% versus 16%). However, it is very difficult to give a possible explanation for this observation.

The level of comprehensive knowledge about the prevention and transmission of HIV/AIDS varies across Regions. The lowest proportion of women was found in Afar (1.3%) while the highest was found in Addis Ababa (19.1%).

2.6.4 Knowledge of Methods of HIV/AIDS Prevention

Although almost all of the women have heard of AIDS, the proportion of women who knew all the three programmatically important HIV prevention method was found to be low. As depicted on Table 2.5, only slightly higher than half (54.4%) of the women indicated that abstaining from sexual intercourse was a valid means of protection against HIV. Moreover, 46.5% and 41.3% of the respondent reported that limiting sex to one uninfected partner and using condom every time they have sexual intercourse reduce the risk of getting the AIDS virus, respectively. Women's knowledge of the three programmatically important HIV prevention methods showed improvement compared to EDHS 2000. However, abstaining from sexual intercourse and limited sex to one uninfected partner as a means of protection against HIV demonstrates a slight decline vis-à-vis EDHS 2005 (62.5 and 62.8% respectively). Knowledge of using condom as a means of avoiding HIV showed a slight (1%) increase over EDHS 2005.

The data indicated that the women's level of knowledge for various prevention methods seems to decrease as their age increases. Young women age 15-19 are relatively well informed about various modes of prevention than older women. On the other hand, awareness of the ways in which the infection can be transmitted is directly related to the level of education and wealth. Never married women are generally knowledgeable of the way the HIV is transmitted than widowed and those currently in union.

The Regional differences were considerable. The proportions of women aware of various prevention methods were low in Somali, Afar and Gambela Regions. Most importantly, only 7.8 % and 11.7% of women of Somali and Afar Regions respectively, agree that consistent use of condoms would reduce the chance of infection. Since, consistent use of condom is one of the three programmatically important HIV/AIDS prevention method, the low level of awareness in these Regions needs due attention.

Table 2.5 Knowledge of methods of HIV prevention

| Percentage of women age 15-49 who, in response to prompted question, say that people can reduce the risk of getting the AIDS virus using condom every time they have sexual intercourse, by having one sexual partner who is not infected and has no other partners, and by abstaining from sexual intercourse, by background characteristics, Ethiopia 2008 | | | | | |
|--|-------------------------------------|---|---|---------------------------------|-----------------|
| Background characteristics | Use condom every time they have sex | Limiting sexual intercourse to one uninfected partner | Using condoms and limiting sexual intercourse to one uninfected partner | Abstain from sexual intercourse | Number of Women |
| Age | | | | | |
| 15-24 | 47.9 | 50.0 | 32.6 | 57.8 | 2,907 |
| 15-19 | 49.8 | 52.5 | 1,213 | 59 | 1,214 |
| 20-24 | 45.7 | 51.4 | 983 | 57.7 | 985 |
| 25-29 | 39.4 | 46.4 | 1,178 | 52.3 | 1,175 |
| 30-39 | 34.2 | 43.5 | 1,637 | 50.8 | 1,634 |
| 40-49 | 26.1 | 43.2 | 760 | 49.9 | 766 |
| Marital status | | | | | |
| Never married | 54.5 | 53.7 | 37.0 | 63.3 | 2,133 |
| Married/living together | 35.3 | 43.0 | 24.0 | 49.9 | 4,294 |
| Divorced/separated/widowed | 42.3 | 48.7 | 28.7 | 58.5 | 855 |
| Missing | 26.3 | 34.3 | 20.0 | 36.6 | 175 |
| Residence | | | | | |
| Urban | 52.6 | 56.9 | 2,181 | 62.1 | 2,186 |
| Rural | 31.4 | 41.4 | 3,557 | 48.7 | 3,555 |
| Addis Ababa | 60.2 | 59.7 | 2,139 | 73.8 | 2,134 |
| Education | | | | | |
| No education | 23.7 | 35.3 | 15.3 | 43.1 | 3,151 |
| Primary | 49.2 | 52.9 | 34.1 | 58.7 | 2,131 |
| Secondary+ | 65.0 | 60.6 | 45.0 | 71.4 | 1,771 |
| Missing | 29.4 | 34.5 | 20.1 | 40.3 | 293 |
| Wealth Index | | | | | |
| Lowest | 20.5 | 32.1 | 13.2 | 37.4 | 1,351 |
| Second | 27.1 | 36.1 | 16.9 | 44.2 | 1,361 |
| Middle | 38.5 | 46.5 | 26.6 | 51.8 | 1,346 |
| Fourth | 54.4 | 54.1 | 36.5 | 62.9 | 1,365 |
| Highest | 59.8 | 59.9 | 42.7 | 70.5 | 1,809 |
| Missing | 41.2 | 36.8 | 23.7 | 48.2 | 114 |
| Regions | | | | | |
| Oromia | 32.4 | 43.4 | 23.5 | 48.7 | 1,381 |
| Amhara | 36.7 | 54.1 | 27.8 | 52.2 | 1,030 |
| SNNPR | 39.9 | 42.3 | 25.2 | 48.6 | 1,104 |
| Tigray | 55.6 | 53.2 | 37.8 | 72.1 | 756 |
| Somali | 7.8 | 25.1 | 4.7 | 29.4 | 255 |
| Addis Ababa | 58.4 | 55.6 | 38.5 | 70.4 | 1,863 |
| Afar | 11.7 | 19.6 | 6.1 | 18.3 | 230 |
| Benishangul Gumuz | 28.8 | 29.5 | 19.2 | 39.7 | 156 |
| Dire Dawa | 32.2 | 50.3 | 25.7 | 54.4 | 171 |
| Gambela | 23.4 | 20.1 | 10.0 | 17.7 | 209 |
| Harari | 33.5 | 37.2 | 26.7 | 42.4 | 191 |
| Total | 41.3 | 46.5 | 28.1 | 54.4 | 7,346 |

2.6.5 Multiple Sexual Partners and Higher-Risk Sex

In Ethiopia HIV infection is acquired predominantly through heterosexual contact that is highly influenced by behavioral factors like multiple sexual partners and unprotected sexual intercourse. Tracking information on sexual behavior, the major determinants of the spread of HIV/AIDS, is of paramount importance in monitoring and evaluation of HIV/AIDS prevention and control programs. In the EDCA, interviewees were asked if they had sex during the past 12 months preceding the survey. Those who had been sexually active in the past 12 months were also asked about having multiple partners, involvement in high-risk sexual intercourse and the extent to which they use condoms in higher-risk sexual encounters. In the context of this evaluation, higher risk sex is defined (like that of EDHS) as sexual intercourse with a partner who is neither a spouse nor cohabiting partner.

Table 2.6 shows that 1.3 percent of the women had two or more sexual partners in the previous 12 month. Moreover, 5.3 percent of women reported that they had higher-risk sexual intercourse in the past year. Both of these indicators showed some increment over the EDHS 2005. The proportion of women having had two or more partner increased from 0.2%, in 2005 to 1.3% in 2007. While those who report having had higher risk sexual intercourse rose from 2.7% to 5.3%. The recorded increment might be partly accountable to the large proportion of women included from Addis Ababa in the current survey. Interestingly, the use of condom at higher-risk sex increased considerably. Amongst women who had higher-risk intercourse in the past 12 month preceding the survey, about half (46.4%) had used condom during their recent sexual encounter compared to 24% in EDHS 2005.

Data presented in table 2.6 also demonstrates that having sex with multiple partners and engaging in high-risk sex varies across background characteristics. Women age 15-19 were more likely to have multiple partners and encounter high-risk sexual intercourse. Women, who were never married, had secondary or higher education and wealthiest were more likely to have two or more sexual partners and engaged in high-risk sex. The prevalence of higher-risk sex was found to be considerably higher in Addis Ababa (14.3%), Dire Dawa (8%) and Gambela (6.1%) compared to SNNPR (1.2 %) and Somali (1.7 %).

Differential in the prevalence of condom use among the age groups is not substantial, except for the 40-49 age group. However, the finding among the age 40-49 should be interpreted with caution since the number of women reporting high-risk sexual encounter was very few (11). Interestingly, condom use was higher among never married, educated and women in the highest wealth quintile. Assessment of difference in the prevalence of condom use at higher-risk sex across Regions was not possible, since very few women reporting higher-risk sex in some Regions.

Table 2.6 multiple sexual partner and higher-risk sexual intercourse in the past 12 months

| Among women age 15-49 who had sexual intercourse in the past 12 months, the percentage who had intercourse with more than one partner and the percentage who had higher-risk sexual intercourse in the past 12 months; and among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last intercourse; and among those having higher-risk intercourse in the past 12 months, the percentage reporting that a condom was used at last higher-risk intercourse; and the mean number of sexual partners during her lifetime for women who ever had sexual intercourse, by background characteristics, Ethiopia 2008 | | | | | | | | | |
|---|--|--|-----------------|---|-----------------|--|-----------------|---|-----------------|
| Among women/men who had sexual intercourse in the past 12 months | | | | Among women who had 2+ partners in the past 12 months | | Among women who had higher-risk intercourse in the past 12 months | | Among women who ever had sexual intercourse | |
| Background characteristics | Percentage who had 2+ partners in the past 12 months | Percentage who had higher-risk intercourse in the past 12 months | Number of women | Percentage who reported using a condom during last sexual intercourse | Number of women | Percentage who reported using a condom at last higher-risk intercourse | Number of women | Mean number of sexual partners in lifetime | Number of women |
| Age | | | | | | | | | |
| 15-24 | 1.4 | 8.6 | 1,043 | 46.7 | 15 | 46.7 | 90 | 1.4 | 1,174 |
| 15-19 | 2.1 | 10.6 | 282 | 50.0 | 6 | 50.0 | 30 | 1.7 | 321 |
| 20-24 | 1.2 | 7.9 | 761 | 44.4 | 9 | 45.0 | 60 | 1.2 | 853 |
| 25-29 | 1.5 | 6.7 | 1,110 | 41.2 | 17 | 51.4 | 74 | 1.4 | 1,311 |
| 30-39 | 0.8 | 3.2 | 1,468 | 33.3 | 12 | 46.8 | 47 | 1.5 | 1,795 |
| 40-49 | 1.9 | 1.9 | 587 | 9.1 | 11 | 9.1 | 11 | 1.6 | 883 |
| Marital status | | | | | | | | | |
| Never married | 7.0 | 83.3 | 114 | 87.5 | 8 | 58.9 | 95 | 2.9 | 232 |
| Married/living together | 0.9 | 1.9 | 3,903 | 17.6 | 34 | 32.9 | 76 | 1.3 | 4,086 |
| Divorced/separated/widowed | 7.2 | 27.2 | 180 | 46.2 | 13 | 42.9 | 49 | 1.8 | 810 |
| Missing | 0.0 | 18.2 | 11 | - | 0 | 50.0 | 2 | 1.3 | 35 |
| Education | | | | | | | | | |
| No education | 0.8 | 1.8 | 2,308 | 16.7 | 18 | 28.6 | 42 | 1.4 | 2,787 |
| Primary | 1.8 | 5.3 | 1,060 | 31.6 | 19 | 53.6 | 56 | 1.5 | 1,295 |
| Secondary+ | 2.2 | 16.3 | 718 | 50.0 | 16 | 50.4 | 117 | 1.5 | 932 |
| Missing | 1.6 | 5.7 | 122 | 100.0 | 2 | 28.6 | 7 | 1.9 | 149 |
| Wealth index | | | | | | | | | |
| Lowest | 1.6 | 1.8 | 884 | 14.3 | 14 | 12.5 | 16 | 1.4 | 1,028 |
| Second | 1.2 | 2.3 | 896 | 0.0 | 11 | 9.5 | 21 | 1.3 | 1,043 |
| Middle | 0.8 | 2.4 | 883 | 42.9 | 7 | 42.9 | 21 | 1.6 | 1,032 |
| Fourth | 1.9 | 7.2 | 750 | 64.3 | 14 | 51.9 | 54 | 1.6 | 959 |
| Highest | 1.2 | 14.4 | 743 | 55.6 | 9 | 56.1 | 107 | 1.5 | 1,027 |
| Missing | 0.0 | 5.8 | 52 | - | 0 | 66.7 | 3 | 1.3 | 74 |
| Residence | | | | | | | | | |
| Urban | 1.8 | 9.8 | 1,867 | 50.0 | 34 | 51.9 | 183 | 1.6 | 2,510 |
| Rural | 0.9 | 1.7 | 2,341 | 9.5 | 21 | 20.5 | 39 | 1.3 | 2,653 |
| Region | | | | | | | | | |
| Oromiya | 1.1 | 2.4 | 903 | 40.0 | 10 | 40.9 | 22 | 1.3 | 984 |
| Amhara | 1.0 | 3.6 | 689 | 14.3 | 7 | 32.0 | 25 | 1.7 | 834 |
| SNNPR | 1.0 | 1.2 | 587 | 0.0 | 6 | 42.9 | 7 | 1.2 | 706 |
| Tigray | 2.2 | 5.9 | 455 | 60.0 | 10 | 29.6 | 27 | 1.5 | 568 |
| Somali | 0.0 | 1.7 | 172 | - | 0 | 66.7 | 3 | 1.2 | 192 |
| Addis Ababa | 1.8 | 14.3 | 739 | 46.2 | 13 | 59.4 | 106 | 1.8 | 1,089 |
| Afar | 0.7 | 2.2 | 139 | 0.0 | 1 | 0.0 | 3 | 1.3 | 188 |
| Benishangul Gumuz | 0.9 | 2.8 | 106 | 100.0 | 1 | 33.3 | 3 | 1.1 | 113 |
| Dire Dawa | 0.0 | 8.0 | 113 | - | 0 | 11.1 | 9 | 1.2 | 136 |
| Gambela | 3.0 | 6.1 | 164 | 20.0 | 5 | 20.0 | 10 | 1.5 | 193 |
| Harari | 1.4 | 5.0 | 141 | 0.0 | 2 | 85.7 | 7 | 1.3 | 160 |
| Total | 1.3 | 5.3 | 4,208 | 34.5 | 55 | 46.4 | 222 | 1.5 | 5,163 |

2.6.6 HIV/AIDS Related Knowledge and Source of Condom Among Youth

The future of the HIV epidemic lies in the sexual behavior of young people. Moreover, youth aged 15-24 are much more vulnerable to HIV/AIDS than older people are. The period between the commencement of sexual activities and marriage for many young people is a time of sexual experimentation that may involves risky behavior. Due to this, HIV/AIDS programs have put special attention on youth. In this evaluation, comprehensive knowledge of HIV/AIDS transmission and prevention, knowledge of source of condom, abstinence, age at sexual debut and condom use among youth were assessed. Comprehensive knowledge is defined as knowing that: 1) people can reduce their chance of getting the AIDS virus by having sex with only one uninfected, faithful partner and by using condom consistently; 2) a healthy looking person can have AIDS virus and 3) HIV can not be transmitted by mosquito bites or by sharing food with a person who has AIDS.

The data in Table 2.7 indicates that only 15% of young women have comprehensive knowledge about AIDS. The level of comprehensive knowledge among youth decreased vis-à-vis the 20% finding of EDHS 2005.

Correct and consistent use of condoms is one of the three programmatically important approaches to prevent spreading of HIV/AIDS. Due to this, respondents were asked whether they knew where condoms could be obtained. Interestingly, quite a larger proportion of young women (64.4%) knew where to obtain a condom. The finding is almost twice higher than the EDHS 2005.

The level of comprehensive knowledge increased with education and wealth status. However, it didn't substantially vary across age groups. Never married women are most likely to have comprehensive knowledge about HIV/AIDS. By Region, level of comprehensive knowledge ranges from 1.2% in Afar to 19.1% in Addis Ababa.

Consistent with the pattern observed in comprehensive knowledge among youth, Knowledge of a condom source increased with level of education and wealth status. Never married young women are more likely to know where to obtain a condom than those who were married. Knowledge of condom source substantially varies across Regions, from 23.2% in Somali to 80% in Addis Ababa.

Table 2.7: Comprehensive knowledge about AIDS and of a source of condoms among youth

| Percentage of young women age 15-24 with comprehensive knowledge about AIDS and percentage with knowledge of a source of condoms, by background characteristics, Ethiopia 2008 | | | |
|--|---|-------------------------------------|-----------------|
| Background characteristics | Percentage with comprehensive knowledge of AIDS | Percentage who know a condom source | Number of women |
| Age | | | |
| 15-24 | 15.0 | 64.4 | 2,971 |
| Age | | | |
| 15-19 | 15.3 | 65.2 | 1,579 |
| 20-24 | 14.7 | 63.4 | 1,392 |
| Marital status | | | |
| Never married | 17.3 | 73.0 | 1,768 |
| Married/living together | 12.0 | 52.4 | 1,004 |
| Divorced/separated/widowed | 8.7 | 61.9 | 126 |
| Missing | 12.3 | 23.3 | 73 |
| Education | | | |
| No education | 4.9 | 30.1 | 715 |
| Primary | 14.2 | 67.4 | 1,161 |
| Secondary+ | 23.9 | 87.5 | 945 |
| Missing | 13.3 | 58.7 | 150 |
| Wealth index | | | |
| Lowest | 6.3 | 40.7 | 496 |
| Second | 7.7 | 51.7 | 509 |
| Middle | 17.0 | 61.7 | 501 |
| Fourth | 19.3 | 74.7 | 574 |
| Highest | 20.9 | 81.1 | 841 |
| Missing | 8.0 | 54.0 | 50 |
| Residence | | | |
| Urban | 19.1 | 76.9 | 1,695 |
| Rural | 9.6 | 47.6 | 1,276 |
| Region | | | |
| Oromiya | 13.3 | 59.5 | 518 |
| Amhara | 16.3 | 58.1 | 363 |
| SNNPR | 15.1 | 64.0 | 469 |
| Tigray | 15.3 | 61.6 | 307 |
| Somali | 4.0 | 23.2 | 99 |
| Addis Ababa | 19.1 | 80.0 | 871 |
| Afar | 1.2 | 39.5 | 81 |
| Benishangul Gumuz | 9.7 | 56.5 | 62 |
| Dire Dawa | 15.3 | 67.8 | 59 |
| Gambela | 3.5 | 54.7 | 86 |
| Harari | 19.6 | 53.6 | 56 |
| Total | 15.0 | 64.4 | 2,971 |

2.6.7 Age at First Sexual Intercourse Among Youth

Table 2.8 shows the age at first sexual intercourse among youth. Overall, 6% of women age 15-24 had sex by the age of 15 compared to 16% in EDHS 2005. While 28% of young women age 18-24 had sex by age of 18 compared to 35% in EDHS 2005. This indicates that initiating of sexual activity at early age has markedly decreased.

Moreover, marital status makes a notable difference in the likelihood of women having sex. In general, never married young women are more likely to have had sex by the age 15 or by the age 18 than their counter part. Only 0.2 and 4% of never married women compared to 23 and 57% percent divorced/separated/widowed had sex at the age of 15 or 18, respectively. The fact that only a very small proportion of never married young women report that they had sex at age of 15 or 18, implies that the average age for sexual intercourse has increased for never married young women. The finding seems consistent with EDHS 2005.

There are also substantial variations in the age at first sexual intercourse across other background characteristics. The proportion of women initiating sexual activities by the age of 15 or by the age of 18 decreases as the level of education and wealth status increases. Women in Gambela and Afar Region start having sex at an earlier age than women in other Regions. In both Regions around one fifth of young women had sex before the age of 15. Moreover, 67.6% of women in Gambela and 44.6% in Afar Regions had initiated sex before age 18.

Table 2.8 Age at first sexual intercourse among youth

| Percentage of young women age 15-24 who had sexual intercourse before age 15 and percentage of young women age 18-24 who had sexual intercourse before age 18, by background characteristics, Ethiopia 2008 | | | | |
|---|---|-------------------------|---|-------------------------|
| | Percentage who had sexual intercourse before age 15 | Number of women (15-24) | Percentage who had sexual intercourse before age 18 | Number of women (18-24) |
| Age | | | | |
| 15 | 1.3 | 306 | - | 0 |
| 16 | 3.8 | 315 | - | 0 |
| 17 | 1.1 | 278 | - | 0 |
| 18 | 4.3 | 399 | 21.1 | 399 |
| 19 | 6.8 | 281 | 26.7 | 281 |
| 20 | 8.9 | 470 | 33.0 | 470 |
| 21 | 7.6 | 211 | 23.2 | 211 |
| 22 | 8.8 | 297 | 30.6 | 297 |
| 23 | 5.9 | 221 | 28.1 | 221 |
| 24 | 10.4 | 193 | 33.2 | 193 |
| Education | | | | |
| No education | 14.3 | 715 | 46.7 | 593 |
| Primary | 4.3 | 1,161 | 30.6 | 660 |
| Secondary+ | 1.7 | 945 | 12.3 | 723 |
| Missing | 2.7 | 150 | 12.5 | 96 |
| Marital status | | | | |
| Never married | 0.2 | 1,768 | 4.2 | 973 |
| Married/living together | 13.7 | 1,004 | 50.2 | 938 |
| Divorced/separated/widowed | 23.0 | 126 | 57.0 | 114 |
| Missing | 2.7 | 73 | 6.4 | 47 |
| Wealth index | | | | |
| Lowest | 10.7 | 496 | 39.1 | 343 |
| Second | 8.1 | 509 | 38.4 | 359 |
| Middle | 6.6 | 501 | 36.6 | 355 |
| Fourth | 4.5 | 574 | 23.8 | 412 |
| Highest | 2.0 | 841 | 12.5 | 576 |
| Missing | 4.0 | 50 | 29.6 | 27 |
| Residence | | | | |
| Urban | 3.7 | 1,695 | 20.3 | 1,186 |
| Rural | 8.6 | 1,276 | 38.3 | 886 |
| Region | | | | |
| Oromiya | 5.0 | 518 | 32.4 | 373 |
| Amhara | 10.5 | 363 | 37.2 | 250 |
| SNNPR | 3.0 | 469 | 20.4 | 319 |
| Tigray | 9.4 | 307 | 39.0 | 213 |
| Somali | 0.0 | 99 | 9.8 | 61 |
| Addis Ababa | 3.1 | 871 | 15.7 | 594 |
| Afar | 17.3 | 81 | 44.6 | 56 |
| Benishangul Gumuz | 1.6 | 62 | 28.9 | 45 |
| Dire Dawa | 8.5 | 59 | 30.6 | 49 |
| Gambela | 18.6 | 86 | 67.6 | 71 |
| Harari | 3.6 | 56 | 43.9 | 41 |
| Total | 5.8 | 2,971 | 28.0 | 2,072 |

2.6.8 Premarital sexual intercourse and condom use during premarital sexual intercourse among youth

Table 2.9 shows the percentage of never married young women age 15-24 who never had sex, the percentage who had sex in the 12 months preceding the survey, as well as who used condom the last time they had sex. The results indicate that the majority (93.3%) of never married young women reported that they had never had sex. Similarly, in 2005 some 96% of never married young women reported that they never had premarital sexual intercourse (DHS, 2005).

Premarital sexual intercourse doesn't vary by level of education and wealth status. Similarly, the differentials in the percentage of women reporting that they have not yet engaged in sex by regions were not large, except for the somewhat lower percentage among women living in Gambela.

Quite a small proportion (3.6 %) of never married young women had sex in the past 12 months. Unmarried Youth age 20-24 were about four times more likely to report premarital sexual intercourse than unmarried youth age 15-20. Amongst never-married youth who had sex in the past 12 month, a significant proportion (45.3%) reported using condom during the last sexual intercourse.

Table 2.9: Premarital sexual intercourse and condom use during premarital sexual intercourse among youth

| Among never-married women age 15-24, the percentage who have never had sexual intercourse, the percentage who had sexual intercourse in the past 12 months, and, among those who had premarital sexual intercourse in the past 12 months, the percentage who used a condom at the last sexual intercourse by background characteristics, Ethiopia 2008 | | | | | |
|--|--|---|-------------------------------------|--|-----------------|
| | Percentage who have never had sexual intercourse | Percentage who had sexual intercourse in the past 12 months | Number of never married respondents | Among respondents who had sexual intercourse in the past 12 months: Percentage who used condom at last sexual intercourse | Number of women |
| Age | | | | | |
| 15-24 | 93.3 | 3.6 | 1,768 | 45.3 | 64 |
| Age | | | | | |
| 15-19 | 96.2 | 1.9 | 1,239 | 54.2 | 24 |
| 20-24 | 86.6 | 7.6 | 529 | 40.0 | 40 |
| Marital status | | | | | |
| Never married | 93.3 | 3.6 | 1,768 | 45.3 | 64 |
| Education | | | | | |
| No education | 94.8 | 2.8 | 211 | 50.0 | 6 |
| Primary | 95.1 | 2.2 | 760 | 47.1 | 17 |
| Secondary+ | 91.0 | 5.2 | 713 | 45.9 | 37 |
| Missing | 92.9 | 4.8 | 84 | 25.0 | 4 |
| Wealth index | | | | | |
| Lowest | 97.5 | 1.7 | 239 | 0.0 | 4 |
| Second | 95.2 | 2.0 | 249 | 20.0 | 5 |
| Middle | 95.1 | 3.4 | 263 | 66.7 | 9 |
| Fourth | 93.4 | 3.6 | 333 | 50.0 | 12 |
| Highest | 90.8 | 4.9 | 649 | 46.9 | 32 |
| Missing | 85.7 | 5.7 | 35 | 50.0 | 2 |
| Residence | | | | | |
| Urban | 91.9 | 4.5 | 1,140 | 52.9 | 51 |
| Rural | 95.9 | 2.1 | 628 | 15.4 | 13 |
| Region | | | | | |
| Oromiya | 93.5 | 3.6 | 277 | 40.0 | 10 |
| Amhara | 95.4 | 1.7 | 174 | 33.3 | 3 |
| SNNPR | 98.1 | 1.0 | 311 | 33.3 | 3 |
| Tigray | 95.2 | 3.6 | 167 | 50.0 | 6 |
| Somali | 100.0 | 0.0 | 55 | - | 0 |
| Addis Ababa | 89.5 | 5.3 | 657 | 54.3 | 35 |
| Afar | 92.6 | 3.7 | 27 | 0.0 | 1 |
| Benishangul Gumuz | 96.7 | 3.3 | 30 | 0.0 | 1 |
| Dire Dawa | 96.6 | 0.0 | 29 | - | 0 |
| Gambela | 78.9 | 21.1 | 19 | 0.0 | 4 |
| Harari | 95.5 | 4.5 | 22 | 100.0 | 1 |
| Total | 93.3 | 3.6 | 1,768 | 45.3 | 64 |

2.6.9 Higher-risk sex and condom uses among youth

In Ethiopia, HIV infections are largely transmitted through unprotected sex with an infected person. Therefore, to prevent HIV transmission, it is of paramount importance for young people to practice ABC methods (abstinence, being faithful to one uninfected partner, and condom use). Table 2.10 show the proportion of young women who have been sexually active in the 12- month period preceding the survey who have engaged in higher-risk sex (sex with a nominal, no cohabiting partner) and the extent to which they use condoms in higher-risk sexual encounters.

Among young women who had sexual intercourse in the past 12 months, 8.6 percent engaged in higher-risk sex activities. Data from DHS 2005 indicates that 6 percent of young women were involved in higher-risk sexual encounters.

The prevalence of higher-risk sex varies widely across background characteristics. For instance, never married young women were considerably more likely to have engaged in higher-risk sex (78%) compared with those Divorced/separated/widowed (17.9 percent) or married/living together (3%) young women. While 21 percent of young women with secondary and above education had sex with no cohabiting partner, the corresponding proportion for young women with no education is 1.8 percent. Higher-risk sexual activity was also much concentrated among those in the highest wealth quintile than those in the lowest (24 percent compare to 2 percent). Regarding to regional variation, Addis Ababa has the highest proportion of young women engaged in higher-risk sex than the other regions. Interestingly, youth who are never married, youth with secondary and above education, youth in the highest wealth quintile or youth who live in Addis Ababa were also more likely to report using condoms at last higher-risk sex.

Table 2.10: Higher-risk sexual intercourse among youth and condom use at last higher-risk intercourse in the past 12 months

| Among young women age 15-24 who had sexual intercourse in the past 12 months, the percentage who had higher-risk sexual intercourse in the past 12 months, and among those having higher-risk intercourse in the past 12 months, the percentage reporting that a condom was used at last higher-risk intercourse, by background characteristics, Ethiopia 2008 | | | | |
|--|---|-----------------|--|-----------------|
| | Respondents 15-24 who had sexual intercourse in the past 12 months: | | Respondents 15-24 who had higher risk intercourse in the past 12 months: | |
| | Percentage who had higher-risk intercourse in the past 12 months | Number of women | Percentage who reported using a condom at last higher-risk intercourse | Number of women |
| Age | | | | |
| 15-24 | 8.6 | 1,043 | 46.7 | 90 |
| Age | | | | |
| 15-19 | 10.6 | 282 | 50.0 | 30 |
| 20-24 | 7.9 | 761 | 45.0 | 60 |
| Marital status | | | | |
| Never married | 78.1 | 64 | 54.0 | 50 |
| Married/living together | 3.1 | 921 | 41.4 | 29 |
| Divorced/separated/widowed | 17.9 | 56 | 30.0 | 10 |
| Missing | 50.0 | 2 | 0.0 | 1 |
| Education | | | | |
| No education | 1.8 | 434 | 37.5 | 8 |
| Primary | 9.0 | 355 | 50.0 | 32 |
| Secondary+ | 21.9 | 215 | 46.8 | 47 |
| Missing | 7.7 | 39 | 33.3 | 3 |
| Wealth index | | | | |
| Lowest | 2.7 | 225 | 0.0 | 6 |
| Second | 3.6 | 225 | 12.5 | 8 |
| Middle | 6.3 | 205 | 46.2 | 13 |
| Fourth | 9.7 | 216 | 47.6 | 21 |
| Highest | 24.1 | 162 | 59.0 | 39 |
| Missing | 30.0 | 10 | 66.7 | 3 |
| Residence | | | | |
| Urban | 15.1 | 476 | 55.6 | 72 |
| Rural | 3.2 | 567 | 11.1 | 18 |
| Region | | | | |
| Oromiya | 5.0 | 218 | 45.5 | 11 |
| Amhara | 4.5 | 155 | 28.6 | 7 |
| SNNPR | 3.0 | 135 | 50.0 | 4 |
| Tigray | 11.0 | 118 | 30.8 | 13 |
| Somali | 0.0 | 37 | - | 0 |
| Addis Ababa | 21.5 | 191 | 65.9 | 41 |
| Afar | 2.7 | 37 | 0.0 | 1 |
| Benishangul Gumuz | 3.6 | 28 | 0.0 | 1 |
| Dire Dawa | 11.1 | 27 | 0.0 | 3 |
| Gambela | 10.9 | 64 | 14.3 | 7 |
| Harari | 6.1 | 33 | 50.0 | 2 |
| Total | | | | |
| Total | 8.6 | 1,043 | 46.7 | 90 |

2.7 HIV prevalence and incidence**2.7.1 Evaluation Question 5: Have the incidence, prevalence and impact related to HIV changed?****2.7.1.1 HIV Prevalence**

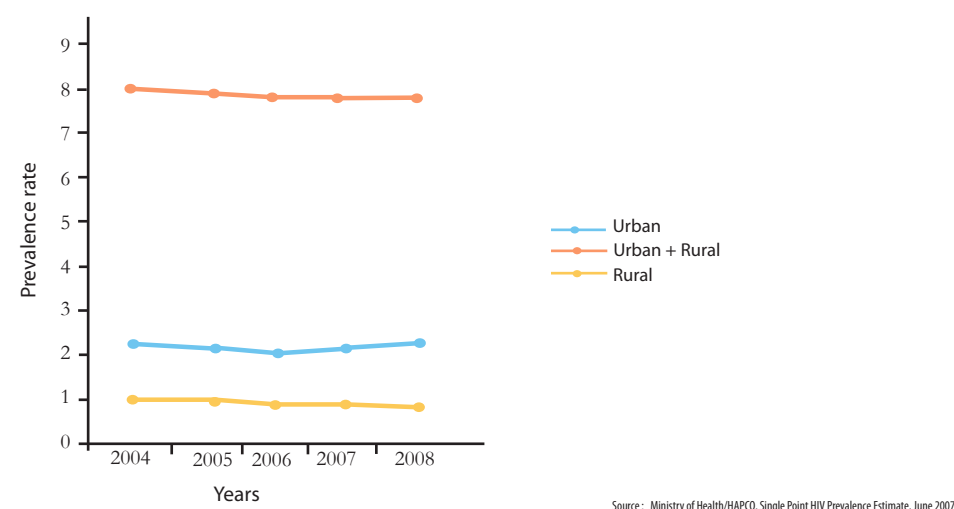
The HIV prevalence data provide important information to monitor the impact of the national HIV/AIDS response. Trends in HIV prevalence can be more accurately measured by the population surveys conducted at repeated intervals using consistent methodology. However, in Ethiopia there is no population based HIV prevalence study except EDHS 2005. Consequently, it was not possible to assess the HIV prevalence trend based on data in the general reproductive age population.

In literature it is indicated that the rate of HIV infection among pregnant women is a reasonably proxy for the HIV prevalence level in adult population (WHO and UNAIDS, 2000). In Ethiopia, similar to other parts of sub-Saharan Africa, the main source of HIV prevalence data have been derived mainly from ANC sentinel surveillance. The ANC surveillance has been conducted and published every two years since 1996. Although impact monitoring using ANC data was commenced as early as 1989, the surveillance system was confined to few urban surveillance sites through out the 1990s. Over the past years however, surveillance sites have expanded to the rural area and the number of ANC sentinel sites has continuously increased. The number of ANC surveillance sites which were 13 (11 urban and 2 rural) in 2000 increased to 100 in 2007.

Since, the ANC surveillance is the only data base available to assess the trends of the HIV prevalence, in this evaluation trends in the prevalence of HIV are assessed mainly based on ANC surveillance findings. Ethiopia conducted the 2007 ANC surveillance, however, the report was not complete at the time of this evaluation. Hence, the trend analysis is based on the data until 2005.

In 2005, both the regular antenatal clinic (ANC) based sentinel surveillance and the population-based Demographic and Health Survey (DHS), which included HIV testing of respondents' blood were carried out. The two exercises produced different national adult HIV prevalence estimates, 1.4% in E-DHS and 3.5% in ANC. The difference in the two reports led to intensive discussions among the implementing entities and the national authorities in Ethiopia. In early 2007, the Federal HIV/AIDS Prevention and Control Office (FHAPCO) convened a task force to reconcile these two estimates with a view of establishing one single point estimate. The task force employed intensive statistical methodology and developed a single point estimate of adult HIV prevalence of 2.1% in 2007.

The recent trend analysis of the HIV prevalence from 2004 to 2008 demonstrates a fairly stable trend. The national adult prevalence estimated at 2.2% in 2004 and 2.1% in 2008. The urban epidemic exhibited plateauing or even declining trend (fig 2.10).

Figure 2.10: Trends in Estimated HIV Prevalence Rate (2004-2008),

The most recent study carried out on synthesis of the available HIV epidemiological data indicates that the prevalence of HIV stabilize or decline in major urban areas including Addis Ababa (HAPCO and GAMET, 2008). The observed stabilizing or even declining trend of HIV prevalence in urban area might be attributable to the increase coverage of HCT service, which concentrated mainly in the urban area until recently.

In small towns the epidemic is increasing while in rural areas the epidemic seems to be relatively widespread but heterogeneous. Although the prevalence of HIV in most regions is relatively low, few exhibited prevalence rates of greater than 5%. Besides, unexpectedly Gambela region demonstrated the highest prevalence of any area (HAPCO and GAMET, 2008). The authors of the report associated the recorded high prevalence of rate of HIV in Gambela with a relatively higher magnitude of risky sexual behavior and less common male circumcision in the region. Similarly, the primary data of this evaluation (DCA data) indicates that the proportion of women having had two or more partners is highest in this region. Moreover, the prevalence of high-risk sex in this region is among the highest. The report also suggests that the epidemic appears to intensify in the rural part of Ethiopia where 85% of the population live. It is worth to note that the prevalence data has to be interpreted with caution. Among other factors, the recent expansion of the ART service enables a huge number of HIV positive people to survive for many years and consequently the prevalence might increase.

2.7.1.2 HIV Incidence

The incidence of HIV infection shows a continued rise until 1992 and plateauing in the mid 1990s. Between 1996 and 2001 it demonstrates a decline trend. Since 2001 it remained stable and it is projected to be stable until 2010. The most recent ANC surveillance report indicates that the estimated incidence rate is 0.26 in 2005.

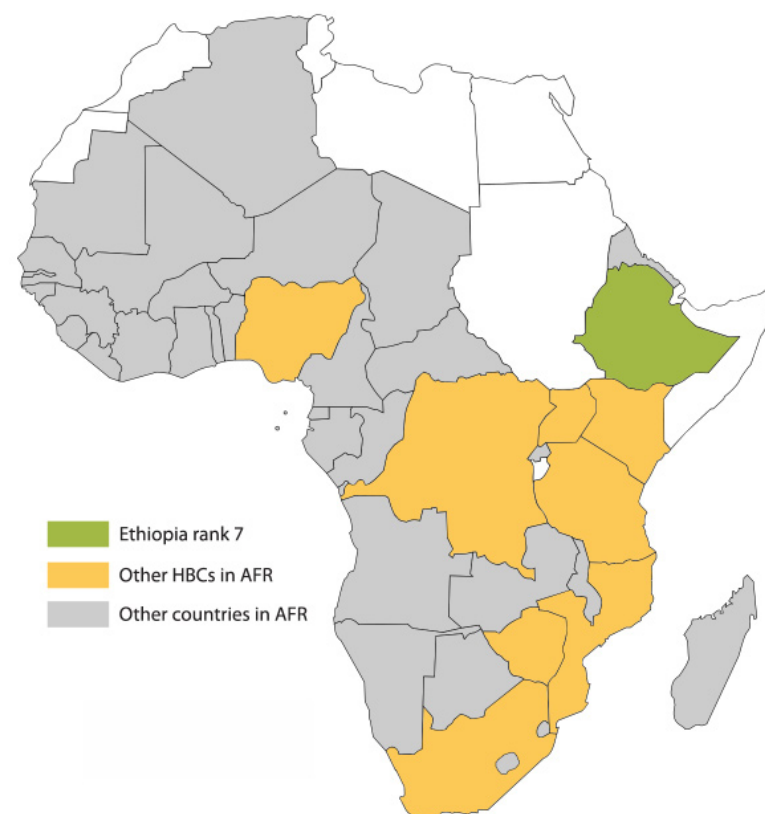
3 Tuberculosis

3.1 Background

3.1.1 Historical Perspective of Tuberculosis Burden in Ethiopia

Tuberculosis (TB) has claimed countless of lives through the centuries and remains a major cause of death in the world, particularly in the developing countries. In Ethiopia, the major health problems are communicable diseases of which tuberculosis is one of the leading. The country is classified as one of the worst affected and of highest burden for tuberculosis (TB) in the world. According to the FMOH hospital statistics data, tuberculosis is the leading cause of morbidity, the third cause of hospital admission, and the first cause of hospital death in Ethiopia (FMOH, 2007/8). As in many developing countries, the most vulnerable groups include young adults aged 15 to 49 years, children under 5 years and people living with HIV/AIDS.

According to the current WHO Global TB Report 2008, with a population of about 81 million and an incidence of all forms of TB cases estimated at 378 per 100,000 people per year, Ethiopia ranks seventh among the top 22 High Burden Countries (HBCs) in the world, and one of the top three in Africa, with regard to the number of tuberculosis patients (WHO, 2008). In fact the national data shows that there are certain increases in the number of new TB cases notified within the past five years, which can be associated with successfulness of the expansion and coverage of (DOTS) strategy designed by the government to combat the disease. For instance, in 2001, the national TB and leprosy control programme (NTLCP) registered 94,957 TB cases from DOTS areas, representing case notification rates of 173 and 60 per 100,000 population, for all forms of TB and for new-smear positive Pulmonary Tuberculosis (PTB), respectively (MOH 2001). In 2005, a total of 126,233 TB cases were notified to the NTLCP, of which 38,800 (31%) were smear-positive PTB cases. WHO estimates that in 2006, less than 50% of new sputum smear positive TB cases were detected (136/1000s and 168/100 000 persons per year) and that only 306/1000 and 378/100 000/year of all forms of TB were detected.

Figure 3.1 Ethiopian Tuberculosis Rank, Ethiopia, 2008

3.1.2 National response to fight TB and the overview of TB control program

Tuberculosis has been identified as one of the major public health problems in Ethiopia in the last 5 decades. Similarly, TB control efforts in Ethiopia date back to the early 1960s, when a few TB centers and sanatoriums were set up in three major urban areas in the country. These efforts were not well coordinated until the National Tuberculosis Control Programme (NTCP) office was established in 1976 by Ethiopian Federal Ministry of Health (FMOH, 2007).

However, in order to curb the impacts of TB and other communicable diseases, the Government has carried out national health policy and health sector reform in the early of 1990s, addressing the issues of access to health care services, equity, and the major public health situations, including TB, HIV/AIDS, and malaria. Besides, FMOH has developed the National TB Control Strategic Plan which incorporates Global Stop TB strategies and focuses on utilization of DOTS strategy for 2002-6 and revised for 2007/8-2010 (FMOH, 2007).

The NTP reform focuses on fully integrating TB diagnosis and treatment into the general health service system and decentralizing TB service delivery to the peripheral health units in woredas. Furthermore, the DOTS/MDT strategy which was adopted in Ethiopia in 1992 as a pilot in a few areas of the country has been expanded to all regions and woredas. Besides increasing DOTS coverage rate, efforts have been made to train new and existing health-care workers, to supply facilities with proper medical equipments and to strengthen the laboratory system.

Beyond this, currently many of the partners actively collaborate with the government of Ethiopia in carrying out NTP in the country by providing financial and technical supports; WHO, GFATM, German Leprosy and TB Relief Association (GLRA), CDC, USAID, Italian Development Cooperation and University of Brescia are the major ones (FMOH, 2007).

Over all, as a result of these efforts and NTP addressing the challenges of improving access to DOTS, service coverage has shown a significant increase over the past ten years. For instance, in 1997, roughly 48% of the health facilities in the country worked under the DOTS and by 2006, DOTS coverage had reached 100% of zonal areas and 90% of woreda areas (FMOH, 2005).

3.2 Trends of Tuberculosis funding/spending

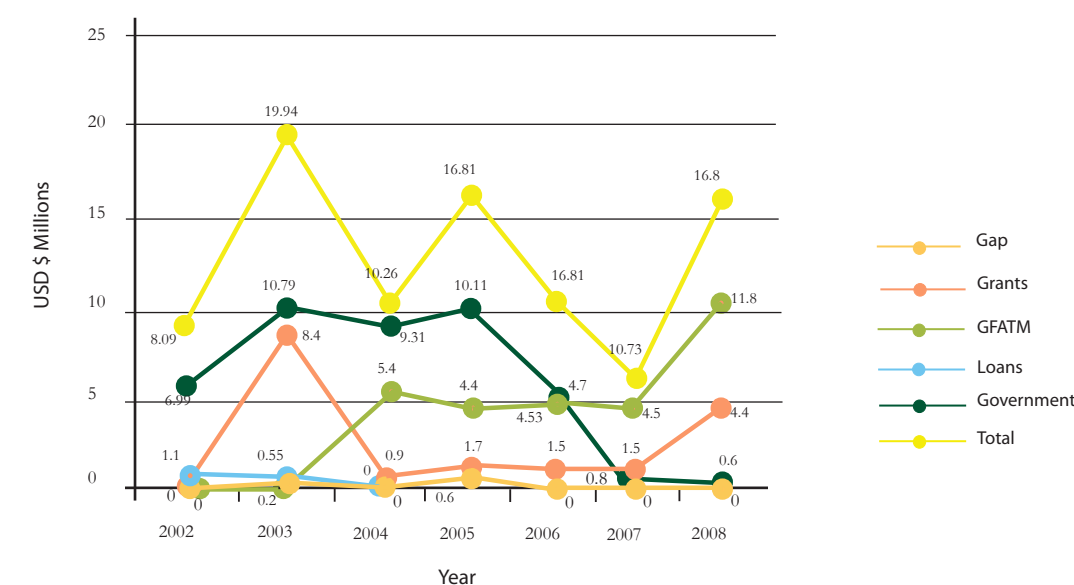
3.2.1 Evaluation Question 1: Has funding/spending increased for tuberculosis programs?

For many developing countries like Ethiopia the main constraint in moving ahead in tackling TB by increasing the access to and quality of TB services is the lack of financial resources. In Ethiopia, before 2002 most of the financial resource for tuberculosis control activities was allocated from the government. Currently, tuberculosis control activities account for 5 percent of the government's spending on health (FMOH 2007).

However, in the last five to seven years different funding agencies have made a significant resource contribution in support of the government's response and efforts in expanding treatment access and mitigating the impact of tuberculosis. According to WHO 2008 Global report, Ethiopia is one of the seven HBCs who are dependent on funding to cover around 50% or more of the total costs of TB control since 2002. Similarly to the other resource constrained developing countries, Ethiopia has also solicited and secured financial supports from different funding agencies like GFATM, GLRA, WHO, USAID and others for TB control issues. A substantial amount of the financial supports that Ethiopia has secured in the past years from such funding agencies help to supplement the scarce resources allocated from the government's side for TB control programs.

WHO indicates that NTP budgets in 21 of the 22 HBCs have increased during the period 2002–2008, often by substantial amounts (WHO, 2008). Even though there is lack of data to make full assessment of TB funding in Ethiopia for the consecutive years, available limited data form WHO's reviews of global TB control funding and others shows that there are substantial increases of financial resources for TB control programs from both Government and funding agencies.

Figure 3.2 illustrates the trends of increase of financial allocations over the last seven years for NTP in Ethiopia by funding sources.

Figure 3.2 NTP Budget by Source of Funding, Ethiopia, 2008

3.3 Coverage and Availability of quality tuberculosis

3.3.1 Evaluation Question 2: Has the availability of quality tuberculosis services increased?

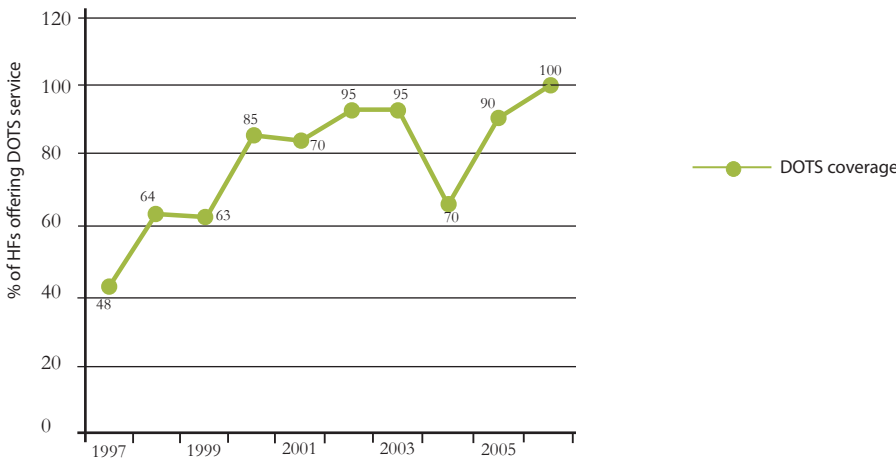
One of the obstacles to providing tuberculosis testing and treatment in Ethiopia in the pervious years is inaccessibility of quality tuberculosis services due to underdeveloped health care infrastructure and low health service coverage. The health service coverage, defined as part of population living within reach of a health institution in two-hour walking (or 10km) distance, from health facilities is estimated to be 51% (FMoH 2007).

In response to prevailing challenges and newly emerging health problems in the country, the government of Ethiopia has carried out health sector reforms which attempt to improve the access to and quality of health services. Within this reform priority was given to fully integrate NTP into the general primary health care services and to restructure and improve the health infrastructure by progressively decentralizing service delivery to peripheral health units in woredas and kebeles.

The efforts made so far highlight significant success in the geographic expansion of the TB programme. Following the integration and decentralization of the TB control programme activities into the general health services, the DOTS strategy has been expanded to all regions, zones and most of the woredas and health facilities over the last ten years; currently nearly 100% geographic coverage has been achieved (FMOH, 2007). In the past ten years the number of zones in which the DOTS strategy has been introduced has risen from 27 (39%) in 2001 to 70 (100%) of the Zones at present and Woreda coverage has increased from 50% to 90%.

Likewise, as figure 3.3 demonstrates, the potential DOTS/MDT coverage of the health facilities, which is defined as the number of government health facilities (HF) that implement the DOTS strategy, has remarkably increased. At present, close to 100% of the existing hospitals and health centers are implementing the DOTS/MDT strategy. Although adequate information is not available to highlight the national trends in the number of nucleus health facilities (clinics and health posts) that are providing TB services in the last ten years /1997-2007/,, , according to the estimation of FMoH, the coverage of nucleus health facilities is around 75% (FMoH, 2007). Furthermore, the results of a health facility assessment reveal that about 7 of the studied clinics are providing TB services.

Figure 3.3 Ten Years Trends of TB DOTS coverage in Ethiopia by Health facility



Data obtained from the 2008 health facility assessment also validate potential increase and equity of the health facilities offering TB services. Nearly 99 percent of the surveyed health facilities in all woreda clusters acknowledged providing TB services to the surrounding population, like diagnosis of TB/MDR through sputum smear microscopy and culture, diagnosis of TB including X-ray, diagnosis of MDR TB using culture or rapid test; treatment of TB, DOTS, outreach DOT and TB patients follow-up. This proportion is slightly higher compared to the 2005 NHFS result (95%). Besides, among the facilities surveyed, as shown in table 3.1, 93% of government public facilities and 32% health facilities from rural sites provide TB services. Hence, it is possible to affirm that the availability of tuberculosis services increased over the past years.

Table 3.1 Region geographic distribution and administration of facilities providing TB services

| Percentage of facilities providing TB services in 2008 that serve urban vs rural populations and are administrated publicly vs. privately by region, Ethiopia 2008 | | | | | | | |
|--|---|---------------------------|---------------------------|----------------------------|--|-------------|----------------------------|
| Region | Geographic | | | Administration | | | Total number of facilities |
| | Percentage of wereda cluster population that is urban | Percentage of urban sites | Percentage of rural sites | Government Facility-Public | Government facility Not public (military, etc) | NGO / Other | |
| | | | | | | | |
| Region | | | | | | | |
| Oromiya | 13.1 | 52.9 | 47.1 | 100.0 | 0.0 | 0.0 | 34.0 |
| Amhara | 13.6 | 84.6 | 15.4 | 76.9 | 23.1 | 0.0 | 26.0 |
| SNNPR | 8.1 | 62.1 | 37.9 | 100.0 | 0.0 | 0.0 | 29.0 |
| Tigray | 11.7 | 75.0 | 25.0 | 100.0 | 0.0 | 0.0 | 20.0 |
| Somali | 26.0 | 20.0 | 80.0 | 100.0 | 0.0 | 0.0 | 5.0 |
| Addis Ababa | 100.0 | 100.0 | 0.0 | 77.8 | 22.2 | 0.0 | 18.0 |
| Afar | 15.9 | 75.0 | 25.0 | 100.0 | 0.0 | 0.0 | 4.0 |
| Benshangul Gumuz | 13.2 | 20.0 | 80.0 | 100.0 | 0.0 | 0.0 | 5.0 |
| Diredawa | 74.8 | 60.0 | 40.0 | 100.0 | 0.0 | 0.0 | 5.0 |
| Gambella | 39.8 | 100.0 | 0.0 | 75.0 | 0.0 | 25.0 | 4.0 |
| Harari | 62.6 | 60.0 | 40.0 | 100.0 | 0.0 | 0.0 | 5.0 |
| Total | 20.3 | 68.4 | 31.6 | 92.9 | 6.5 | 0.6 | 155.0 |

Furthermore, the result of 2008 HFS (table 3.2) demonstrates that the facilities were offering such specific TB services as DOTS, smear microscopy and follow up of TB patients. Of the surveyed health facilities ninety one, eighty six and ninety percent of them reported that they had provided, respectively, DOTS, smear microscopy services and follow up of TB patients, while 76% of them acknowledged offering all three services. The proportions of health facilities that were offering DOTS showed significant increase compared to the results of 2005 NHFS (91% in 2008HFS vs 76.5% in 2005 NHFS).

Table 3.2 Health facilities offering specific TB services

| Percentage of facilities offering specific TB services by region, Ethiopia 2008 | | | | | |
|---|-------------|------------------|--------------------------|----------------|-----------------------------------|
| Regions | Services | | | | |
| | DOTS | Smear microscopy | Follow up of TB patients | All 3 elements | # of Facilities offering services |
| Oromia | 94.1 | 82.4 | 91.2 | 76.5 | 34.0 |
| Amhara | 92.3 | 88.5 | 96.2 | 76.9 | 26.0 |
| SNNPR | 89.7 | 93.1 | 82.8 | 75.9 | 29.0 |
| Tigray | 100.0 | 85.0 | 90.0 | 85.0 | 20.0 |
| Somali | 100.0 | 80.0 | 100.0 | 80.0 | 5.0 |
| Addis Ababa | 77.8 | 94.4 | 88.9 | 72.2 | 18.0 |
| Afar | 100.0 | 50.0 | 75.0 | 50.0 | 4.0 |
| Benshangul Gumuz | 60.0 | 60.0 | 80.0 | 40.0 | 5.0 |
| Diredawa | 100.0 | 100.0 | 100.0 | 100.0 | 5.0 |
| Gambela | 100.0 | 100.0 | 100.0 | 100.0 | 4.0 |
| Harari | 80.0 | 60.0 | 100.0 | 60.0 | 5.0 |
| Total | 91.0 | 85.8 | 90.3 | 76.1 | 155.0 |

3.3.2 Has the quality of TB services improved?

Quality of health services can have a big impact on health outcomes, health related behavior, and patient satisfaction. Therefore, many facility surveys have tried to capture some dimensions of quality. In addition, in 2008 HFS attempt was made to assess improvement of quality of TB services from the availability of such elements as a properly functioning health service, with good management, diagnostic facilities, trained staff and reliable drug supply – especially at the periphery. In fact in improving the quality of TB services, the Ethiopian government has carried out major intervention activities which include supply of drugs and equipment to all facilities caring for TB patients, training of health workers on the appropriate treatment of the disease and providing guidelines; increasing public awareness about the prevention of tuberculosis.

The 2008 HFS data illustrates that most of the surveyed health facilities were supplied with essential diagnostic facilities and trainings and guidelines which can help to provide quality TB services. As indicated in table 3.3, except health facilities from the Somali Region, the rest reported that at least one of the staff members had received one or more trainings on the appropriate TB services provision in the past two years. Out of the total health facilities that were offering TB services significant proportions (79% and 62%) of the facilities reported, respectively, that at least one of the staff members had received diagnosis and treatment of TB and management of TB/HIV co-infection trainings in the past two years although the proportions of facilities which reported as one of the staff member received management of MDR-TB and all trainings were low-32% and 14%, respectively.

Table 3.3 Health facilities offering TB services with staff trained in tuberculosis

| Percentage of facilities offering TB services with at least one staff member who has received training in the past two years in tuberculosis issues, by region, Ethiopia 2008 | | | | | | |
|---|-------------------------------|----------------------|-----------------------------------|------------------------------|--------------|---|
| Region | Types of Trainings received | | | | | Number of facilities offering TB services |
| | Diagnosis and treatment of TB | Management of MDR-TB | Management of TB/HIV co-infection | Drug and supplies management | All training | |
| Region | | | | | | |
| Oromiya | 64.7 | 38.2 | 55.9 | 50.0 | 17.6 | 34.0 |
| Amhara | 65.4 | 7.7 | 38.5 | 30.8 | 7.7 | 26.0 |
| SNNPR | 86.2 | 34.5 | 62.1 | 44.8 | 13.8 | 29.0 |
| Tigray | 100.0 | 45.0 | 80.0 | 50.0 | 10.0 | 20.0 |
| Somali | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 |
| Addis Ababa | 88.9 | 44.4 | 83.3 | 77.8 | 27.8 | 18.0 |
| Afar | 100.0 | 25.0 | 75.0 | 0.0 | 0.0 | 4.0 |
| Benshangul Gumuz | 100.0 | 40.0 | 80.0 | 20.0 | 20.0 | 5.0 |
| Diredawa | 100.0 | 40.0 | 100.0 | 80.0 | 20.0 | 5.0 |
| Gambella | 75.0 | 50.0 | 75.0 | 25.0 | 0.0 | 4.0 |
| Harari | 100.0 | 0.0 | 60.0 | 40.0 | 0.0 | 5.0 |
| Total | 78.7 | 31.6 | 61.9 | 45.2 | 13.5 | 155.0 |

For effective and quality TB services provision of presence of appropriate guidelines are also very essential along with providing appropriate trainings. The government of Ethiopia has made attempts to supply TB trainings along with providing appropriate guidelines. The 2008 HFS data (table 3.4) demonstrates that remarkable proportions of health facilities offering TB services with guidelines to offer quality services. As indicated in the table, sixty two and forty percent of the facilities admitted, respectively, that they had appropriate guidelines to offer quality diagnosis and treatment of TB and management of TB/HIV co-infection services. The proportions of facilities that acknowledged a presence of appropriate guidelines management of MDR-TB and drug and supplies management was very low, only 13% and 19.4%, respectively. Similarly, ratios of health facilities that are with all guidelines were insignificant. By region, some 8% of the facilities from Tigray, Benishangul Gumuz and Harari had guidelines on diagnosis and treatment of TB in contrast to health facilities from Oromiya and Somali which were 29.4% and 40%, respectively. Health facilities from Addis Ababa relatively hold the first rank by having all appropriate TB guidelines.

Table 3.4 Health facilities offering TB services with appropriate guidelines

| Percentage of facilities offering TB services with guidelines to offer quality services by region, Ethiopia 2008 | | | | | | |
|--|-------------------------------|----------------------|-----------------------------------|------------------------------|----------------|---|
| Region | Type of Guidelines | | | | | Number of facilities offering TB services |
| | Diagnosis and treatment of TB | Management of MDR-TB | Management of TB/HIV co-infection | Drug and supplies management | All guidelines | |
| Region | | | | | | |
| Oromiya | 29.4 | 0.0 | 14.7 | 17.6 | 0.0 | 34.0 |
| Amhara | 73.1 | 3.8 | 42.3 | 23.1 | 3.8 | 26.0 |
| SNNPR | 69.0 | 13.8 | 48.3 | 10.3 | 10.3 | 29.0 |
| Tigray | 80.0 | 30.0 | 55.0 | 25.0 | 10.0 | 20.0 |
| Somali | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 |
| Addis Ababa | 77.8 | 33.3 | 66.7 | 38.9 | 22.2 | 18.0 |
| Afar | 75.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 |
| Benshangul Gumuz | 80.0 | 20.0 | 40.0 | 0.0 | 0.0 | 5.0 |
| Diredawa | 20.0 | 0.0 | 20.0 | 20.0 | 0.0 | 5.0 |
| Gambella | 75.0 | 50.0 | 75.0 | 25.0 | 0.0 | 4.0 |
| Harari | 80.0 | 0.0 | 60.0 | 20.0 | 0.0 | 5.0 |
| Total | 61.9 | 12.9 | 40.0 | 19.4 | 6.5 | 155.0 |

The availability of adequate equipments and supplies was important for the performance of facilities in TB control programs given that provision of quality services like diagnosis and treatment of the disease is entirely dependent upon the availability and adequacy of the essential equipments and supplies. In relation to this, the 2008 HFS attempted to assess the presence of adequate equipment and supplies like TB sputum tests equipment and all first-line drugs supplies which can give support to offer quality TB services.

Data from the HFS revealed (table 3.5) that all surveyed facilities acknowledged availability of such basic supplies as TB sputum tests equipment and all first-line drugs supplies. Among the surveyed facilities that offering TB services, 82% and 91% of them reported, respectively, having sufficient amount of TB sputum tests equipment and all first-line drugs supplies. Similarly 79% of the facilities acknowledged having both TB sputum tests equipment and all first-line drugs supplies. A majority, 100% of health facilities offering TB services in Addis Ababa and Gambela reported as having TB sputum tests equipment while facilities in Somali were the least (40%) in this regards. Furthermore, almost all TB services offering facilities from Oromiya, Tigray, Somali, Benishangul Gumuz, Diredawa and Gambela confirmed that they were supplied by all first-line drugs.

Table 3.5 Health facilities offering TB services with adequate equipment and supplies

| Percentage of facilities offering TB services with adequate equipment and supplies, 2008 by region, Ethiopia 2008 | | | | |
|---|------------------------|----------------------|---------------|---|
| Region | Equipment and supplies | | | Number of facilities offering TB services |
| | TB Sputum Tests | All first-line drugs | Both elements | |
| Region | | | | |
| Oromiya | 79.4 | 100.0 | 79.4 | 34.0 |
| Amhara | 84.6 | 96.2 | 80.8 | 26.0 |
| SNNPR | 82.8 | 96.6 | 82.8 | 29.0 |
| Tigray | 90.0 | 100.0 | 90.0 | 20.0 |
| Somali | 40.0 | 100.0 | 40.0 | 5.0 |
| Addis Ababa | 100.0 | 88.9 | 88.9 | 18.0 |
| Afar | 50.0 | 75.0 | 25.0 | 4.0 |
| Benshangul Gumuz | 80.0 | 100.0 | 80.0 | 5.0 |
| Diredawa | 60.0 | 100.0 | 60.0 | 5.0 |
| Gambella | 100.0 | 100.0 | 100.0 | 4.0 |
| Harari | 60.0 | 80.0 | 40.0 | 5.0 |
| Total | 81.9 | 96.1 | 78.7 | 155.0 |

Apart from other things, the quality of TB services depend up on the physical and organizational setting in which care is delivered and existence of the basic and/or high level infrastructures, resources that health care providers have at their disposal. The 2008 HFS assessment was also made in line to these dimensions.

Table 3.6 illustrates percentage of facilities offering TB services equipping with the infrastructure, staff, guidelines, equipments and supplies, and registers to offer quality services by Region. As indicated in the table, percentage of facilities with infrastructures (basic or high level) like working electricity source, accessible protected water source, and adequate infection control resources were very low (11%) compared to the high proportions of other elements (staff -79%, guidelines – 62%, and equipment and supplies - 79%). Additionally, only 6.5% of the facilities were acknowledged as equipped with all elements (infrastructure, staff, guidelines, equipment and supplies).

Furthermore, infrastructure capacity of the TB offering facilities showed variations among the Regions. Except facilities found in Oromiya, SNNPR, Addis Ababa and Tigray, which admitted having 24%, 21%, 11% and 5%, respectively, of the basic or high level infrastructures, others possessed limited infrastructures, or may lack one or more of the infrastructures like working electricity source, accessible protected water source, and adequate infection control resources.

Table 3.6 Health facilities with capacity to provide quality TB services

| Percentage of facilities offering TB services with the infrastructure, staff, guidelines, equipment and supplies, and registers to offer quality services by region, Ethiopia 2008 | | | | | | |
|--|----------------|-------------|-------------|------------------------|--------------|---|
| Region | Elements | | | | | Number of facilities offering TB services |
| | Infrastructure | Staff | Guidelines | Equipment and supplies | All Elements | |
| Oromiya | 23.5 | 64.7 | 29.4 | 79.4 | 8.8 | 34.0 |
| Amhara | 0.0 | 65.4 | 73.1 | 80.8 | 0.0 | 26.0 |
| SNNPR | 20.7 | 86.2 | 69.0 | 82.8 | 13.8 | 29.0 |
| Tigray | 5.0 | 100.0 | 80.0 | 90.0 | 5.0 | 20.0 |
| Somali | 0.0 | 0.0 | 40.0 | 40.0 | 0.0 | 5.0 |
| Addis Ababa | 11.1 | 88.9 | 77.8 | 88.9 | 11.1 | 18.0 |
| Afar | 0.0 | 100.0 | 75.0 | 25.0 | 0.0 | 4.0 |
| Benshangul Gumuz | 0.0 | 100.0 | 80.0 | 80.0 | 0.0 | 5.0 |
| Diredawa | 0.0 | 100.0 | 20.0 | 60.0 | 0.0 | 5.0 |
| Gambella | 0.0 | 75.0 | 75.0 | 100.0 | 0.0 | 4.0 |
| Harari | 0.0 | 100.0 | 80.0 | 40.0 | 0.0 | 5.0 |
| Total | 11.0 | 78.7 | 61.9 | 78.7 | 6.5 | 155.0 |

1Infrastructure: electricity, water, adequate infection control
 2Staff: Trained in diagnosis and management of tuberculosis
 3Guidelines: Diagnosis and management of tuberculosis
 4Equipment and Supplies: tuberculosis diagnostic test and nationally recommended first and second-line anti-tuberculosis medications.

3.4 Incidence, prevalence, morbidity and mortality of tuberculosis

3.4.1 Evaluation Question 3: Have the incidence, prevalence, morbidity, mortality and impact related to tuberculosis changed?

3.4.1.1 Tuberculosis Incidence

The incidence of smear-positive pulmonary TB is a key epidemiological indicator for evaluating the burden of TB. The real incidence is difficult to measure but can be estimated on the basis of case notifications and epidemiological models.

However, as over the years trend data (table 3.7 and figure 3.4) obtained from FMOH and WHO's data base indicates, case notification rate in Ethiopia which started to increase rapidly by about 16% per year both for sputum smear-positive cases (SS+) and all forms of TB since 1993 has continued to increase over the past ten years. The increases can be attributed both to the decentralization and the rapid expansion of DOTS, improved case finding under DOTS and to the increasing pace of spread of HIV/AIDS.

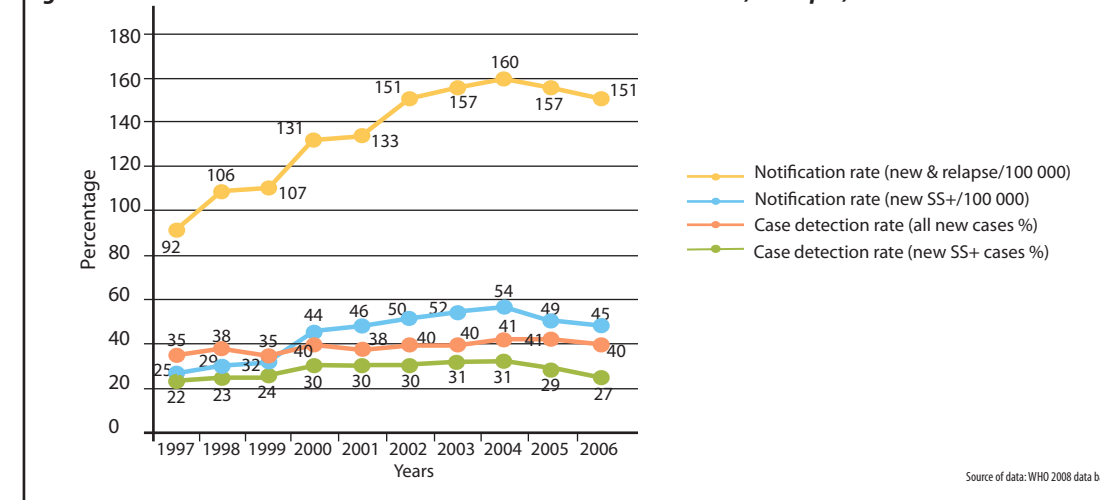
Table 3.7: Eight years overview of TB case notification in Ethiopia, Ethiopia, 2008

| Years | New SS+TB | | New SS-TB | | New EPTB | | Total new cases | Re-treat cases | | | | | All TB cases |
|-------|-----------|------|-----------|------|----------|------|-----------------|----------------|---------|---------|-------|------|--------------|
| | Number | % | Number | % | Number | % | | Relapse | Failure | Default | Total | % | |
| 2000 | 26,742 | 31.0 | 31,391 | 37.0 | 27,093 | 32.0 | 85,226 | 951 | 236 | 621 | 1,808 | 2.08 | 87,034 |
| 2001 | 31,781 | 35.0 | 28,938 | 32.0 | 28,923 | 32.0 | 89,642 | 1,106 | 274 | 592 | 1,972 | 2.15 | 91,614 |
| 2002 | 35,915 | 34.0 | 32,197 | 31.0 | 37,138 | 35.0 | 105,250 | 1,554 | 303 | 519 | 2,376 | 2.21 | 107,626 |
| 2003 | 37,774 | 34 | 33,880 | 30.0 | 39,931 | 36.0 | 111,585 | 1,783 | 235 | 476 | 2,494 | 2.19 | 114,079 |
| 2004 | 41,275 | 34.0 | 37,333 | 31.0 | 42,006 | 35.0 | 120,614 | 1,915 | 272 | 615 | 2,802 | 2.27 | 123,416 |
| 2005 | 39,036 | 32.0 | 39,651 | 32.0 | 44,325 | 36.0 | 123,012 | 2,315 | 326 | 566 | 3,207 | 2.54 | 126,219 |
| 2006 | 36,674 | 31.0 | 40,234 | 33.0 | 43,255 | 36.0 | 12,163 | 2,035 | 298 | 513 | 2,846 | 2.0 | 123,009 |
| 2007 | 38,040 | 30.0 | 43,500 | 34.3 | 45,269 | 35.0 | 126,809 | 2,035 | 262 | 637 | 2,934 | 2.3 | 128,402 |

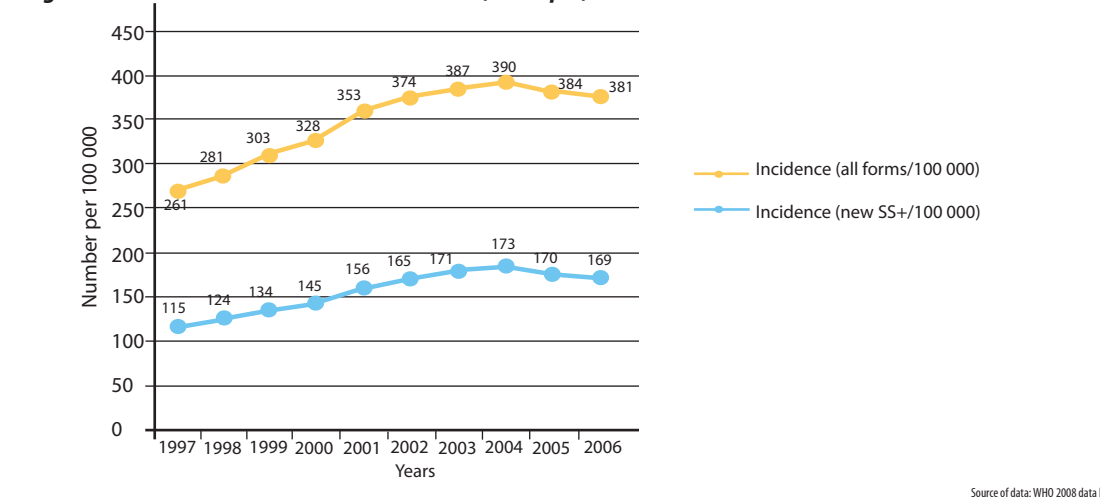
Source: TB Data, TLCT, FMOH, 2008

Rapid detection and cure of all infectious cases are the cornerstones of tuberculosis control programmes. In most African countries, the case detection rate is below 50% and in Ethiopia also although case notifications show rapid rise, case detection is still a challenge. Although there is an increase in the number of diagnostic and treatment facilities this did not yield a proportional increase in case detection rate. The most likely explanation for this might be the increase of the denominator population used to calculate detection rate.

Due to these challenges the proportion of national all new cases and new smear-positive case detection by the DOTS programme has stayed constant, within the range of 35-41% and 22- 31%, respectively, during the past ten years (figure 3.4). Almost half step is left behind to reach the target of WHO which is to detect 70 % of new infectious tuberculosis cases.

Figure 3.4: Ten Years Trends of TB Case Notification & Detection Rate, Ethiopia, 2008

The incidence ratio of all forms and new SS+ TB has shown relative increase in Ethiopia over the past ten years. Figure 3.5 validates the trends of increase of TB incidence. Moreover, the incidence ratio found since 2002 is higher than the Sub Saharan African average of 354/100,000 and significantly greater than the average for low-income countries of 233/100,000.

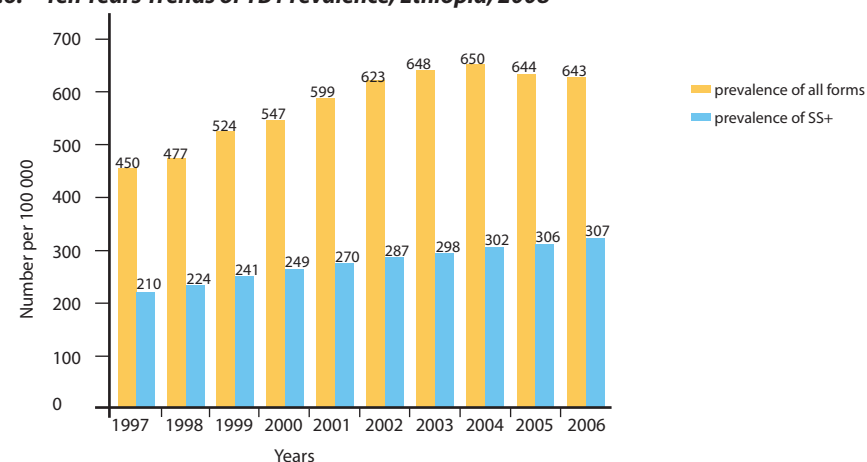
Figure 3.5: Ten Years Trends of TB Incidence, Ethiopia, 2008

3.4.2.1 Tuberculosis Prevalence

Tuberculosis, in all forms, is still – and will remain – a major health problem in HBCs like Ethiopia, with very high prevalence rates. Studies indicate that prevalence of TB shows no decline in low-income countries like Ethiopia, most likely because of low socio-economic development in the countries. It is estimated that only if the cure rate exceeds 75% can a reduction in prevalence of infection in a population with high incidence of pulmonary tuberculosis be expected.

The prevalence of TB can only be determined accurately through costly population surveys. In this regard there is lack of studies in Ethiopia to estimate the prevalence of pulmonary tuberculosis. However, some data obtained from WHO's data base indicates (figure 3.6) that prevalence of all forms and SS+ cases shows steady increase over the last ten years in Ethiopia.

Figure 3.6: Ten Years Trends of TB Prevalence, Ethiopia, 2008



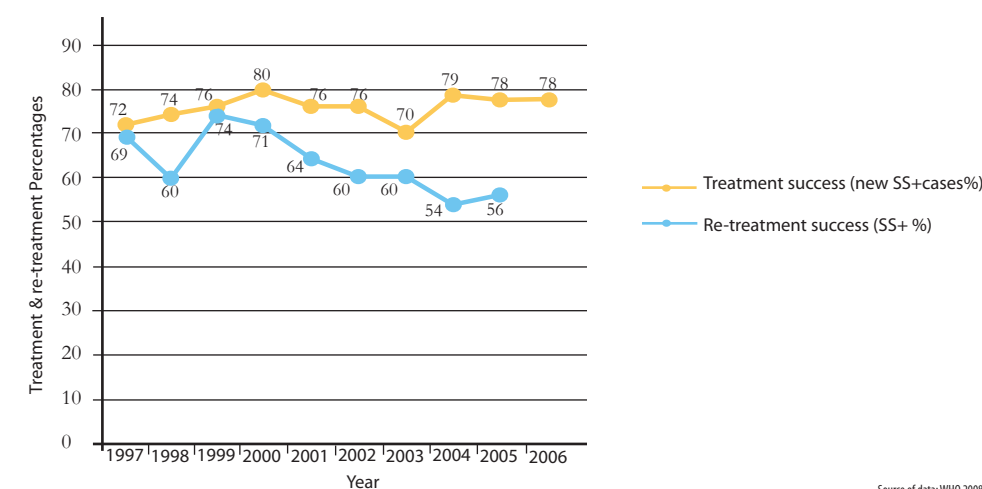
3.4.3.1 Tuberculosis Morbidity

TB morbidity can be measured in terms of the incidence or prevalence of the disease in a population. In Ethiopia's case, however, due to lack of adequate TB morbidity data it was difficult to show trends and increment or decline of the situation.

The success of a TB control programme depends on its ability to detect as many cases as possible and successfully treat them. WHO set a target to detect 70% of smear positive cases and to treat 85% of them successfully by 2005. However, the treatment success rates of most African and some European countries are in fact at the range of 71-75%, way below the suggested 85% target.

In Ethiopia, however, the number of TB patients treated each year continues to increase as the NTP addresses the challenge of improving access to DOTS. Nevertheless, the treatment success rate of new smear positive cases was still far short of the expected standard set (85%) by WHO as a global target for tuberculosis control but slightly exceed that of most African countries. As the trends of ten years (figure 3.7) illustrates, cure rate starts to show slight increase since 1998 and showing certain rise and fall over the years and stand still between 78% and 79% since 2004. In fact, this is an impressive performance and promising progress for a country with a high prevalence of HIV.

Figure 3.7: Ten Years Trends of TB Treatment and Re-Treatment Success, Ethiopia, 2008



Source of data: WHO 2008 data base

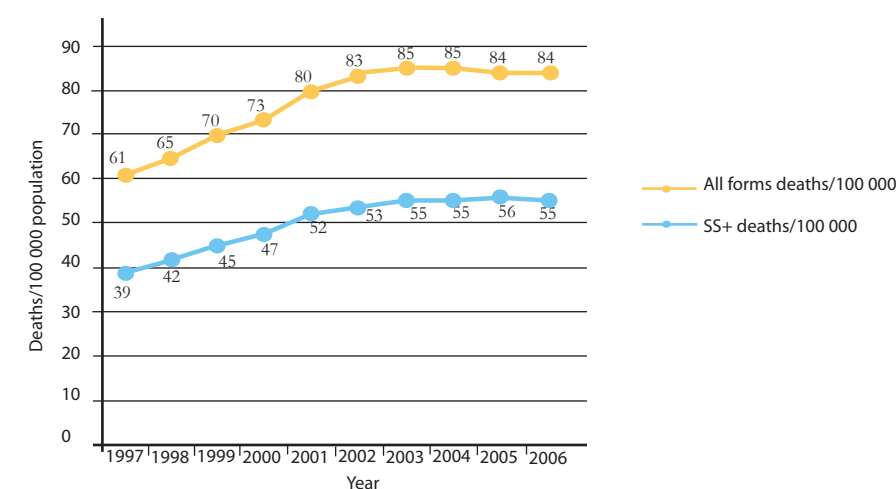
3.4.4.1 Tuberculosis Mortality

Tuberculosis (TB) causes two million deaths worldwide every year and due to this the goals of TB control are to reduce morbidity, mortality and transmission and to prevent drug resistance. Given the correlation between TB and HIV+ status, the mortality due to TB is and will remain very high in most HBCs like Ethiopia (WHO, 2004).

In Ethiopia tuberculosis is one of the most infectious and potentially deadly diseases. According to the FMOH hospital statistics data and reports, tuberculosis is identified as the fifth major leading cause of outpatient morbidity, the second major cause of hospital admission, and the first cause of hospital death in Ethiopia (FMOH, 2007).

There is incompleteness of registered information in order to examine trends of TB mortality in the country. Nevertheless, for this Impact Evaluation, data found in WHO's data base had been used to show ten years of trends of TB mortality in Ethiopia. As illustrated in figure 3.8, all forms of deaths increased from 61 per 100,000 population in 1997 to 84 per 100,000 population in 2006. Furthermore, similar trends of increase are observed in cases of SS+ deaths over the past ten years.

Figure 3.8: Ten Years Trends of TB Mortality Rate, Ethiopia, 2008



Source of data: WHO 2008 data base

3.5 Knowledge and attitudes concerning tuberculosis

In terms of effectively controlling and taking TB prevention measures, positive or negative knowledge and attitudes of the population concerning tuberculosis have significant impact in shaping and reducing stigma and to facilitate treatment seeking. During the 2008 EDCA survey, tuberculosis (TB) related information was collected from women respondents and from health facilities on a number of issues. Based on the survey questions women respondents who were aged 15-49 asked whether they had ever heard of the tuberculosis illness, how it spreads from one person to another, whether they know major and minor symptoms of TB illness, whether it can be cured, and whether they would want to keep the information secret if a member of their family got TB.

Results of this study (table 3.8) showed that knowledge on tuberculosis among the studied women was somehow worth mentioning. Among all interviewed women an overwhelming majority, 7,457 (83.2%), of women had heard of TB disease. Although proportions of women who had ever heard of tuberculosis were not different by age category, some difference was exhibited among women with some primary and secondary education and those who was never been to school. Women who heard of TB are slightly higher among women with some primary and secondary education, compared to not educated women. Similarly when analyzed by place of residence considerable proportion of urban women acknowledged ever hearing of TB compared to rural women. Furthermore, relatively high percentage of women in the highest wealth quintiles admitted hearing about TB than women in the lowest wealth quintiles. Surprisingly, almost a hundred percent and ninety seven percent of women from Harari and Somali Regions, respectively, indicated ever hearing of TB. The lowest proportion of women who ever heard of TB were those from Benishangul Gumuz.

Among women who had heard of TB, almost 73% of the women reported that TB is spread through the air when coughing or sneezing. With regards to knowledge of TB transmission there was a slight variation between the age groups; younger age group (15-19) had better knowledge than the older (40-49) age group.

Education and wealth quintile is strongly associated with knowledge of how TB spreads. Women with some primary and secondary+ education and women in the highest wealth quintiles were more likely to know how the disease is spread than their counterparts. Similarly, urban women had better awareness than the rural women in terms of knowing the ways TB can be transmitted, the latter categories of women being less informed. By Region, women from Harari and Addis Ababa scored the highest, 98.4 and 81.1 percent, in response to the way of TB transmission compared to women from other Regions. Awareness of TB was relatively low in Affar and Dire Dawa where only about 57% of women were aware of TB in both Regions.

Furthermore, of those women who had heard of TB, some 83.2% reported that they believed that TB can be cured. There was no difference between women by their age category. On the other hand, as shown in the table, slight difference was observed among women with some primary and secondary+ education and not educated, women in the highest and lowest wealth quintiles and women from urban and rural; proportion of the former categories of women was higher than the later categories. By Region, 92% of women from Afar and 91% of women from Dire Dawa, respectively, reported that they believe that TB can be cured.

Concerning attitudes of respondents towards stigma attached with TB patients, only 3.8% of the interviewed women responded that they would want to keep secret that a family member had TB. Younger (15-24) and older (40-49) age groups, women with primary education, women in highest and second wealth quintiles, women from Benishangul Gumuz, Gambela, Addis Ababa and Tigray were more likely than their counterparts to want to keep secret the fact that a member of their family had the disease.

Table 3.8 Knowledge and attitudes concerning tuberculosis

| Percentage of women age 15-49 who have heard of tuberculosis (TB), and among women who have heard of TB, the percentage who know that TB is spread through the air by coughing, the percentage who believe that TB can be cured, and the percentage who would want to keep secret that a family member has TB, by background characteristics, Ethiopia 2008 | | | | | | |
|---|---------------------------------|-----------------|---|---|--|-----------------|
| | Among all women | | Among women who have heard of TB | | | |
| | Percentage who have heard of TB | Number of women | Percentage who reported that TB is spread through the air by coughing | Percentage who believe that TB can be cured | Percentage who would want a family member's TB kept secret | Number of women |
| Age | | | | | | |
| 15-24 | 84.0 | 2,971 | 74.9 | 83.4 | 4.2 | 2,495 |
| 25-39 | 82.7 | 3,522 | 72.4 | 83.8 | 3.3 | 2,913 |
| 40-49 | 82.8 | 964 | 68.2 | 80.5 | 4.1 | 798 |
| Age | | | | | | |
| 15-19 | 84.4 | 1,579 | 75.7 | 81.7 | 4.1 | 1,332 |
| 20-24 | 83.5 | 1,392 | 74.0 | 85.4 | 4.4 | 1,163 |
| 25-29 | 83.6 | 1,525 | 73.8 | 83.4 | 3.0 | 1,275 |
| 30-39 | 82.0 | 1,997 | 71.4 | 84.1 | 3.5 | 1,638 |
| 40-49 | 82.8 | 964 | 68.2 | 80.5 | 4.1 | 798 |
| Education | | | | | | |
| No education | 74.7 | 3,197 | 62.1 | 76.5 | 3.7 | 2,389 |
| Primary | 86.9 | 2,166 | 75.9 | 84.4 | 4.5 | 1,882 |
| Secondary+ | 96.2 | 1,794 | 84.6 | 91.1 | 3.1 | 1,725 |
| Missing | 70.0 | 300 | 71.9 | 84.8 | 2.9 | 210 |
| Wealth index | | | | | | |
| Lowest | 72.3 | 1,368 | 62.2 | 74.8 | 3.2 | 989 |
| Second | 78.6 | 1,377 | 67.9 | 78.5 | 4.1 | 1,082 |
| Middle | 82.6 | 1,377 | 71.3 | 81.2 | 3.8 | 1,137 |
| Fourth | 88.8 | 1,380 | 74.4 | 87.1 | 3.2 | 1,225 |
| Highest | 91.7 | 1,836 | 82.1 | 89.7 | 4.3 | 1,683 |
| Missing | 75.6 | 119 | 76.7 | 83.3 | 4.4 | 90 |
| Residence | | | | | | |
| Urban | 89.0 | 3,932 | 77.8 | 87.5 | 3.9 | 3,501 |
| Rural | 76.7 | 3,525 | 66.5 | 77.6 | 3.7 | 2,705 |
| Region | | | | | | |
| Oromiya | 82.5 | 1,397 | 75.1 | 75.9 | 3.5 | 1,153 |
| Amhara | 83.9 | 1,061 | 61.5 | 86.0 | 1.9 | 890 |
| SNNPR | 73.2 | 1,122 | 71.5 | 74.2 | 4.3 | 821 |
| Tigray | 86.2 | 766 | 68.6 | 86.8 | 5.0 | 660 |
| Somali | 97.3 | 257 | 67.2 | 80.4 | 0.8 | 250 |
| Addis Ababa | 89.1 | 1,886 | 81.1 | 88.5 | 5.2 | 1,681 |
| Afar | 70.7 | 232 | 57.3 | 91.5 | 1.2 | 164 |
| Benshangul Gumuz | 60.5 | 157 | 69.5 | 78.9 | 6.3 | 95 |
| Diredawa | 79.3 | 174 | 57.2 | 90.6 | 2.2 | 138 |
| Gambella | 76.4 | 212 | 67.9 | 81.5 | 5.6 | 162 |
| Harari | 99.5 | 193 | 98.4 | 89.1 | 0.0 | 192 |
| Total | | | | | | |
| Total | 83.2 | 7,457 | 72.9 | 83.2 | 3.8 | 6,206 |

Although there is a sample size and sampling difference between the current survey (EDCA) and EDHS 2005, as demonstrated in table 3.9, significant improvement of knowledge of TB was observed in the 2008 EDCA study more than results of EDHS 2005.

Table 3.9 Comparison of Knowledge and attitudes of women concerning TB between 2005 DHS and 2008 DCA study results, Ethiopia, 2008.

| Knowledge | DHS 2005 % | DCA 2008 % |
|---|---------------|---------------|
| Heard of TB | 74.7 | 83.2 |
| Know that TB spread through coughing & sneezing | 64.7 | 73.0 |
| Believe that TB can be cured | 75.9 | 83.2 |
| Want to keep secret if a family member has TB | 22.2 | 3.8 |

4 Malaria

4.1 Background

4.1.1 Historical Perspective of Malaria in Ethiopia

Malaria was documented as early as the 1930's in Ethiopia. In 1953, an epidemic occurred in the Dembia plain of the current North Gonder Zone of the Amhara Regional State and claimed the lives of about 7,000 people. More than 3 million cases and 150,000 deaths were also recorded in 1958.

One year after the 1958 major malaria epidemic, the Malaria Eradication Service was established and the main prevention and control strategies were indoor residual spraying (blanket coverage), early diagnosis and prompt treatment and surveillance. This helped the country to significantly reduce malaria prevalence.

In early 1970's, WHO changed the strategy of eradication and shifted it to control and Ethiopia adopted a vertical Malaria Control Program in 1971. This program has also adopted the same strategies as that of the Malaria Eradication Service, but the implementation was limited. In 1993, the vertical program was integrated into the general health system and decentralized, laboratory service moved to the health facilities and vector control activities were undertaken by Woredas.

4.2 Epidemiology of Malaria in Ethiopia

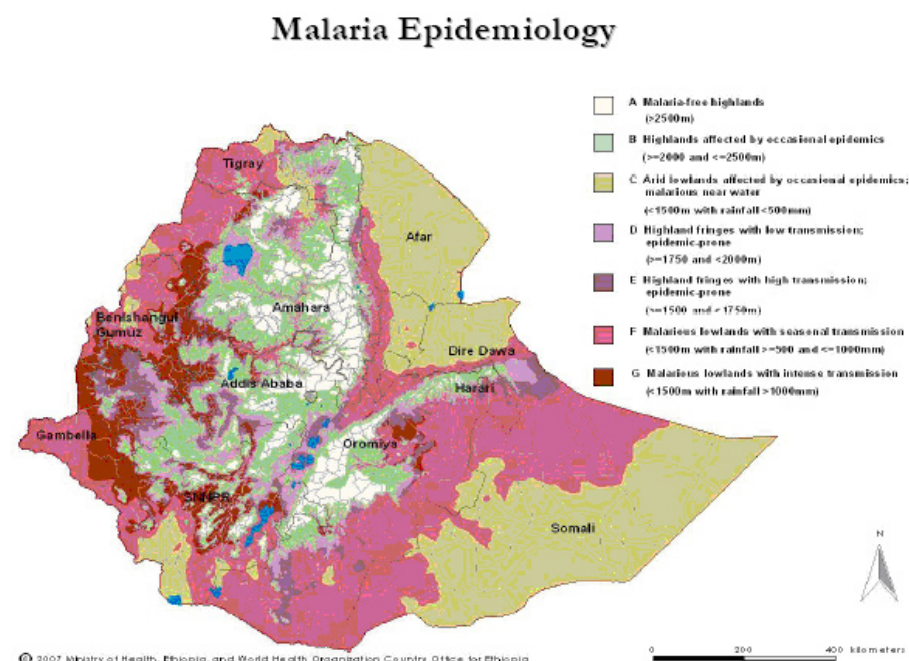
Malaria is one of the leading causes of morbidity and mortality in Ethiopia. In 2005/06, malaria has been reported as the first leading cause of out patient visits (17.8%), death (21.8%) and second cause of hospital admission (14.1%) in health facilities across the country (FMoH, 2006c). Besides the health consequences, malaria also causes loss of work force and time both of the sick and family members who provide care. Malaria transmission also coincides with major harvesting season and aggravates economic loss; jeopardizing household food security.

In Ethiopia altitude and climate remain the most important determinants of malaria transmission. Highland areas above 2,500 meter are known as malaria free and high land fringe areas, between 1500 – 2500 meters are affected by frequent epidemic. Lower land areas below 1500 meter are with seasonal patterns of transmission and stable malaria areas characterized by all year round transmission are limited to western lower lands and river basins. Some 75% of the Ethiopian land is categorized as malarious (altitude < 2000 meter) with more than 50 million (68%) population at risk. The major transmission of malaria occurs following the June – September rains and in the period from September – December while the minor transmission season occurs in April – May following

the February – March rains.

P. falciparum and *P. vivax* are the most dominant types of malaria parasites (plasmodium) in Ethiopia. They are prevalent in all malarious areas in the country and their relative composition generally is 70% and 30% of the malaria cases, respectively. The major malaria vector (mosquito) known in Ethiopia is *An. Arabiensis*.

Fig. 3.9: Map: Malaria Transmission Periods in Ethiopia



4.3 Programming: National strategic Plan

The Federal Ministry of Health has developed a strategic plan for 2006-2010 which elaborates in detail on the malaria prevention and control country directions and implementation strategies. According to the strategic plan all efforts by roll back malaria (RBM) partners will be harmonized and turned towards achieving the goal of halving the burden of malaria by the end of 2010 as compared to the level in 2005. The strategic plan also provides a detailed account on the status and direction of the major malaria prevention and control strategies that include early diagnosis and treatment, selective vector control and malaria epidemics prevention and control and supporting strategies.

According to the strategic plan, the major goal is to reduce the overall burden of malaria morbidity and mortality by 50% by the year 2010, compared to the base line in 2005. To reach this goal, the major objectives intended to be achieved during and by the end of the planning period include:

- Achieve 100% access to effective and affordable treatment for malaria by the end of 2010 as compared to the 5% level in 2005 (EDHS, 2005).
- Achieve 100% coverage of all households in ITNs targeted districts with at least one ITN per household by 2007 and encourage their regular use
- Achieve 60% coverage of villages targeted for Indoor Residual Spraying (IRS) at the end of 2010 as compared to the 20% coverage in 2005

Cognizant of the health and socio economic problems of the disease, FMOH, Regional Health Bureaus and health development partners and key funding agencies (GFATM, WHO, UNICEF, World Bank, USG, UNATAID and others) have been working jointly to strengthen malaria prevention and control activities in the country. The objective of the joint activity is to achieve a reduction in the burden of malaria by scaling up major malaria interventions. This report therefore tries to look into the major achievements due to malaria prevention and control interventions and the impact on the health status of the population.

4.4 Malaria Evaluation Questions

4.4.1 Evaluation Question 1: Has funding/spending increased for malaria programs?

Prior to 2003, total funding for malaria in Ethiopia was estimated at \$5.4 million annually that came primarily from Ethiopian Government resources with a small amount from very few other sources (FMOH, 2006c). Ethiopia's first GFATM Malaria Grant (GFATM round 2) was signed on the first of August 2003 and the second GFATM Malaria Grant (GFATM round 5) was signed on the first of May 2006 with the aim of reducing morbidity and mortality associated with Malaria. The total grant for the first round was about \$73.9 million and the amount distributed was about \$70.6 million and for the second round \$58 million. The GFATM was the major funding source for malaria prevention and control in Ethiopia (Fig. 4.2) and the total grant in the two rounds was \$128.6 million. The over all budget allocated for malaria prevention and control activities from different partners including the GFATM contribution from 2003-2008 was \$252.8 million.

In 2005, the disbursement from the GFATM Malaria Grant was about \$37.9 million (Fig. 4.2) which also includes \$17.9 million from August 2003 and the total budget from all sources was \$53.3 million. In 2006, a total of about \$102.2 million was disbursed of which some \$70 million was from the GFATM Malaria Grant. The disbursement from all sources for 2007 and 2008 was shown to decline, but this was due to some of the allocated budget for 2007 and 2008 that was utilized in 2006 to achieve rapid/accelerated ITNs coverage. In fig. 4.1, it seems as if the funding for 2007 and 2008 was decreasing; however, this was due to early utilization of the fund to achieve accelerated scale up of coverage for the targeted beneficiaries.

Generally, as the major contribution for malaria prevention and control activities was from the GFATM Malaria Grant (Fig 4.2), the trend for overall funding from various sources follows the GFATM Grant. In 2008, the average funding for malaria is estimated about \$50 million as a result of major contribution from GFATM; a ten fold increase from the years before 2003.

Figure 4.1 Trends in Malaria Prevention and Control Funding Allocations by Sources: 2005-2008, Ethiopia 2008

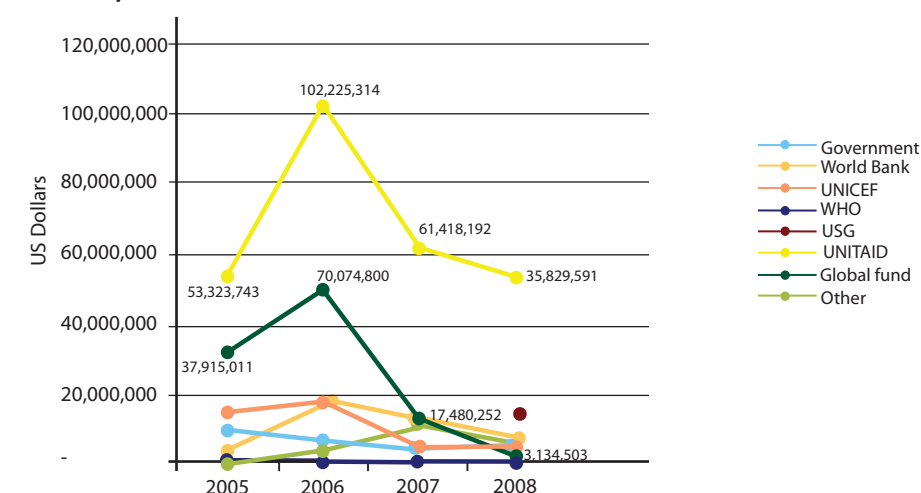


Fig. 4.2: Percent Distribution of Budget Allocations for Malaria Prevention and Control by Source: Ethiopia 2005-2008



4.4.2 Evaluation Question 2: Has the availability of quality malaria services increased?

The answer for this question is related to process and output kind of indicators that will show us, the trend/status of quantity and quality of malaria service through time. Improvement of the quantity of malaria service can be measured by Insecticides Treated Net (ITN) distribution and use, Indoor Residual Spraying (IRS) and pregnant women receiving Intermittent Preventive Treatment (IPT). As IPT application is not in the malaria prevention policy of Ethiopia, this evaluation report didn't use the indicator. On the other hand, improvement of the quality of malaria service can be measured by:

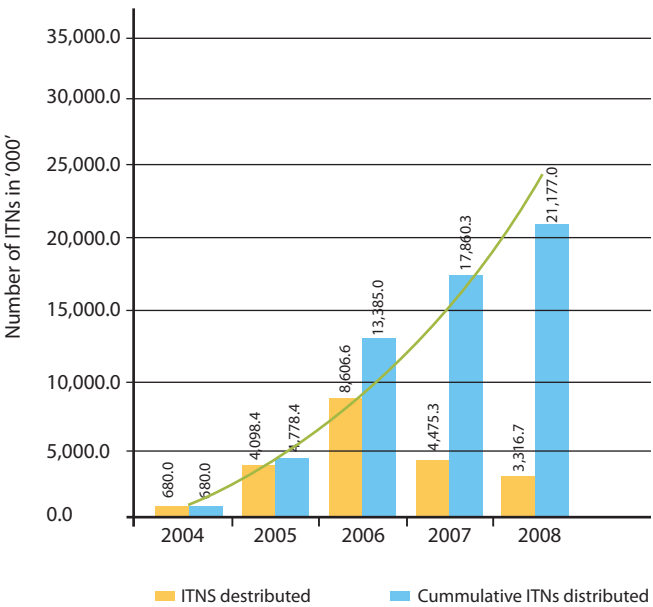
- i. the availability of basic elements , such as commodities, guidelines, systems, and trained staff in health facilities,
- ii. availability of trained staff and treatment drugs,
- iii. adherence to service provided.

4.4.2.1 Has the quantity of malaria services increased? And are they equitably distributed? Insecticide Treated Net (ITN) distribution and use

ITN Distribution

Ethiopia introduced insecticide treated net from 2004 and ITNs distribution was on an increasing trend until the largest ever distribution was achieved during 2006, in which more than 8.5 million ITNs were distributed. From 2004 to mid 2008 more than 21 million ITNs have been distributed to beneficiaries through the public sector (Fig.4.3). Almost all the distributed nets, since 2004 were LLITNs. The targets for ITN coverage in Ethiopia were to achieve 100% coverage by the end of 2007 with at least one ITN per household. According to the malaria control program administrative reports of FMOH, currently 100% coverage of all households in malaria risk areas have been achieved and more than 50 million people have been protected from malaria. On the other hand according to the Ethiopian Malaria Indicator Survey (EMIS) report undertaken at the end of 2007, data shows that only about 68% of the households living in malaria risk areas of Ethiopia have at least one ITN. The difference between the two reports is likely due to difference in the timing of the reports and the random sampling technique of the survey. It is believed that some nets were not reaching the beneficiary households and some were on the process of being purchased during the EMIS survey. Besides, the fact that the survey results are random representatives of the beneficiaries is also likely to create the differences in coverage.

Figure 4.3 Number and Cumulative Number of ITNs Distributed in Ethiopia, Ethiopia, 2008



ITNs use

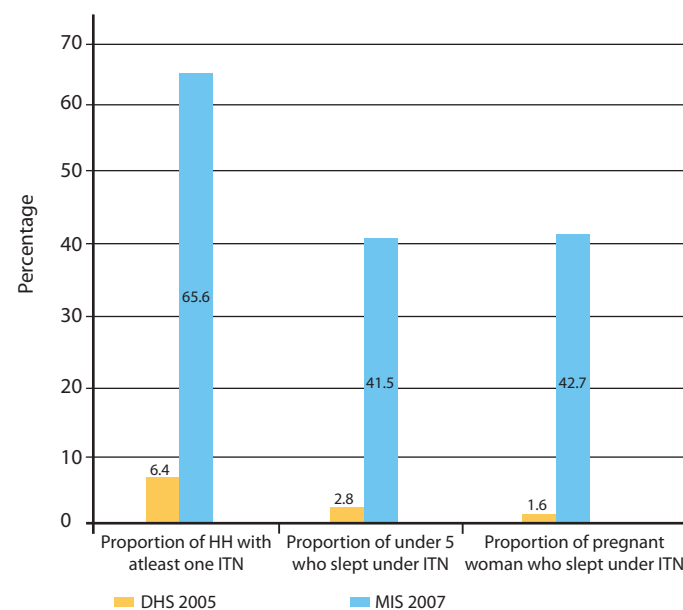
The two most important surveys undertaken in Ethiopia that had recorded about net use by children under five years of age and pregnant women are, the EDHS 2005 & the first ever Malaria Indicator Survey of Ethiopia (EMIS) in 2007. Table 4.1 shows that proportion of households' owning of a bed net of any type and the proportion of its use by children less than five years and pregnant women. Household net ownership and use by children under five years of age and pregnant women has shown dramatic increase from 2005 to 2007. The increase in net ownership and use is noticeable in both urban and rural households as well as all Regions of Ethiopia. Household's ownership of bed net of any type in 2007 increased more than ten fold as compared with 2005. Similarly, bed net use of any type by children and women in 2007 increased by about 15 fold as compared with 2005.

Table 4.1 Proportion of households having bed net of any type and proportion of women and children using the bed nets, according to EDHS,2005 and EDHS 2007 findings, Ethiopia, 2008

| | % households with any nets | | % women using any net | | % children using any nets | |
|-----------------|----------------------------|----------|-----------------------|----------|---------------------------|----------|
| | EDHS 2005 | MIS 2007 | EDHS 2005 | MIS 2007 | EDHS 2005 | MIS 2007 |
| Residence | | | | | | |
| Urban | 10.8 | 41.4 | 4.4 | 28.0 | 9.3 | 40.5 |
| Rural | 4.8 | 58.8 | 1.9 | 35.9 | 1.8 | 34.1 |
| Region | | | | | | |
| Addis Ababa | 1.0 | 2.4 | 0.1 | 2.6 | 0.6 | 9.4 |
| Afar | 21.4 | 88.3 | 12.3 | 54.2 | 13.8 | 41.4 |
| Amhara | 3.8 | 75.2 | 1.7 | 49.9 | 2.1 | 51.8 |
| Benshagul-Gumuz | 15.4 | 73.0 | 5.5 | 48.7 | 3.7 | 53.5 |
| Dire-Dawa | 22.4 | 56.4 | 8.9 | 52.9 | 20.4 | 60.5 |
| Gambella | 30.6 | 83.1 | 12.0 | 80.1 | 12.2 | 86.9 |
| Harari | 6.0 | 58.7 | 1.1 | 28.4 | 2.0 | 60.3 |
| Oromiya | 2.8 | 45.6 | 1.2 | 27.8 | 1.0 | 26.7 |
| SNNPR | 8.2 | 50.7 | 4.2 | 29.2 | 3.6 | 28.4 |
| Somali | 6.6 | 39.0 | 4.8 | 17.3 | 5.5 | 27.8 |
| Tigray | 16.3 | 53.7 | 2.1 | 21.4 | 2.1 | 32.7 |
| Total | 5.7 | 60.2 | 2.3 | 34.4 | 2.3 | 34.1 |

Household ownership of ITN does not always mean that there is utilization of the nets by the owners. Fig. 4.4 shows that in malaria risk areas (altitude < 2000 meter) of Ethiopia a significant increase in ITNs ownership by households and ITN use by children and pregnant women in 2007 as compared to 2005. Though there is a significant increase in ITN use in 2007 by both pregnant women and children under five years as compared to 2005, there is still a gap between ownership of ITN by households and its use by the most vulnerable group of the community. The proportion of ITN use by children under 5 years in 2007 (41.5%) increased by about 17 fold as compared with that of 2005 (2.8%) and proportion of pregnant women who used ITNs also increased by more than 26 times in 2007 (42.7%) as compared to 2005 (1.6%). However there is still a gap between household ownership of ITNs (65.6%) and utilization which can only be narrowed by IEC intervention.

Fig. 4.4 Proportion of HH with at least one ITN, ITN use by Children < 5 years and Pregnant Women in Ethiopia, Ethiopia, 2008



Equity of ITNs distribution

According to the administrative report (Table 4.2) of FMOH malaria control program, as of January 2008 more than 20 million ITNs have been distributed which is either 100% or more coverage of all households in malaria risk areas. With an average of 2 ITNs and 5 persons per household it is estimated that more than 50 million people at risk are currently protected from malaria. The ITN coverage of households for Dire Dawa is the highest (196%), followed by Harari (182%), Gambela (160%), Benishangul Gumuz (105%) and SNNPR (103%). All other regions are listed at having 100% coverage of households in the malaria risk areas of Ethiopia. This shows that equitability of distribution in Regions is assured with 100% coverage.

Table 4.2 Status of ITNs distribution by Regions, as of January 2008, Ethiopia, 2008

| Region | Total number of HH | Total number of ITNs required (2 ITNs/HH) | Total distributed | Coverage % |
|-----------|--------------------|---|-------------------|------------|
| Tigray | 608,114 | 1,216,228 | 1,216,228 | 100 |
| Affar | 271,744 | 543,488 | 543,488 | 100 |
| Amhara | 2,980,168 | 5,960,335 | 5,960,335 | 100 |
| Oromia | 3,356,227 | 6,712,454 | 6,712,454 | 100 |
| SNNPR | 1,883,662 | 3,767,323 | 3,889,237 | 103 |
| Somalia | 759,294 | 1,518,587 | 1,520,673 | 100 |
| Gambella | 61,750 | 123,500 | 197,900 | 160 |
| B. Gumuz | 114,588 | 229,175 | 240,600 | 105 |
| Harari | 18,955 | 37,910 | 69,089 | 182 |
| Dire Dawa | 35,000 | 70,000 | 137,314 | 196 |
| Total | 10,089,502 | 20,179,000 | 20,492,318 | 102 |

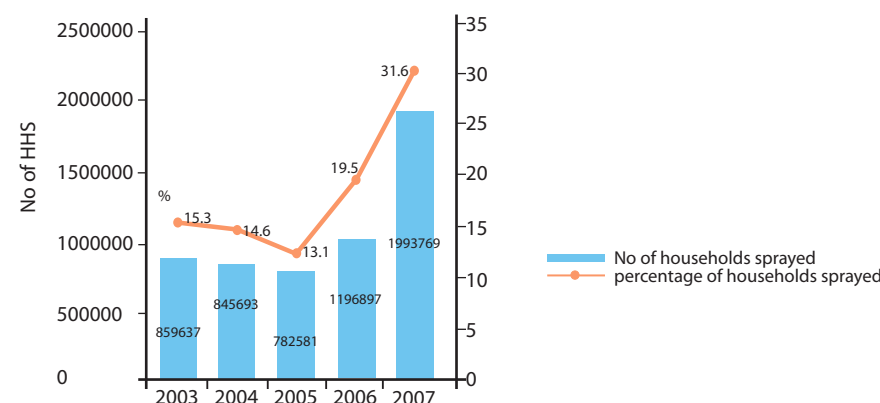
ITN use by children under five years of age and pregnant women is a proxy indicator of equity in the distribution of ITNs in these vulnerable groups of society. Fig. 4.4 shows that the proportion of ITNs used by children under five years of age (41.5%) and pregnant women (42.7%) are about the same in 2007. Ownership of ITNs is the likely direct indicator of distribution of ITNs and more households in rural areas (56.7%) have at least one ITN as compared to their urban counter parts (39.7%). The high level of ownership of ITNs in rural households is expected as the majority of high risk malaria areas are found in rural. The high level of ownership in rural areas is also justifiable as the majority of households in the lowest wealth category and with the low level of education are also residing in rural areas. Therefore, equity of the distribution of ITNs in urban and rural residences is likely evidenced (FMOH, 2008).

Indoor Residual Spraying (IRS)

Indoor residual spraying, as per WHO recommendations, is one of the major malaria vector control interventions applied to prevent malaria epidemics in selected epidemic-prone localities of Ethiopia. According to the malaria control program activity and administrative reports (Fig 4.5), the number of epidemic risk households sprayed in Ethiopia increased through out the years between 2003 and 2007 except in 2005. The number of households sprayed increased from about 860 thousand in 2003 to about 2 million in 2007.

Similarly, Fig 4.5 shows, the proportion of epidemic risk households sprayed relative to the number of households targeted for spraying also increased from more than 15% in 2003 to about 32% in 2007. The lowest spraying performance for epidemic risk households was during 2005 (13.1%) followed by 2004 (14.6%). Though the IRS performance was increasing through time, the level of performance is still inadequate when compared to the planned target.

Figure 4.5 Number of Households and Percentage of Households sprayed in Malaria Epidemic Areas of Ethiopia in 2003-2007, Ethiopia, 2008



Source: National Malaria Control Program, FMOH

In 2005, about eleven percent of households were reported as ever having been sprayed with insecticide to prevent malaria, with slightly more than 2% having been sprayed in the past six months (Table 4.3). About 17% of households located below 2,000 meters were sprayed at some time prior to the survey in 2005. On the other hand, EMIS (2007) showed that more than 14 percent of the households in Ethiopia and more than 15 percent of the households in rural were sprayed with in 12 months prior to the survey. The coverage of houses in malaria risk areas (altitude < 2000 m) of Ethiopia was approximately 20%. The proportion of sprayed households is higher in 2007 as compared to the 2005.

Table 4.3 Proportion of households sprayed in Ethiopia (in the last 12 months of the 2005 EDHS and MIS, 2007), Ethiopia, 2008

| Site location | 2005 EDHS | | 2007 MIS |
|---------------------------|---------------------------------------|--|--|
| | Proportion of households ever sprayed | Proportion of households sprayed with in six month prior to the survey | Proportion of households sprayed with in 12 months prior to the survey |
| Residence | | | |
| Urban | 7.0 | 3.2 | 9.0 |
| Rural | 11.1 | 2.1 | 15.3 |
| Region | | | |
| Addis Ababa | 0.5 | 0.2 | 0.0 |
| Afar | 11.0 | 3.5 | 10.5 |
| Amhara | 13.1 | 2.8 | 18.7 |
| Benshagul-Gumuz | 25.6 | 0.4 | 24.5 |
| Dire-Dawa | 23.3 | 17.0 | 53.7 |
| Gambella | 25.7 | 1.9 | 33.7 |
| Harari | 5.5 | 2.3 | 14.2 |
| Oromiya | 8.5 | 2.1 | 12.5 |
| SNNPR | 9.1 | 2.1 | 12.4 |
| Somali | 0.6 | 0.4 | 3.5 |
| Tigray | 22.4 | 3.2 | 7.2 |
| Total | 10.5 | 2.3 | 14.2 |
| Malaria risk areas | 17.3 | 3.9 | 20.0 |

4.4.2.2 Has the quality of malaria services increased?

Availability of basic elements such as infrastructure, staff, guidelines, equipments and supplies are crucial for any health facility offering quality malaria service. Table 4.4 presents data from EDCA health facility survey at the beginning of 2008. Results of the survey showed that, 53 % of the surveyed health facilities have the necessary equipment and supplies required to provide malaria testing but only about 11% of them have the required infrastructures such as electricity and water. The survey also showed that, about 44% of the health facilities have staff to provide malaria service with about 23% of the health facilities own the guideline to provide the malaria service. At national level only 0.7% of the surveyed health facilities have all elements of required infrastructure, staff, guidelines, equipments and supplies required to provide quality malaria service.

There is a wide variation in the availability of capacity to provide quality malaria service by Regional states. All the surveyed health facilities in Gambela National Regional State were found to have all the required equipments and supplies to provide quality malaria service, followed by Bensahnagul-Gumuz and Somlai (80%), SNNPR (80%), Tigray (70%), Dire-Dawa (60%) Harari (40%), Amhara (36%) and the lowest was in Addis Ababa (17%).

More than 60% of the surveyed health facilities in Affar, Ben-Gumuz, Dire-Dawa, Gambela and Harari have staff to provide malaria service, however none of them have the required infrastructure. Some 80% of the surveyed health facilities in Somali Regional state have equipment and supplies; but, none of them have the other capacity elements. None of the Regional states health facilities except Tigray (5%) have all the capacity elements required to offer quality malaria service.

Therefore, the numbers of health facilities providing malaria service in Ethiopia are very high, however the proportion providing quality malaria services are negligible. The health facilities are relatively better in terms of staff, equipments and supplies, but weak in terms of infrastructure and required guidelines.

Table 4.4 Percentage of health facilities offering malaria services with the infrastructure, staff, guidelines, equipment and supplies to offer quality services by region, Ethiopia 2008

| Region | Elements | | | | | Number of facilities offering Malaria services |
|------------------|----------------|-------------|-------------|------------------------|--------------|--|
| | Infrastructure | Staff | Guidelines | Equipment and supplies | All Elements | |
| Oromiya | 22.6 | 51.6 | 9.7 | 41.9 | 0.0 | 31 |
| Amhara | 0.0 | 16.0 | 12.0 | 36.0 | 0.0 | 25 |
| SNNPR | 21.4 | 17.9 | 10.7 | 78.6 | 0.0 | 28 |
| Tigray | 5.0 | 50.0 | 20.0 | 70.0 | 5.0 | 20 |
| Somali | 0.0 | 0.0 | 0.0 | 80.0 | 0.0 | 5 |
| Addis Ababa | 11.1 | 77.8 | 38.9 | 16.7 | 0.0 | 18 |
| Afar | 0.0 | 60.0 | 60.0 | 40.0 | 0.0 | 5 |
| Benshangul Gumuz | 0.0 | 60.0 | 20.0 | 80.0 | 0.0 | 5 |
| Diredawa | 0.0 | 80.0 | 40.0 | 60.0 | 0.0 | 5 |
| Gambella | 0.0 | 75.0 | 75.0 | 100.0 | 0.0 | 4 |
| Harari | 0.0 | 100.0 | 100.0 | 40.0 | 0.0 | 5 |
| Total | 10.6 | 44.4 | 22.5 | 53.0 | 0.7 | 151 |

¹Infrastructure: electricity, water, adequate infection control

²Staff: Trained in diagnosis and management of malaria

³Guidelines: Diagnosis and management of malaria

⁴Equipment and Supplies: malaria diagnostic test and nationally recommended first and second-line anti-malaria medications.

Provision of quality malaria service also depends on the proportion of health facilities that offer malaria diagnostic services, density of population per health facility with malaria diagnostic services and presence of diagnostic equipment in facilities that provide diagnostic services.

Results of the EDCA health facility survey showed (Table 4.5) that, 96% of the surveyed health facilities were offering malaria diagnostic services, 76.4% of the health facilities with malaria diagnostic services have Microscope, Slides and Giemsa or field stain. About 58% of the health facilities with malaria diagnostic service own rapid test for malaria diagnostics. The survey also estimated that a health facility with malaria diagnostics services is likely to serve about 142,860 persons in Ethiopia.

The population density of malaria diagnostic was highest for SNNPR and Tigray (200,000) followed by Oromia and Amhara (166,670) persons per Health Facility (HF). The lowest density of malaria diagnostic per HF was for Gambela (31,000 person/HF) followed by Harari (40,000), B. Gumuz (43,000), Dire Dawa and Afar (83,330) person per HF. All surveyed HFs with malaria diagnostic service in Somali, Afar and Gambela had microscopes, Slides and Giemsa or field stain; while 85% of HFs in Tigray, 80% in B. Gumuz and Dire Dawa own the same equipments. All surveyed HFs with malaria diagnostic in B. Gumuz, Gambela and Harari also offer rapid test of malaria diagnostics. The availability of rapid test of malaria diagnostic was also lower for HFs in Oromia (35.3%), followed by Dire Dawa (40%) and Amhara (40%).

In general a high proportion of the surveyed HFs offer malaria diagnostic service, but density (population/HFS) was very high. About a quarter of the surveyed HFs were also without Microscope and Slides and Giemsa or field stain, which is likely to challenge the quality of the malaria service being provided.

Table 4.5 Total number of health facilities visited, proportion of visited facilities that offer malaria diagnostic services, density of population per health facility with malaria diagnostic services and presence of diagnostic equipment in facilities that provide diagnostic services by Region, Ethiopia, 2008

| Regions | Regional Population Served by the sample facilities | Total N° of Facilities visited | Malaria related characteristics | | | |
|------------------|---|--------------------------------|---|---|---|---------------------------------------|
| | | | Percentage of Facilities w/ Malaria Diagnostic Services | Density of Malaria Diagnostic (population per Clinic) | Percent w/availability of Microscope & Slides & Giemsa or field stain | Percent w/ availability of rapid test |
| | | | | | | |
| Region | | | | | | |
| Oromiya | 5,251,432 | 34 | 0.91 | 166,670 | 64.7 | 35.3 |
| Amhara | 4,395,126 | 27 | 0.93 | 166,670 | 70.4 | 40.7 |
| SNNPR | 5,507,927 | 29 | 0.97 | 200,000 | 75.9 | 69.0 |
| Tigray | 3,915,666 | 20 | 1.00 | 200,000 | 85.0 | 65.0 |
| Somali | 582,860 | 5 | 1.00 | 111,110 | 100.0 | 80.0 |
| Addis Ababa | 1,695,757 | 18 | 1.00 | 90,910 | 83.3 | 61.1 |
| Afar | 407,776 | 5 | 1.00 | 83,330 | 100.0 | 80.0 |
| Benshangul Gumuz | 221,007 | 5 | 1.00 | 43,480 | 80.0 | 100.0 |
| Diredawa | 412,000 | 5 | 1.00 | 83,330 | 80.0 | 40.0 |
| Gambella | 126,466 | 4 | 1.00 | 31,250 | 100.0 | 100.0 |
| Harari | 203,000 | 5 | 1.00 | 40,000 | 60.0 | 100.0 |
| Total | 22,719,017 | 157 | 0.96 | 142,860 | 76.4 | 58.0 |

As the availability of basic resources for diagnostics are critical, availability of recently trained health workers and guidelines for malaria management are also critical. Table 4.6 shows that only 43% of the health facilities have health workers trained with in two years prior to the survey. The situation is even worse for Somali (0%), SNNPR (17.2%) and Amhara (18.5%) Regions. Availability of malaria management guidelines in health facilities of the big Regions (Oromia, Amhara and SNNPR) was negligible and there were no workers trained in the last two years in any of HFs in the Somali Region.

Table 4.6 Total number of health facilities visited and presence of diagnostic equipment in facilities that provide diagnostic services by District; Ethiopia 2008

| Region | Regional Population Served by the sample facilities | Total N° of Facilities visited | Percent w/ health worker trained last 2 years | Percent w/ guidelines for malaria management |
|-------------|---|--------------------------------|---|--|
| Oromiya | 5,251,432 | 34 | 47.06 | 8.82 |
| Amhara | 4,395,126 | 27 | 18.52 | 14.81 |
| SNNPR | 5,507,927 | 29 | 17.24 | 10.34 |
| Tigray | 3,915,666 | 20 | 50.00 | 20.00 |
| Somali | 582,860 | 5 | 0.00 | 0.00 |
| Addis Ababa | 1,695,757 | 18 | 77.78 | 38.89 |
| Afar | 407,776 | 5 | 60.00 | 60.00 |
| B-Gumuz | 221,007 | 5 | 60.00 | 20.00 |
| Diredawa | 412,000 | 5 | 80.00 | 40.00 |
| Gambella | 126,466 | 4 | 75.00 | 75.00 |
| Harari | 203,000 | 5 | 100.00 | 100.00 |
| Total | 22,719,017 | 157 | 43.31 | 22.29 |

Early diagnosis and effective treatment is the most important quality intervention as it contributes to the prevention of mortality and reduction of the incidence of severe illness. Ethiopia has undergone a change in national malaria treatment policy in 2005. Ethiopia introduced the use of Artemisin based Combination Therapy (ACT) as its' first line treatment, for falciparum malaria in July 2004 and full implementation was started in early 2005. So far more than 12 million doses of ACT have been distributed to the Regions. Currently, the new policy has reached national coverage.

Table 4.7 presents data from EDCA health facility survey undertaken at the beginning of 2008 on the percentage of HFs with nationally recommended anti-malarial drugs at any time during the past 3 months. At the date of the survey, HFs at national level reached some 82% coverage of ACT drug and in 86% of the HFs, availability of various anti-malarial drugs was consistent with coverage three months prior to the survey. The percentage availability of the drug was more than 80% in all Regions. Quinine was the next most available drug to ACT in the surveyed HFs, with 76% of the HFs having it on the date of the survey and 82% during the last three months prior to the survey.

Table 4.7 Proportion of visited facilities that offer quality Malaria services and availability of anti-malaria drugs, by Region, DCA, Ethiopia 2008

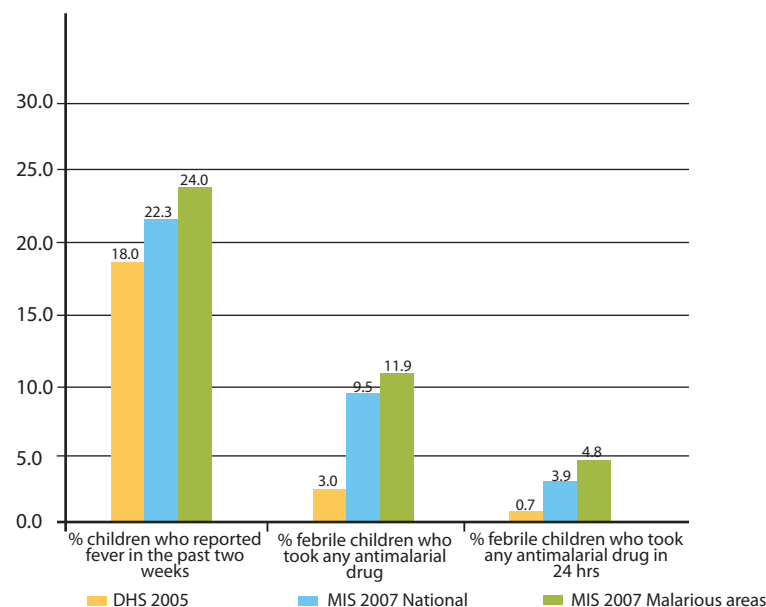
| Region | Total N° of Facilities visited | Percent w/ ACT available today | Percent w/ ACT available in last three months | Percent w/ Artesiminin available today | Percent w/ Artesiminin available in last three months | Percent w/ Fansidar available today | Percent w/ Fansidar available in last three months | Percent w/ Quinine available today | Percent w/ Quinine available in last three months |
|--------------|--------------------------------|--------------------------------|---|--|---|-------------------------------------|--|------------------------------------|---|
| Oromiya | 34.00 | 82.35 | 85.29 | 2.94 | 2.94 | 26.47 | 26.47 | 73.53 | 76.47 |
| Amhara | 27.00 | 74.07 | 85.19 | 0.00 | 0.00 | 18.52 | 18.52 | 66.67 | 77.78 |
| SNNPR | 29.00 | 93.10 | 93.10 | 0.00 | 0.00 | 24.14 | 31.03 | 93.10 | 96.55 |
| Tigray | 20.00 | 85.00 | 90.00 | 0.00 | 0.00 | 35.00 | 35.00 | 95.00 | 95.00 |
| Somali | 5.00 | 100.00 | 100.00 | 0.00 | 0.00 | 80.00 | 100.00 | 80.00 | 100.00 |
| Addis Ababa | 18.00 | 66.67 | 66.67 | 0.00 | 0.00 | 38.89 | 50.00 | 44.44 | 55.56 |
| Afar | 5.00 | 60.00 | 80.00 | 20.00 | 20.00 | 20.00 | 40.00 | 40.00 | 60.00 |
| B-I Gumuz | 5.00 | 100.00 | 100.00 | 0.00 | 0.00 | 40.00 | 40.00 | 100.00 | 100.00 |
| Diredawa | 5.00 | 80.00 | 80.00 | 20.00 | 20.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Gambella | 4.00 | 100.00 | 100.00 | 0.00 | 0.00 | 75.00 | 75.00 | 100.00 | 100.00 |
| Harari | 5.00 | 80.00 | 80.00 | 0.00 | 0.00 | 0.00 | 0.00 | 40.00 | 60.00 |
| Total | 157.00 | 82.17 | 85.99 | 1.91 | 1.91 | 31.85 | 35.67 | 75.80 | 82.17 |

Adherence to service provided

The proportion of children under five years of age who reported a fever in the two weeks preceding the survey increased from 2005 (18%) to 2007 (22.3%) at national level and this further increased to 24% (Fig 4.6) for children residing in malarious areas of Ethiopia. Of the febrile children, only 3% took anti-malarial drugs and 0.7% took the drug the same day of fever onset during 2005. The trend for these proportions increase in 2007 both at national level and the malarious areas of the country.

Though the proportion of under five children who took anti-malarials drug and those who took the drug in 24 hrs after the onset of fever increased in 2007 from the level 2005, the performance was very far below RBM Abuja target and RBM Global strategic plan target.

Fig. 4.6 Fever Prevalence and Use of Anti-Malarial Drugs among Children under Age 5 year, 2005 and 2007



4.4.2.3 Has the coverage of services improved (overall and equitably)?

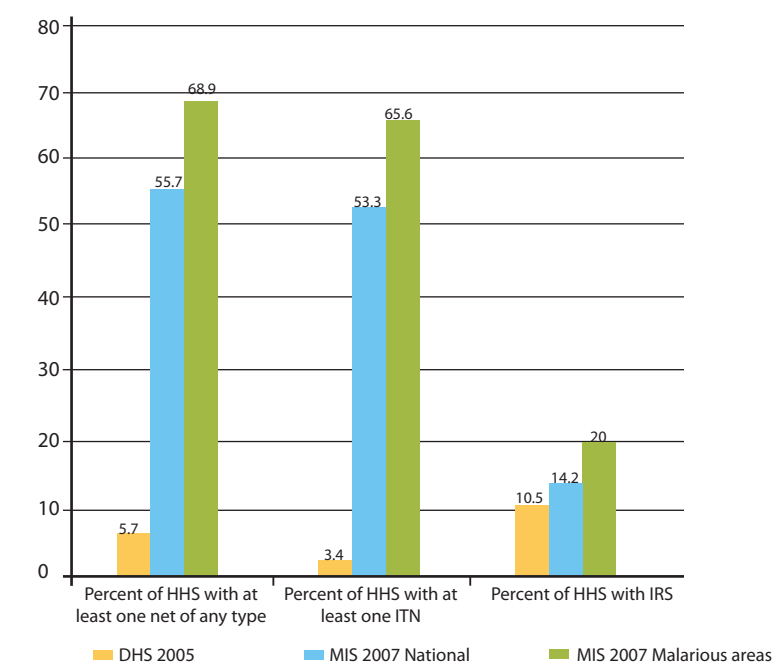
The percentage of households that use metal or plastic screens to keep mosquitoes out at national level was very low (1.4%) and the percentage that have received kits for home-based management of Malaria were 2% (table 4.8). As there is no previous data on use of screen on windows and kits received by households, it is difficult to state on the improvements of coverage.

Table 4.8 Use of screen on windows and kits for home-based management of Malaria, DCA, Ethiopia, 2008

| | Percentage of households that use screens on windows | Percentage of households that received kits for HBMM | Average cost paid for kits | Number of households |
|------------------|--|--|----------------------------|----------------------|
| Region | | | | |
| Oromiya | 0.8 | 0.8 | 21.6 | 1,724 |
| Amhara | 1.3 | 0.6 | 17.5 | 1,237 |
| SNNPR | 2.8 | 2.7 | 15.0 | 1,184 |
| Tigray | 2.0 | 1.8 | 47.7 | 979 |
| Somali | 0.0 | 19.8 | 0.9 | 252 |
| Addis Ababa | 0.7 | 0.2 | 1.0 | 1,768 |
| Afar | 1.2 | 2.0 | 0.0 | 251 |
| B-Gumuz | 0.0 | 5.0 | 24.9 | 200 |
| Diredawa | 0.9 | 1.3 | 2.0 | 228 |
| Gambella | 2.8 | 8.0 | 0.7 | 251 |
| Harari | 3.6 | 0.4 | - | 251 |
| Residence | | | | |
| Urban | 2.0 | 1.5 | 18.2 | 4,144 |
| Rural | 0.7 | 2.4 | 7.6 | 4,181 |
| Total | 1.4 | 2.0 | 12.0 | 8,325 |

Fig 4.7 shows the trend in the coverage of nets of any type: ITNs and IRS. ITNs coverage of households increased significantly in 2007 from the level in 2005. Coverage of IRS also showed an increasing trend through time, but the increase was not as significant as that of ITNs.

Fig. 4.7 Coverage of Households with at least One Net of any Type ITN and IRS, 2006 & 2007, Ethiopia



4.4.3 Evaluation Question 3: Have the prevalence, morbidity, mortality and impact related to malaria changed?

4.4.3.1 Malaria Prevalence

A population based household cluster survey to estimate the blood slide prevalence of malaria in Ethiopia based on the three most populous Regions (Oromia, Amhara & SNNPR) was conducted on January 2007 (TCC, 2007). Results of this survey showed that (Table 4.9), the prevalence of malaria in the three Regions was estimated as 4.1%, with the highest being in SNNPR (5.4%), followed by Amhara (4.6%) and the least in Oromia (0.9%). The first ever national malaria indicator survey was also under taken towards the end of 2007 and results showed that, as expected, P.falciparum was found out to be the dominant species in this study.

Table 4.9 Prevalence of malaria Jan. 2007 & Dec. 2007, Ethiopia, 2008

| Region | Species (%), Jan. 2007 | | | Species (%),Oct.-Dec. 2007 | | | Prevalence | |
|---------------|------------------------|---------|-------|----------------------------|---------|-------|------------|----------------|
| | P.falciparum | P.vivax | Mixed | P.falciparum | P.vivax | Mixed | Jan. 2007 | Oct.-Dec. 2007 |
| Amhara | 2.4 | 1.9 | 0.3 | 0.2 | 0.3 | 0.1 | 4.6 | 0.6 |
| Oromia | 0.7 | 0.1 | 0.1 | 0.1 | 0.2 | 0.0 | 0.9 | 0.3 |
| SNNPR | 3.6 | 1.8 | 0.0 | 0.2 | 0.3 | 0.1 | 5.4 | 0.6 |
| Three Regions | 2.2 | 1.6 | 0.3 | 0.16 | 0.26 | 0.06 | 4.1 | 0.48 |
| Ethiopia | - | - | - | 0.5 | 0.2 | 0. | - | 0.7 |

Source: TCC, 2007

Malaria is one of the risk factors for anaemia; besides inadequate intake of micronutrients, sickle cell disease and Intestinal worm infestation. Anaemia is characterized by a low level of haemoglobin in the blood and the level of severe anaemia can serve as an indirect indicator of the contribution of malaria in times of intervention.

Table 4.10 shows 4% of the children in Ethiopia aged 6-59 months were classified as severely anaemic in 2005. Severe anaemia is highest among children age 9-11 months and male children. The 2007 EMIS survey shows that the prevalence of severe anaemia in Ethiopia was estimated at 5.5. As the cut off point for the two surveys was different, it is difficult to make any further comparisons at this point in time.

Table 4.10 Prevalence of severe anaemia according to the 2005 & 2007 surveys result, Ethiopia, 2008

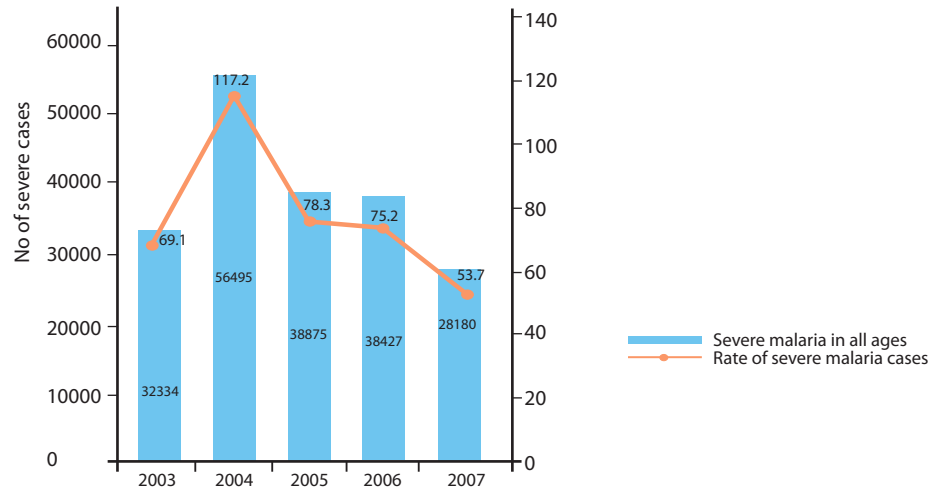
| | 2005 Hg < 7 g/dl | 2007 Hg < 8 g/dl |
|-----------|------------------|------------------|
| Age | | |
| 6-11 | 5.7 | 5.7 |
| 12-23 | 5.5 | 6.5 |
| 24-35 | 3.5 | 8.5 |
| 36-47 | 2.5 | 4.1 |
| 48-59 | 3.6 | 2.9 |
| Sex | | |
| Male | 4.6 | 6.2 |
| Female | 3.3 | 4.8 |
| Residence | | |
| Urban | 3.5 | 5.8 |
| Ruaral | 3.9 | 3.2 |
| Total | 3.9 | 5.5 |

4.4.3.2 Malaria Morbidity

A WHO study (Preliminary report on impact of the scale up of anti-malarial interventions measured using health facility based data in Ethiopia, WHO, Geneva, Switzerland, 2008) carried out in 13 health facilities (6 hospitals and 7 health centres) of Ethiopia showed that the weighted mean percentage decline of malaria in patient admission in 2007 was 54% as compared to a base line average percentage of 2001-2004 for all age groups (WHO, 2008a). The report also showed that, level of mean percentage decline in malaria morbidity between children under 5 years (52%) and 5 years and above population (55%) seems insignificant. The non malaria admission for all age groups showed a slight increase.

Fig. 4.8 shows the trend of severe malaria cases (malaria admission) from 2003- 2007. The highest number of severe malaria cases admission was recorded in 2004 and the trend continues to decline in the next consecutive years. The rate of malaria admission also follows the same trend as that of the number of malaria admission. The yearly based malaria epidemics records from the malaria prevention and control program of the FMOH also showed that the number of epidemics in decline since 2005.

Fig. 4.8 Reported Number of Severe Malaria Cases & Rate of Severe Malaria Cases (Per 100,000 pop) In Ethiopia

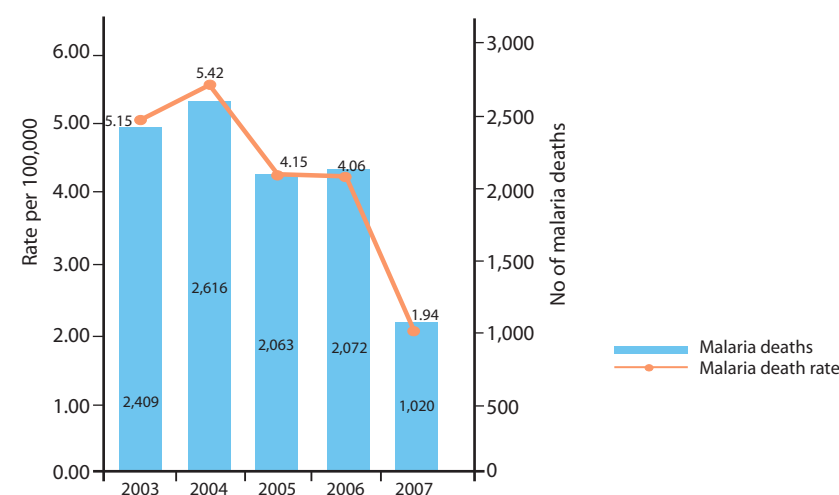


Source: Malaria prevention & control program, MOH

4.4.3.3 Malaria Mortality

The same study mentioned above showed that the weighted mean percentage decline of malaria in patient deaths in 2007 was 55% as compared to a base line average percentage of 2001-2004 for all age groups. This decline of malaria deaths was much higher in children under five (56%) than that of greater than five years of age (34%). A relative decline in non malaria deaths was also observed indicating an over all reduction in death after 2004.

Fig.4.9 shows the trend of number of malaria deaths and malaria death rate based on data obtained from yearly health and health indicator of FMOH and estimated yearly malaria risk population. The graph shows that the yearly number of malaria deaths and the rate of malaria deaths started to decline after the year 2004. This was expected as a result of accelerated distribution of ITNs and ACT beginning 2005.

Fig. 4.9 Number of Malaria Deaths and Malaria Death Rate (per 100,000 pop) In Ethiopia, 2003-2007

4.4.3.4 Estimated child deaths averted (Model Impact)

Data for coverage indicators for proportion of households with ≥ 1 ITN and effective treatment with anti-malarials drugs for 2005 and 2007 were obtained from the 2005 EDHS and 2007 EMIS (FMOH, 2008), respectively (Table 4.11). Coverage estimates for these indicators for 2006 were interpolated assuming a linear increase. Coverage estimates for 2008-2009 were also interpolated for these coverage indicators assuming a linear increase from previous years. The control of malaria in Ethiopia has a history of more than four decades and IRS was the most emphasized component. As the level of adherence in the utilization of ITNs is not as high as expected, IRS was focused within areas of major ITN distribution programs, to increase the level of protection. Although pregnant women are receiving IPT, as the application is not in the national malaria prevention policy of Ethiopia, this evaluation report didn't use the indicator in its estimates.

Using the methods and assumptions above, coverage of household possession of ITNs increased from 6.5% in 2005 to 100% in 2009 (Table 4.11). The 100% coverage of ITNs in 2009 is based on households' protection by either an ITN or IRS. Treatment of children with fever in the past 2 weeks with an effective anti-malarial increased from 4.1% in 2005 to 80% in 2009. All modeling of malaria deaths prevented has been done using these coverage estimates.

Table 4.11 : Population coverage of malaria interventions, Ethiopia, 2008

| Intervention | Annual percent coverage of household or population with the intervention | | | | |
|--|--|------|------|------|------|
| | 2005 | 2006 | 2007 | 2008 | 2009 |
| ITNs (≥ 1 /HH) for malarious areas | 6.5 | 37.7 | 68.9 | 84 | 100 |
| Children <5yrs with fever in last 2 weeks treated with recommend antimalarial drug for malarious areas | 4.1 | 8.0 | 11.9 | 46 | 80 |

The estimation on the number of child deaths averted due to malaria were based on information on the population size residing in malarious areas (altitude <2000 meter) of the country. It can be observed that 14,000 child deaths due to malaria were prevented during the year 2006 and 2007 just after an intensive ITNs intervention was undertaken (table 4.12). The number of deaths prevented in 2007 was more than double as compared to that of 2006 and this is related to the increased coverage of ITNs and anti-malarials in 2007. Interpolation for the 2008 and 2009 also shows that more than 38,000 child deaths due to malaria will likely be prevented if Ethiopia achieves 100% house hold coverage of ITNs and 80% of the population accessed for prompt and effective treatment.

Table 4.12. Estimated number of child deaths averted and expected to be averted from malaria in malarious areas of Ethiopia by year.

| Period/Year | Estimated number of Child deaths averted from malaria | Estimated number of Child deaths expected to be averted from malaria |
|--------------|---|--|
| 2005 | - | - |
| 2006 | 4597 | - |
| 2007 | 9403 | - |
| 2008 | - | 15848 |
| 2009 | - | 22510 |
| Total | 14000 | 38358 |

Table 4.13 also shows the contribution of ITNs and anti-malarial treatment to the number of malaria deaths prevented /likely to be prevented in children. Of the 14, 000 prevented deaths of children due to malaria more than 90% is attributed to ITN intervention.

Table 4.13. Estimated number of child deaths averted and expected to be averted from malaria in malarious areas of Ethiopia by intervention type and year.

| Intervention | Years | | | | | |
|--------------|-------------|-------------|--------------|--------------|--------------|---------------|
| | 2005 | 2006 | Total | 2008 | 2009 | Total |
| ITN | 4,144 | 8,477 | 12,621 | 10,787 | 13,169 | 23,956 |
| Treatment | 453 | 926 | 1379 | 5,061 | 9,341 | 14,402 |
| Total | 4597 | 9403 | 14000 | 15848 | 22510 | 38,358 |

4.5 Overall Evaluation Question: Has increased malaria funding led to a reduction in the burden of disease

4.5.1 Conclusion of Overall Malaria Evaluation Questions and Recommendations

The total annual funding for malaria in Ethiopia prior to its receiving funding from the GFATM in 2003 was \$5.4 million. In the five years after 2003, the total budget allocated for malaria prevention and control activities was about \$252.8 million and this on average is more than \$ 50 million annually. The average increase in funding was therefore about nine fold in five years. The GFATM has contributed more than half of all malaria financing in Ethiopia and the other half was coming from the Ethiopian Government, The President of the Malaria Initiative, World Bank and others such as the Carter Center, UNICEF, WHO and USAID.

The increased funding for malaria from the GFATM and other development partners had helped Ethiopia to implement an accelerated scale up of ITNs and ACT distribution to beneficiaries. To date more than 21 million ITNs have been distributed to malaria risk beneficiaries and this is 100% household coverage according to the administrative reports of the malaria prevention and control program reports of the FMOH. The EMIS 2007 also showed a dramatic increase (more than 10 fold) in the ownership of ITNs by households of malarious areas from the level in 2005 as a result of rapid scale up.

The coverage of Insecticide Residual Spraying (IRS) for houses in malaria risk areas (altitude < 2000 m) of Ethiopia rose to 20 percent in 2007 from 17.3% in 2005. Other reports also showed that, the proportion of epidemic risk households sprayed relative to the number of households targeted for spraying also increased from more than 15% in 2003 to about 32% in 2007. Rapid diagnosis and treatment is one of the objectives of the malaria prevention and control strategic plan for Ethiopia. Since 2005 more than 16 million doses of ACT have been distributed to Regions and currently, 96% of the health facilities are providing malaria diagnostic service. This is all as a result of increased funding for malaria in Ethiopia.

The utilization of ITNs by children under five years of age and pregnant women has increased significantly in 2007 from the level in 2005. This is due to increased access of ITNs by the vulnerable groups and IEC intervention by the increasing number of health extension workers and other supportive means. On the other hand, a gap between ownership and utilization has also been observed. The proportion of under five children who took anti-malarial drug and those who took the drug in 24 hrs after the onset of fever increased in 2007 from the level 2005; however, the performance is far below RBM Abuja target and RBM Global strategic plan target.

The very recent malaria indicator survey in Ethiopia showed a 0.7% prevalence of malaria. Other secondary data set information showed that malaria morbidity is declining since a massive scale up of ITNs had been undertaken in 2005. This is witnessed by the decreasing malaria case admission in health facilities and malaria case outpatients. In 2007/08, malaria becomes the sixth cause of outpatient visit from the first place in all the previous years. The yearly based malaria epidemic records from the malaria prevention and control program of the FMOH also showed that the number of epidemics is declining since 2005.

A study by WHO and hospital based records showed that mortality due to malaria is significantly declining. Similarly the death rate associated with malaria is also decreasing. All this emphasizes that the increase in funding for malaria prevention and control in Ethiopia has dramatically reduced the burden of the diseases.

5 Non-HIV/AIDS, Tuberculosis, and Malaria Health Services

Evaluation Question 4: Have there been any effects on non-HIV/AIDS, tuberculosis, and malaria health services?

5.1 Family Planning

To measure the actual contraceptive practice at the time of the survey, it is important to know the current level of contraceptive use among study participants. In this study, all use of contraception was taken into account, whether the concern of the user is permanent cessation of childbearing or a desire to space births. Having information about current use of family planning services provides an insight into one of the principal determinants of fertility. Besides, it also serves to assess the success of family planning programs.

Table 5.1 below shows current contraceptive use among all women: currently married women and sexually active unmarried women by age group. According to the survey result in this table, the contraceptive prevalence rate for married women who were currently using a method of family planning was about 34%. Almost all of these users were using modern methods which are about 33%. Among any method, the most widely used was inject-able (about 25%) followed by the pills (about 5%).

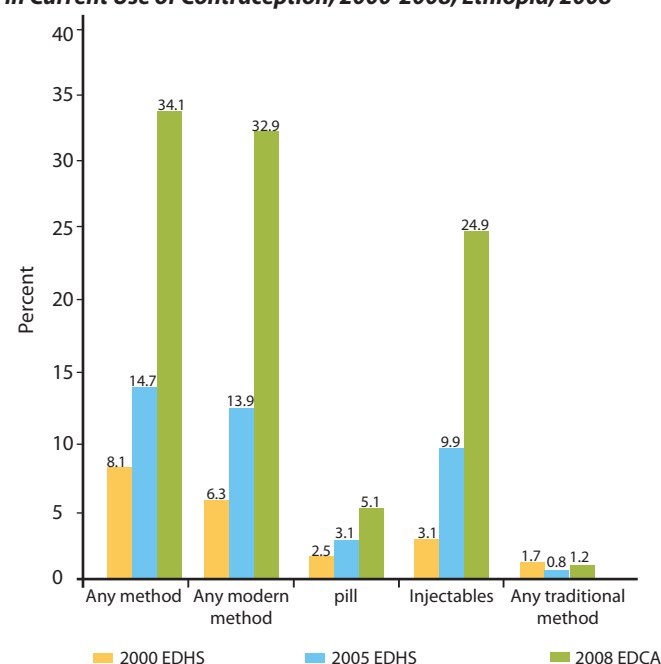
Current use of contraception among the small number of sexually active unmarried women was higher than among all women and currently married women. Some 44% of sexually active unmarried women were currently using contraception of which 41% used modern methods. Of the total modern methods the contribution of inject-able (16%) was high followed by male condom (13%) and Pills (9%).

Table 5.1 Current use of contraception

| Percent distribution of all women, currently married women, and of sexually active unmarried women by contraceptive method currently used, according to age, Ethiopia DCA 2008 | | | | | | | | | | | | | | | | | | | |
|--|---------------|-------------------|----------------------|--------------------|------|--------------------|-------------|----------|-------------|---------------|------------|-----|------------------------|--------|------------|-------|-----------------|-------------|---------------------|
| Age | Modern method | | | | | Traditional method | | | | | | | | | | Total | Number of women | | |
| | Any method | Any modern method | Female sterilization | Male sterilization | Pill | IUD | Injectables | Implants | Male condom | Female condom | Dia-phragm | LAM | Any traditional method | Rhythm | Withdrawal | | | Folk method | Not currently using |
| ALL WOMEN | | | | | | | | | | | | | | | | | | | |
| CURRENTLY MARRIED WOMEN | | | | | | | | | | | | | | | | | | | |
| Age | | | | | | | | | | | | | | | | | | | |
| 15-19 | 6.0 | 5.6 | 0.0 | 0.0 | 1.2 | 0.1 | 3.9 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.4 | 0.1 | 0.0 | 0.3 | 94.0 | 100.0 | 1,579 |
| 20-24 | 23.8 | 23.3 | 0.1 | 0.0 | 3.7 | 0.2 | 17.0 | 0.9 | 1.1 | 0.0 | 0.1 | 0.2 | 0.4 | 0.1 | 0.0 | 0.4 | 76.2 | 100.0 | 1,392 |
| 25-29 | 31.5 | 30.4 | 0.1 | 0.1 | 4.9 | 0.1 | 23.0 | 1.2 | 0.9 | 0.0 | 0.0 | 0.1 | 1.1 | 0.2 | 0.0 | 0.9 | 68.5 | 100.0 | 1,525 |
| 30-39 | 29.5 | 28.3 | 0.5 | 0.1 | 4.4 | 0.3 | 21.1 | 1.2 | 0.6 | 0.1 | 0.1 | 0.1 | 1.2 | 0.2 | 0.1 | 1.0 | 70.5 | 100.0 | 1,997 |
| 40-49 | 15.0 | 14.1 | 0.9 | 0.1 | 2.6 | 0.5 | 9.3 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.1 | 0.0 | 0.8 | 85.0 | 100.0 | 964 |
| Total | 22.0 | 21.2 | 0.3 | 0.1 | 3.5 | 0.2 | 15.6 | 0.9 | 0.6 | 0.0 | 0.0 | 0.1 | 0.8 | 0.1 | 0.0 | 0.7 | 78.0 | 100.0 | 7,457 |
| CURRENTLY MARRIED WOMEN | | | | | | | | | | | | | | | | | | | |
| Age | | | | | | | | | | | | | | | | | | | |
| 15-19 | 26.2 | 25.5 | 0.0 | 0.0 | 5.2 | 0.0 | 19.1 | 0.7 | 0.4 | 0.0 | 0.0 | 0.0 | 0.7 | 0.4 | 0.0 | 0.4 | 73.8 | 100.0 | 267 |
| 20-24 | 39.2 | 38.7 | 0.1 | 0.0 | 5.3 | 0.4 | 29.6 | 1.8 | 0.9 | 0.0 | 0.1 | 0.4 | 0.5 | 0.0 | 0.0 | 0.5 | 60.8 | 100.0 | 737 |
| 25-29 | 38.8 | 37.5 | 0.1 | 0.1 | 5.9 | 0.2 | 29.1 | 1.6 | 0.4 | 0.0 | 0.0 | 0.1 | 1.3 | 0.2 | 0.0 | 1.2 | 61.2 | 100.0 | 1,118 |
| 30-39 | 35.8 | 34.3 | 0.6 | 0.1 | 5.3 | 0.4 | 25.9 | 1.3 | 0.5 | 0.1 | 0.1 | 0.1 | 1.5 | 0.2 | 0.1 | 1.3 | 64.2 | 100.0 | 1,516 |
| 40-49 | 19.8 | 18.6 | 1.1 | 0.2 | 3.4 | 0.8 | 12.5 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.2 | 0.0 | 1.1 | 80.2 | 100.0 | 656 |
| Total | 34.1 | 32.9 | 0.4 | 0.1 | 5.1 | 0.4 | 24.9 | 1.4 | 0.5 | 0.0 | 0.0 | 0.1 | 1.2 | 0.2 | 0.0 | 1.0 | 65.9 | 100.0 | 4,294 |
| SEXUALLY ACTIVE UNMARRIED WOMEN | | | | | | | | | | | | | | | | | | | |
| Age | | | | | | | | | | | | | | | | | | | |
| 15-19 | 42.9 | 35.7 | 0.0 | 0.0 | 7.1 | 0.0 | 0.0 | 7.1 | 21.4 | 0.0 | 0.0 | 0.0 | 7.1 | 0.0 | 0.0 | 7.1 | 57.1 | 100.0 | 14 |
| 20-24 | 53.8 | 50.0 | 0.0 | 0.0 | 15.4 | 0.0 | 15.4 | 0.0 | 19.2 | 0.0 | 0.0 | 0.0 | 3.8 | 3.8 | 0.0 | 0.0 | 46.2 | 100.0 | 26 |
| 25-29 | 50.0 | 45.5 | 0.0 | 0.0 | 9.1 | 0.0 | 18.2 | 0.0 | 18.2 | 0.0 | 0.0 | 0.0 | 4.5 | 4.5 | 0.0 | 0.0 | 50.0 | 100.0 | 22 |
| 30-39 | 37.0 | 37.0 | 0.0 | 0.0 | 7.4 | 0.0 | 18.5 | 7.4 | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 63.0 | 100.0 | 27 |
| 40-49 | 27.3 | 27.3 | 0.0 | 0.0 | 0.0 | 0.0 | 27.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 72.7 | 100.0 | 11 |
| Total | 44.0 | 41.0 | 0.0 | 0.0 | 9.0 | 0.0 | 16.0 | 3.0 | 13.0 | 0.0 | 0.0 | 0.0 | 3.0 | 2.0 | 0.0 | 1.0 | 56.0 | 100.0 | 100 |

Table 5.2 below presents current use of contraceptive among married women by their background characteristics. In this survey, the result shows that the current use of contraception was associated with the number of living children a woman has; it was highest among currently married women with five or more children (40%) and lowest among women with three or four children (15%). Contraceptive use differs significantly across mother's educational levels. Current use of contraception doubled from 25% among women with no education to 50% among those with secondary and higher level of education.

Wealth quintile of the currently married women's household had a positive effect on contraceptive use i.e. contraceptive use markedly increases as wealth increases, from 22% among married women in the poorest wealth index to 46% among those in the richest wealth index. Current contraceptive use prevalence was higher in urban than rural areas (43% versus 27%). There was also a substantial difference in current contraceptive use by Region. The survey result shows that the current contraceptive use was highest in Addis Ababa (48%) and lowest in the Somali Region (3%). Poor, rural and uneducated women were less likely to use family planning because they know less about family planning and family planning methods were least accessible to them. Therefore, all Ethiopian women should have access to the same information and resources so that they may achieve the goals by realizing the use of family planning.

Fig 5.1 Trends in Current Use of Contraception, 2000-2008, Ethiopia, 2008

5.2 Child Health

5.2.1 Acute Respiratory Infection

Acute respiratory infection (ARI) is a leading cause of death in children under the age of five in Ethiopia as it is also among the leading causes of childhood morbidity and mortality throughout the world. Although pneumonia is the most serious of these infections it can be often treated with affordable antibiotics. When children develop signs of ARI such as a cough accompanied by short rapid breathing, an appropriate health care should be sought immediately (Quah & Heggenhouge et. al., 2008).

Table 5.4 shows, for children under age five, the percentage who had symptoms of ARI (cough accompanied by short, rapid breathing which was chest-related) in the two-week period preceding the survey. Here symptoms of ARI is used as an indicator for the prevalence of ARI and a proxy for pneumonia considered.

Other indicators shown in this Table are:

- Percentage of children with ARI for whom treatment was sought from a health facility or provider.
- Percentage of children with ARI who received antibiotics.

In this survey, the prevalence of ARI was estimated by asking mothers whether their children under age five had been ill with a cough accompanied by short, rapid breathing in the two weeks preceding the survey. These symptoms are compatible with ARI. It should be noted that the morbidity data collected are subjective in the sense that they are based on the mother's perception of illness without validation by medical personnel.

Prevalence and Treatment of Acute Respiratory Infection

Table 5.4 below shows that about 3% of children under five years of age showed symptoms of ARI at some time in the two weeks preceding the survey. Prevalence of ARI varies by age of child. Children age less than 12 months were most likely to show symptoms of ARI (3.7%), compared with children in the other age groups. The difference in the prevalence of ARI by gender of the child was 3.5% among males while 2.8% among females. In the wealth quintile it was 2.9% in the poorest and 1.3

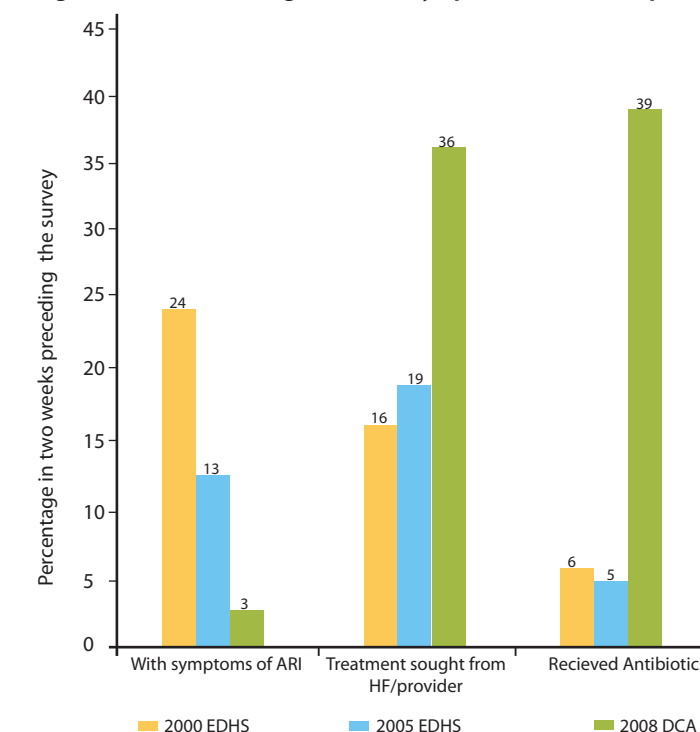
percent in the richest.

There were no differences in the prevalence of ARI by urban or rural residence. Prevalence of ARI ranged from a high of 7% among children under five living in Benshangul Gumuz to a low of 0 and 0.6 percent among children in Dire Dawa, Harari and Afar. ARI prevalence was lower for children whose mothers have at least some secondary education (1.8%) compared to mothers with no education (3.2%).

From all children under five with symptoms of ARI, 36% percent were taken to a health facility or provider to get advice or treatment. There were differences in the proportion of children with ARI symptoms taken to a health facility by child's age. Children under age twelve months (54%) and children age 24-47 months (38%) were more likely to be taken to a health facility than other children. The gender difference in children taken to a health facility or provider was high that is male (40%) and female (29%). Children of women with secondary and above education were more likely to be taken to a health facility or provider when they have ARI than other children. The proportion of children with cough and rapid breathing who were taken to a health facility was much in urban areas (44%) than in rural areas (31%). Some 39% of all children with symptoms of ARI received antibiotics.

Table 5.4 Prevalence and treatment of symptoms of ARI

| Among children under age five, the percentage who had symptoms of acute respiratory infection (ARI), in the two weeks preceding the survey and among children with symptoms of ARI, the percentage who received specific treatments, by background characteristics, Ethiopia DCA 2008 | | | | | |
|---|---------------------------------|--------------------|---|-------------------------------------|--------------------|
| Children under age five | | | Children under age five with symptoms of ARI | | |
| Background Characteristics | Percentage with symptoms of ARI | Number of children | Percentage for whom advice or treatment was sought from a health facility or provider | Percentage who received antibiotics | Number of children |
| Age in months | | | | | |
| <12 | 3.7 | 761 | 53.6 | 50.0 | 28 |
| 12-23 | 3.5 | 713 | 28.0 | 32.0 | 25 |
| 24-47 | 3.1 | 1,543 | 37.5 | 41.7 | 48 |
| 48-59 | 2.1 | 664 | 7.1 | 21.4 | 14 |
| Sex | | | | | |
| Male | 3.5 | 1,930 | 40.3 | 40.3 | 67 |
| Female | 2.8 | 1,744 | 29.2 | 37.5 | 48 |
| Missing | 0.0 | 7 | - | - | 0 |
| Education | | | | | |
| No education | 3.2 | 2,239 | 34.7 | 40.3 | 72 |
| Primary | 3.6 | 898 | 34.4 | 37.5 | 32 |
| Secondary+ | 1.8 | 434 | 37.5 | 25.0 | 8 |
| Missing | 2.7 | 110 | 66.7 | 66.7 | 3 |
| Wealth index | | | | | |
| Lowest | 2.9 | 893 | 26.9 | 34.6 | 26 |
| Second | 4.0 | 911 | 25.0 | 22.2 | 36 |
| Middle | 3.2 | 864 | 39.3 | 46.4 | 28 |
| Fourth | 3.3 | 573 | 57.9 | 63.2 | 19 |
| Highest | 1.3 | 391 | 60.0 | 60.0 | 5 |
| Missing | 2.0 | 49 | 0.0 | 0.0 | 1 |
| Residence | | | | | |
| Urban | 3.2 | 1,346 | 44.2 | 53.5 | 43 |
| Rural | 3.1 | 2,335 | 30.6 | 30.6 | 72 |
| Region | | | | | |
| Oromiya | 4.1 | 901 | 35.1 | 43.2 | 37 |
| Amhara | 2.8 | 457 | 15.4 | 15.4 | 13 |
| SNNPR | 2.3 | 566 | 46.2 | 30.8 | 13 |
| Tigray | 4.1 | 462 | 26.3 | 26.3 | 19 |
| Somali | 3.8 | 210 | 12.5 | 50.0 | 8 |
| Addis Ababa | 2.7 | 414 | 72.7 | 90.9 | 11 |
| Afar | 0.6 | 156 | 100.0 | 100.0 | 1 |
| Benshangul Gumuz | 7.0 | 115 | 37.5 | 12.5 | 8 |
| Diredawa | 0.0 | 115 | - | - | 0 |
| Gambella | 3.1 | 130 | 50.0 | 50.0 | 4 |
| Harari | 0.6 | 155 | 0.0 | 0.0 | 1 |
| Total | 3.1 | 3,681 | 35.7 | 39.1 | 115 |

Fig. 5.2 Percentage of Children under Age Five with Symptoms of ARI, Ethiopia, 2008

Comparing this survey's result with both 2000 and 2005 EDHS (fig.5.2), there is a decreasing trend in prevalence of ARI in the two weeks preceding the survey (3.1% versus 24.4% and 12.6%), and higher proportion were taken for treatment (35.7% versus 15.8% and 18.7%) .

In conclusion, receiving timely and appropriate treatment during illness determine the long term health of child. In this survey, few children with ARI were taken to a health provider and limited numbers with ARI were treated with antibiotics. ARI was not always preventable; therefore, effective, affordable and accessible treatment options are necessary in order to maintain the health of children.

5.2.2 Diarrhea

Diarrheas disease remains the second most important cause of death for children below five years of age next to ARI and is a condition that can be easily treated with Oral Re-hydration Therapy (ORT), providing more liquids to drink and food should not be reduced.

From this survey prevalence of diarrhea in the two weeks preceding the survey among children less than five years of age and treatment for children with diarrhea is presented in Table 5.5

The following indicators on treatment for children with diarrhea in the two weeks preceding the survey are presented.

- Percentage of children with diarrhea for whom medical care was sought.
- Percentage of children with diarrhea who received oral re-hydration therapy, either Oral Re-hydration Solutions or Recommended Home Fluids.
- Percentage of children with diarrhea given ORS or increased fluids.
- Percentage of children with diarrhea given increased fluids and continued feeding.

In interpreting the findings of this survey, it should be borne in mind that prevalence of diarrhea varies seasonally.

Prevalence and Treatment of Diarrhea

Table 5.5 shows that, 9.8% of all children under five had diarrhea. The occurrence of diarrhea varies from 13.1% in young children ages <12 months to 5.1% among children in the age group 48-59 months. The variation in the prevalence of diarrhea by child's sex and place of residence in this survey was very small. There were variations in the prevalence of diarrhea by Regions. Children living in Gambela Region were more susceptible to episodes of diarrhea (16.9%) than children living in the other Regions. Children living in Dire Dawa had the lowest prevalence of diarrhea when compared with children living in the other Regions (1.7%).

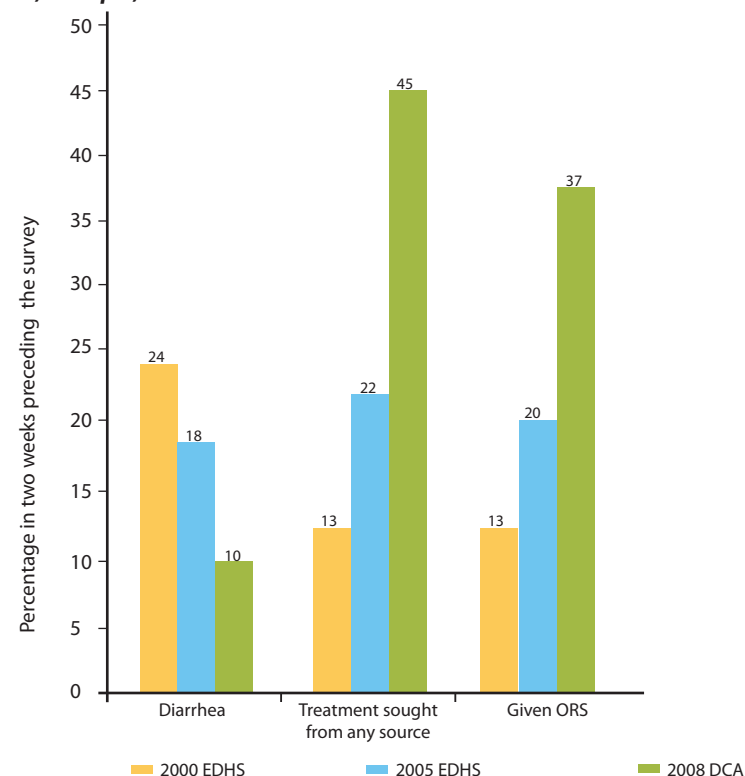
Forty-Five percent of children with diarrhea were taken to a health provider to seek advice or treatment. About 66% and 63% of mothers with some secondary or higher education and of mothers in the richest wealth quintile take their children to a health provider, respectively. Notable differences also exist by place of residence. The proportion of children in urban areas taken to a health facility was 58.9% whereas only 36.2% of children in rural areas. There were also variations between Regions. About 64.7% of children living in Benshangul Gumuz were taken to a health provider in contrast to 25.6% of children living in Amhara.

Compared with the 2000 and 2005 EDHS, in this survey far fewer prevalence of diarrhea were reported in the two weeks preceding the survey (9.8% versus 23.6% and 18%), higher proportion were taken for treatment (45.1% versus 13.3% and 22.2%), and proportion of giving ORS for children with diarrhea increased (37% versus 13.1% and 19.9%) as shown in Figure 5.3.

Table 5.5 Prevalence and treatment of diarrhea

| Percentage of children who had diarrhea in the two weeks preceding the survey, and among children under age five who had diarrhea, the percentage who were taken for treatment to a health provider, the percentage given oral re-hydration therapy (ORT), and the percentage given increased fluids and continuing feeding, by background characteristics, Ethiopia DCA 2008 | | | | | | | |
|---|--------------------------|-------------------------------|---|----------------------|--|---|----------------------------------|
| Diarrhea in the two weeks preceding the survey | | | Treatment for children with diarrhea | | | | |
| Background Characteristics | Percentage with diarrhea | Number of children under five | Percentage seek advice or treatment from any source | Percentage given ORT | Percentage given ORT or increased fluids | Percentage given increased fluids and continued feeding | Number of children with diarrhea |
| Age in months | | | | | | | |
| <12 | 13.1 | 761 | 51.0 | 36.0 | 39.0 | 1.0 | 100 |
| 12-23 | 11.5 | 713 | 51.2 | 39.0 | 42.7 | 3.7 | 82 |
| 24-47 | 9.3 | 1,543 | 37.8 | 36.4 | 40.6 | 3.5 | 143 |
| 48-59 | 5.1 | 664 | 44.1 | 38.2 | 38.2 | 2.9 | 34 |
| Sex | | | | | | | |
| Male | 10.3 | 1,930 | 46.5 | 35.9 | 40.4 | 3.5 | 198 |
| Female | 9.2 | 1,744 | 43.5 | 38.5 | 40.4 | 1.9 | 161 |
| Missing | 0.0 | 7 | - | - | - | - | 0 |
| Education | | | | | | | |
| No education | 9.2 | 2,239 | 38.8 | 33.5 | 36.4 | 1.0 | 206 |
| Primary | 12.1 | 898 | 48.6 | 36.7 | 42.2 | 6.4 | 109 |
| Secondary+ | 8.8 | 434 | 65.8 | 55.3 | 55.3 | 2.6 | 38 |
| Missing | 5.5 | 110 | 66.7 | 50.0 | 50.0 | 0.0 | 6 |
| Wealth index | | | | | | | |
| Lowest | 10.6 | 893 | 31.6 | 27.4 | 31.6 | 1.1 | 95 |
| Second | 10.2 | 911 | 36.6 | 32.3 | 35.5 | 2.2 | 93 |
| Middle | 9.5 | 864 | 53.7 | 35.4 | 39.0 | 7.3 | 82 |
| Fourth | 9.4 | 573 | 63.0 | 51.9 | 55.6 | 1.9 | 54 |
| Highest | 8.2 | 391 | 62.5 | 59.4 | 59.4 | 0.0 | 32 |
| Missing | 6.1 | 49 | 0.0 | 33.3 | 33.3 | 0.0 | 3 |
| Residence | | | | | | | |
| Urban | 10.5 | 1,346 | 58.9 | 48.9 | 51.8 | 2.8 | 141 |
| Rural | 9.3 | 2,335 | 36.2 | 29.4 | 33.0 | 2.8 | 218 |
| Region | | | | | | | |
| Oromiya | 9.3 | 901 | 44.0 | 36.9 | 42.9 | 4.8 | 84 |
| Amhara | 8.5 | 457 | 25.6 | 35.9 | 35.9 | 2.6 | 39 |
| SNNPR | 11.5 | 566 | 52.3 | 36.9 | 43.1 | 1.5 | 65 |
| Tigray | 8.9 | 462 | 39.0 | 41.5 | 46.3 | 7.3 | 41 |
| Somali | 11.9 | 210 | 44.0 | 28.0 | 28.0 | 0.0 | 25 |
| Addis Ababa | 10.4 | 414 | 62.8 | 58.1 | 58.1 | 0.0 | 43 |
| Afar | 7.1 | 156 | 27.3 | 9.1 | 9.1 | 0.0 | 11 |
| Benshangul Gumuz | 14.8 | 115 | 64.7 | 35.3 | 35.3 | 0.0 | 17 |
| Diredawa | 1.7 | 115 | 50.0 | 100.0 | 100.0 | 0.0 | 2 |
| Gambella | 16.9 | 130 | 40.9 | 13.6 | 13.6 | 0.0 | 22 |
| Harari | 6.5 | 155 | 30.0 | 30.0 | 40.0 | 10.0 | 10 |
| Total | 9.8 | 3,681 | 45.1 | 37.0 | 40.4 | 2.8 | 359 |

Fig. 5.3 Percentage of Children Under age Five with Diarrhea, Getting Treatment from Any Source and Given ORS, Ethiopia, 2008



In conclusion, less than half of the children with diarrhea were taken to a health provider, and less than four in ten children with diarrhea were treated with Oral Re-hydration Therapy, which is a simple and inexpensive intervention to treat dehydration. Besides, since diarrhea was not always preventable, effective, affordable and accessible treatment options are necessary in order to maintain the health of children. Generally, we may state that, the emphasis that has been given by GFATM through increasing fund to fight HIV/AIDS, Tuberculosis and Malaria may have had also an effect in decreasing prevalence of ARI and Diarrhea among children.

5.2.3 Vaccination Coverage

To reduce infant and child mortality universal immunization of children against the six vaccine-preventable diseases (namely, tuberculosis, diphtheria, whooping cough, tetanus, polio, and measles) is paramount. Having the knowledge of differences in vaccination coverage among subgroups of the population are useful for program planning and targeting resources to areas that are most in need. Besides, information on immunization coverage is important for the monitoring and evaluation of the Expanded Programs on Immunization (EPI).

This survey collected information on vaccination coverage for all living children born in the five years preceding the survey. According to the guidelines developed by the World Health Organization, children are considered to be fully vaccinated when they have received a vaccination against tuberculosis (BCG), three doses each of the DPT and polio vaccines, and measles vaccination by the age of 12 months. BCG should be given at birth or at first clinical contact, DPT and polio require three vaccinations at approximately 4, 8, and 12 weeks of age, and measles should be given at or soon after reaching 9 months of age.

In this survey, information on vaccination coverage was collected in two ways: from vaccination cards shown to the interviewer and from mothers' verbal reports. If the cards were available, the interviewer copied the vaccination dates directly onto the questionnaire. When there was no vaccination card for the child or if a vaccine had not been recorded on the card as being given the

respondent was asked to recall the vaccines given to her child.

Table 5.6 below shows the percentage of children age 12-23 months who had received the various vaccinations by source of information, that is, from vaccination card or mother's report. This is the group of youngest children who have reached the age by which they should be fully vaccinated. Seventeen percent of children age 12-23 months had received all basic vaccinations, 52% had received the BCG vaccination, and 47% had been vaccinated against measles by 12 months of age. The coverage for the third dose of DPT is 26% and 43% for Polio 3. This coverage according to the 2000 and 2005 EDHS was: All basic vaccinations (12% and 16.7%), BCG vaccination (40.7% and 57.4%), measles vaccination (20.6% and 28.5%), third dose DPT vaccination (18.1% and 29%) and third dose polio vaccination (30.4% and 41%).

Table 5.6 Vaccinations by source of information

| Percentage of children age 12-23 months who received specific vaccines at any time before the survey, and percentage vaccinated by 12 months of age, Ethiopia DCA 2008 | | | | | | | |
|--|------|-------|---------|---------|------------------------|-----------------|--------------------|
| Source of information | BCG | DPT 3 | Polio 3 | Measles | All basic vaccinations | No vaccinations | Number of children |
| Vaccinated at any time before survey | | | | | | | |
| Vaccination card | 21.9 | 18.2 | 22.4 | 19.4 | 15.3 | 2.7 | 188 |
| Mother's report | 41.0 | 13.7 | 29.6 | 35.5 | 8.1 | 24.4 | 525 |
| Either source | 62.8 | 32.0 | 52.0 | 54.8 | 23.4 | 27.1 | 713 |
| Vaccinated by 12 months of age | 51.6 | 26.1 | 42.9 | 46.5 | 16.8 | 33.5 | 713 |

Table 5.7 below shows the vaccination coverage among different background characteristics of children age 12-23 months, according to information from the vaccination card or mother's report. This information may give some indication of the success of the immunization program in reaching out to different subgroups. Girls were slightly more likely than boys to be fully immunized (25% versus 22%). In this survey, a close relationship was shown between birth order and vaccination coverage; that is as birth order increases, vaccination coverage generally decreases. Some 27% of first-born children were fully immunized with basic vaccinations, compared with zero percent of children of birth order four and above.

There were marked urban-rural differences in vaccination coverage. For example, children residing in urban areas were more likely (30%) to be fully immunized than children in rural areas (20%). Similarly, there were substantial differences in coverage among Regions. The percentage of children fully immunized ranges from less than 1% in the Afar Region to 54% in Addis Ababa.

The percentage of children fully immunized increases with mother's education. Some 18% of children whose mothers had no education were fully immunized, compared with 43% of children born to mothers who had at least some secondary education. Children in households in the poorest wealth quintile (9%) were less likely to have been fully immunized than children in households in the richest wealth quintile (45%). From this table it is also shown that a vaccination card was seen only for 26 percent of children age 12-23 months.

Table 5.7 Vaccinations by background characteristics

| Percentage of children age 12-23 months who received specific vaccines at any time before the survey (according to a vaccination card or the mother's report), and percentage with a vaccination card, by background characteristics, Ethiopia DCA 2008 | | | | | | | | |
|---|------|-------|---------|---------|--------------------------|-------------------|---|--------------------|
| Background characteristics | BCG | DPT 3 | Polio 3 | Measles | All basic vaccina- tions | No vaccina- tions | Percen- tage with a vaccina- tion card seen | Number of children |
| Sex | | | | | | | | |
| Male | 61.3 | 30.6 | 52.2 | 52.5 | 21.8 | 29.4 | 24.7 | 385 |
| Female | 64.6 | 33.5 | 51.8 | 57.6 | 25.3 | 24.4 | 28.4 | 328 |
| Birth order | | | | | | | | |
| 1 | 67.5 | 35.3 | 57.9 | 62.0 | 26.7 | 21.2 | 32.0 | 363 |
| 2-3 | 59.0 | 29.2 | 46.9 | 48.4 | 20.6 | 31.9 | 20.6 | 339 |
| 4-5 | 27.3 | 9.1 | 18.2 | 18.2 | 0.0 | 72.7 | 18.2 | 11 |
| Education | | | | | | | | |
| No education | 59.5 | 27.6 | 48.6 | 49.3 | 18.3 | 30.2 | 22.9 | 420 |
| Primary | 67.2 | 34.4 | 56.1 | 63.0 | 28.0 | 22.2 | 28.0 | 189 |
| Secondary+ | 77.8 | 51.9 | 63.0 | 72.8 | 43.2 | 17.3 | 42.0 | 81 |
| Missing | 34.8 | 21.7 | 43.5 | 26.1 | 8.7 | 43.5 | 21.7 | 23 |
| Wealth index | | | | | | | | |
| Lowest | 45.3 | 16.8 | 36.6 | 34.2 | 9.3 | 42.2 | 18.0 | 161 |
| Second | 63.4 | 30.1 | 50.8 | 52.5 | 22.4 | 28.4 | 17.5 | 183 |
| Middle | 69.3 | 36.9 | 60.8 | 61.9 | 25.6 | 18.8 | 29.5 | 176 |
| Fourth | 67.3 | 34.5 | 52.2 | 61.9 | 28.3 | 24.8 | 35.4 | 113 |
| Highest | 78.1 | 56.2 | 67.1 | 78.1 | 45.2 | 15.1 | 47.9 | 73 |
| Missing | 57.1 | 14.3 | 57.1 | 57.1 | 14.3 | 14.3 | 0.0 | 7 |
| Residence | | | | | | | | |
| Urban | 68.0 | 39.5 | 56.6 | 63.3 | 29.7 | 23.4 | 36.3 | 256 |
| Rural | 60.0 | 27.8 | 49.5 | 50.1 | 19.9 | 29.1 | 20.8 | 457 |
| Region | | | | | | | | |
| Oromiya | 46.4 | 14.4 | 38.1 | 39.2 | 8.8 | 38.1 | 9.8 | 194 |
| Amhara | 67.5 | 33.7 | 49.4 | 61.4 | 21.7 | 21.7 | 30.1 | 83 |
| SNNPR | 62.9 | 24.7 | 48.5 | 56.7 | 14.4 | 25.8 | 16.5 | 97 |
| Tigray | 86.4 | 68.2 | 78.2 | 75.5 | 52.7 | 10.0 | 51.8 | 110 |
| Somali | 42.5 | 5.0 | 15.0 | 27.5 | 2.5 | 47.5 | 2.5 | 40 |
| Addis Ababa | 85.5 | 62.3 | 75.4 | 79.7 | 53.6 | 11.6 | 66.7 | 69 |
| Afar | 13.3 | 3.3 | 23.3 | 10.0 | 0.0 | 70.0 | 20.0 | 30 |
| Benshangul Gumuz | 79.2 | 45.8 | 75.0 | 75.0 | 37.5 | 16.7 | 37.5 | 24 |
| Diredawa | 55.6 | 27.8 | 38.9 | 50.0 | 22.2 | 38.9 | 5.6 | 18 |
| Gambella | 50.0 | 33.3 | 44.4 | 33.3 | 22.2 | 33.3 | 22.2 | 18 |
| Harari | 93.3 | 16.7 | 83.3 | 80.0 | 16.7 | 0.0 | 13.3 | 30 |
| Total | 62.8 | 32.0 | 52.0 | 54.8 | 23.4 | 27.1 | 26.4 | 713 |

Fig. 5.4 Percentage of Children Age 12-23 Months with Specific Vaccinations, Ethiopia, 2008

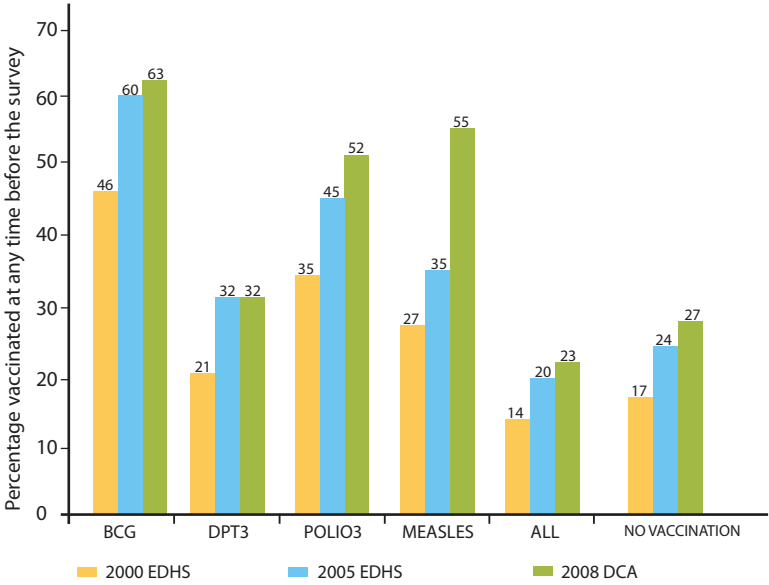


Table 5.8 below shows the percentage of children who had received vaccinations during the first year of life by current age of child characteristics. In this table there are notable changes in vaccination coverage by 12 months of age. The percentage of children who had received no vaccinations at all by 12 months of age had declined significantly from 60% among children age 48-59 months at the time of the survey to 34% among children age 12-23 months. The percentage fully immunized by age 12 months has increased from 7% among children age 48-59 months to 17% of age 12-23 months. Not surprisingly, vaccination cards were shown for 26 percent of children age 12-23 months but for only 11 percent of children age 48-59 months. This may be because vaccination cards for older children have been discarded.

In conclusion, when we compare the result of this survey with the 2000 and 2005 EDHS, coverage of BCG, DPT3, Polio3, Measles and all basic vaccinations at any time before the survey give a picture of an increasing trend as shown in Figure 5.3 above. This increasing trend may be the result of increasing fund to fight HIV/AIDS, Tuberculosis and Malaria through GFATM, since it has an indirect effect on the provision of other routine services such as vaccination.

In general, vaccine preventable illnesses are major causes of childhood death, and yet only 23% of Ethiopian children were fully vaccinated. Although this is still the lowest rate, it represents a significant improvement over the last eight years. Therefore, continued improvement in vaccination coverage will have a great impact on reducing child morbidity and mortality.

Table 5.8 Vaccinations in first year of life

| Percentage of children age 12-59 months at the time of the survey who received specific vaccines by 12 months of age, and percentage with a vaccination card, by current age of child, Ethiopia DCA 2008 | | | | | | | | |
|--|------|-------|---------|---------|--------------------------|-------------------|---|--------------------|
| Current age In months | BCG | DPT 3 | Polio 3 | Measles | All basic vaccina- tions | No vaccina- tions | Percen- tage with a vaccina- tion card seen | Number of children |
| Age in months | | | | | | | | |
| 12-23 | 51.6 | 26.1 | 42.9 | 46.5 | 16.8 | 33.5 | 26.4 | 713 |
| 24-35 | 43.4 | 22.2 | 35.9 | 35.2 | 12.0 | 43.8 | 18.7 | 716 |
| 36-47 | 41.0 | 18.6 | 38.6 | 27.5 | 10.2 | 47.3 | 15.5 | 827 |
| 48-59 | 28.3 | 13.8 | 28.9 | 22.4 | 7.4 | 60.0 | 10.7 | 664 |
| Total | 42.5 | 20.7 | 37.8 | 34.4 | 11.9 | 44.1 | 17.8 | 2,920 |

5.3 Antenatal Care Utilization

5.3.1 Source of Antenatal Care Received

In 2008 EDCA information on women's behaviors of seeking and utilization of antenatal care from health care providers, how many visits they make during their pregnancy to receive antenatal care services, places of delivery and who assisted them during delivery was collected in order to examine ANC coverage and improvement.

Table 5.9 shows the extent of utilization of different types of antenatal care providers. Women were asked whether they had seen anyone for antenatal care during the pregnancy for the last live birth occurring in the five years preceding the survey. If more than one source of antenatal care was mentioned for the same pregnancy, all sources were recorded. However, for the purposes of this study, only the providers with the highest qualifications were considered if there were more than one response. The category 'Auxiliary nurse/midwife' is shown separately instead of being aggregated with 'Nurse/midwife.' The table also includes the percentage of women receiving antenatal care from skilled health professionals (doctor, nurse, midwife and auxiliary nurse/midwife) as a summary measure.

Some 48% of mothers surveyed received antenatal care from health professionals (doctor, nurse, midwife) for their most recent birth in the five years preceding the survey, and three percent of mothers received antenatal care from a traditional birth attendant (trained or untrained). Moreover, proportion of mothers who received no antenatal care for births in the preceding five years was 38 percent.

Differences in antenatal care by women's age at birth were not large. Differences by birth order however were more pronounced. Mothers were more likely to receive care from a health professional for first births (55 %) than for births of order four and higher (10%).

The use of antenatal care services was strongly related to the mother's level of education. Women with at least secondary education were more likely to receive antenatal care from a health professional (81%) than women with primary education (61%) and those with no education (35%). There was also a positive relationship between increasing wealth and receiving antenatal care from a health professional, with women in the highest wealth quintile nearly three times more likely to receive antenatal care from a health professional than women in the lowest wealth quintile.

Table 5.9 Antenatal care, Ethiopia 2008

| Percent distribution of women age 15-49 who had a live birth in the five years preceding the survey by antenatal care (ANC) provider during pregnancy for the most recent birth and the percentage receiving antenatal care from a skilled provider for the most recent birth, by background characteristics, Ethiopia 2008 | | | | | | | | | | | |
|---|------------|-------------------|---------------------|--------------------------------|----------------------------|------------|-------------|------------|--------------|--|--------------------|
| | Doctor | Nurse/ midwife | Auxiliar midwife | Traditional birth attendant | Community health worker | Other | No one | Missing | Total | Percentage receiv- ing antenatal care from a skilled provider | Number of women |
| Mother's age at birth | | | | | | | | | | | |
| <20 | 8.2 | 34.8 | 3.7 | 3.0 | 4.2 | 0.0 | 38.8 | 7.2 | 100.0 | 46.8 | 402 |
| 20-34 | 9.1 | 34.0 | 6.1 | 2.4 | 3.4 | 0.3 | 37.2 | 7.5 | 100.0 | 49.2 | 1,997 |
| 35+ | 6.8 | 29.6 | 5.4 | 4.5 | 3.1 | 0.3 | 41.1 | 9.3 | 100.0 | 41.7 | 355 |
| Birth order | | | | | | | | | | | |
| 1 | 10.7 | 37.8 | 6.0 | 2.4 | 3.7 | 0.3 | 35.8 | 3.4 | 100.0 | 54.5 | 1,689 |
| 2-3 | 5.4 | 27.4 | 5.3 | 3.0 | 3.1 | 0.2 | 41.4 | 14.2 | 100.0 | 38.2 | 1,035 |
| 4-5 | 3.3 | 6.7 | 0.0 | 13.3 | 6.7 | 0.0 | 43.3 | 26.7 | 100.0 | 10.0 | 30 |
| Education | | | | | | | | | | | |
| No education | 4.3 | 24.6 | 6.1 | 2.9 | 3.9 | 0.4 | 50.4 | 7.4 | 100.0 | 35.0 | 1,603 |
| Primary | 10.4 | 43.7 | 6.4 | 2.1 | 3.6 | 0.1 | 24.8 | 8.8 | 100.0 | 60.5 | 714 |
| Secondary+ | 25.5 | 53.2 | 2.2 | 1.7 | 1.7 | 0.0 | 8.9 | 6.9 | 100.0 | 80.9 | 361 |
| Missing | 3.9 | 32.9 | 6.6 | 10.5 | 2.6 | 0.0 | 36.8 | 6.6 | 100.0 | 43.4 | 76 |
| Wealth index | | | | | | | | | | | |
| Lowest | 2.6 | 20.4 | 4.5 | 3.2 | 4.5 | 0.2 | 55.5 | 9.2 | 100.0 | 27.5 | 651 |
| Second | 3.3 | 27.2 | 7.0 | 4.1 | 4.4 | 0.2 | 47.0 | 6.8 | 100.0 | 37.5 | 658 |
| Middle | 4.7 | 32.0 | 8.7 | 2.7 | 3.8 | 0.2 | 41.0 | 6.9 | 100.0 | 45.4 | 634 |
| Fourth | 12.2 | 53.9 | 4.5 | 1.8 | 2.0 | 0.7 | 18.7 | 6.2 | 100.0 | 70.6 | 449 |
| Highest | 34.1 | 47.0 | 1.5 | 0.9 | 0.9 | 0.3 | 6.4 | 8.8 | 100.0 | 82.6 | 328 |
| Missing | 5.9 | 38.2 | 2.9 | 0.0 | 5.9 | 0.0 | 29.4 | 17.6 | 100.0 | 47.1 | 34 |
| Residence | | | | | | | | | | | |
| Urban | 17.0 | 46.2 | 4.0 | 1.9 | 1.7 | 0.3 | 21.1 | 7.8 | 100.0 | 67.2 | 1,071 |
| Rural | 3.3 | 25.5 | 6.7 | 3.3 | 4.6 | 0.2 | 48.7 | 7.6 | 100.0 | 35.5 | 1,683 |
| Region | | | | | | | | | | | |
| Oromiya | 4.3 | 31.9 | 3.4 | 4.6 | 4.0 | 0.0 | 43.7 | 8.2 | 100.0 | 39.5 | 655 |
| Amhara | 6.5 | 22.9 | 5.0 | 1.8 | 7.5 | 0.0 | 51.5 | 4.8 | 100.0 | 34.4 | 398 |
| SNNPR | 5.6 | 32.7 | 8.7 | 1.7 | 8.2 | 0.0 | 30.0 | 13.1 | 100.0 | 47.0 | 413 |
| Tigray | 2.2 | 54.4 | 17.4 | 0.6 | 1.4 | 1.1 | 18.8 | 4.1 | 100.0 | 74.0 | 362 |
| Somali | 1.6 | 8.1 | 0.0 | 3.3 | 0.0 | 0.0 | 81.3 | 5.7 | 100.0 | 9.8 | 123 |
| Addis Ababa | 31.0 | 48.6 | 1.1 | 0.6 | 0.0 | 0.6 | 9.2 | 8.9 | 100.0 | 80.7 | 348 |
| Afar | 1.0 | 18.4 | 0.0 | 19.4 | 0.0 | 0.0 | 49.5 | 11.7 | 100.0 | 19.4 | 103 |
| Benshangul Gumuz | 2.6 | 40.8 | 3.9 | 3.9 | 0.0 | 0.0 | 40.8 | 7.9 | 100.0 | 47.4 | 76 |
| Diredawa | 14.3 | 24.3 | 0.0 | 0.0 | 0.0 | 0.0 | 52.9 | 8.6 | 100.0 | 38.6 | 70 |
| Gambella | 12.6 | 26.2 | 6.8 | 1.0 | 1.0 | 1.0 | 45.6 | 5.8 | 100.0 | 45.6 | 103 |
| Harari | 16.5 | 18.4 | 1.0 | 0.0 | 0.0 | 0.0 | 62.1 | 1.9 | 100.0 | 35.9 | 103 |
| Total | 8.6 | 33.6 | 5.7 | 2.8 | 3.5 | 0.3 | 37.9 | 7.7 | 100.0 | 47.9 | 2,754 |

There were large differences in the use of antenatal care services between urban and rural women. In urban areas, health professionals provide antenatal care for 67.2% of mothers, whereas they provide care for only 36% of mothers in rural areas. Proportion of mothers in rural areas (49%) who receive no antenatal care at all was significantly higher compared to that of urban mothers (21%), respectively.

Regional differences in the source of antenatal care were quite significant; mothers in Addis Ababa (81%) and Tigray (74%) that received antenatal care from a health professional were considerable, compared with mothers in the Afar and Somali Regions, at 19.4% and 10%, respectively.

As demonstrated in table 5.10, women's behaviour of seeking and utilizing antenatal care shows improvement in the 2008 EDCA study when compared to some similar studies like EDHS 2005. The proportions of women receiving antenatal care from health professionals during the pregnancy for the last live birth occurring in the five years preceding the survey increased while proportion of mothers who received no antenatal care for births in the preceding five years significantly declined.

Table 5.10 Comparison of women receiving antenatal care during the 2005 DHS and 2008 DCA surveys, Ethiopia 2008

| Types of antenatal care providers | DHS 2005 % | DCA 2008 % |
|---|------------|------------|
| Percentage receiving antenatal care from a skilled provider | 28 | 48 |
| No one | 72 | 38 |
| Traditional birth attendant | 1 | 3 |

5.3.2 Number of antenatal care visits

Antenatal care is more beneficial in preventing adverse pregnancy outcomes when it is sought early in the pregnancy and is continued through to delivery. Health professionals recommend that the first antenatal visit should occur within the first three months of pregnancy and continue on a monthly basis through the 28th week of pregnancy and fortnightly up to the 36th week (or until birth). WHO also recommends that under normal circumstances a woman without complications should have at least four ANC visits to obtain sufficient antenatal care.

For women with antenatal care, the distribution of women age 15-49 that had a live birth in the five years preceding the survey by number of antenatal care visits for the most recent live birth is shown in table 5.11 by background characteristics.

Table 5.11 Number of antenatal care visits, Ethiopia, 2008

| Percent distribution of women age 15-49 who had a live birth in the five years preceding the survey by number of antenatal care (ANC) visits for the most recent live birth by background characteristics, Ethiopia 2008 | | | | | | | | |
|--|----------------------|------------|-------------|-------------|------------|------------|--------------|--------------------------|
| | Number of ANC visits | | | | | | Total | Number of women with ANC |
| | None | 1 | 2-3 | 4+ | Don't know | Missing | | |
| Mother's age at birth | | | | | | | | |
| <20 | 38.8 | 2.7 | 17.9 | 29.6 | 2.7 | 8.2 | 100.0 | 202 |
| 20-34 | 37.2 | 2.3 | 16.5 | 32.0 | 3.3 | 8.7 | 100.0 | 1,015 |
| 35+ | 41.1 | 2.3 | 15.5 | 25.6 | 3.9 | 11.5 | 100.0 | 154 |
| Birth order | | | | | | | | |
| 1 | 35.8 | 2.2 | 18.2 | 35.8 | 3.4 | 4.7 | 100.0 | 948 |
| 2-3 | 41.4 | 2.7 | 14.2 | 23.6 | 2.8 | 15.4 | 100.0 | 419 |
| 4-5 | 43.3 | 0.0 | 10.0 | 3.3 | 13.3 | 30.0 | 100.0 | 4 |
| Education | | | | | | | | |
| No education | 50.4 | 2.6 | 15.4 | 19.7 | 3.1 | 8.8 | 100.0 | 604 |
| Primary | 24.8 | 2.1 | 20.6 | 39.6 | 3.4 | 9.5 | 100.0 | 445 |
| Secondary+ | 8.9 | 1.7 | 14.7 | 63.4 | 2.8 | 8.6 | 100.0 | 288 |
| Missing | 36.8 | 2.6 | 13.2 | 28.9 | 7.9 | 10.5 | 100.0 | 34 |
| Wealth index | | | | | | | | |
| Lowest | 55.5 | 2.6 | 15.1 | 14.0 | 2.8 | 10.1 | 100.0 | 206 |
| Second | 47.0 | 2.9 | 18.4 | 19.3 | 4.3 | 8.2 | 100.0 | 267 |
| Middle | 41.0 | 2.8 | 16.9 | 28.5 | 2.8 | 7.9 | 100.0 | 306 |
| Fourth | 18.7 | 1.1 | 20.7 | 47.9 | 3.6 | 8.0 | 100.0 | 313 |
| Highest | 6.4 | 1.2 | 10.7 | 68.0 | 2.7 | 11.0 | 100.0 | 262 |
| Missing | 29.4 | 5.9 | 8.8 | 35.3 | 2.9 | 17.6 | 100.0 | 17 |
| Residence | | | | | | | | |
| Urban | 21.1 | 2.0 | 14.4 | 49.1 | 3.7 | 9.7 | 100.0 | 701 |
| Rural | 48.7 | 2.6 | 18.0 | 19.2 | 3.0 | 8.6 | 100.0 | 670 |
| Region | | | | | | | | |
| Oromiya | 43.7 | 1.8 | 16.8 | 26.0 | 2.6 | 9.2 | 100.0 | 292 |
| Amhara | 51.5 | 4.3 | 18.6 | 18.1 | 2.3 | 5.3 | 100.0 | 163 |
| SNNPR | 30.0 | 2.7 | 21.3 | 28.3 | 3.4 | 14.3 | 100.0 | 216 |
| Tigray | 18.8 | 3.6 | 28.5 | 40.1 | 3.3 | 5.8 | 100.0 | 261 |
| Somali | 81.3 | 4.1 | 4.1 | 4.1 | 0.8 | 5.7 | 100.0 | 15 |
| Addis Ababa | 9.2 | 0.3 | 8.0 | 67.0 | 3.4 | 12.1 | 100.0 | 262 |
| Afar | 49.5 | 1.0 | 3.9 | 13.6 | 16.5 | 15.5 | 100.0 | 19 |
| Benshangul Gumuz | 40.8 | 2.6 | 21.1 | 27.6 | 0.0 | 7.9 | 100.0 | 39 |
| Diredawa | 52.9 | 1.4 | 7.1 | 27.1 | 2.9 | 8.6 | 100.0 | 25 |
| Gambella | 45.6 | 1.9 | 16.5 | 26.2 | 2.9 | 6.8 | 100.0 | 46 |
| Harari | 62.1 | 0.0 | 6.8 | 25.2 | 2.9 | 2.9 | 100.0 | 33 |
| Total | 37.9 | 2.4 | 16.6 | 30.8 | 3.3 | 9.0 | 100.0 | 1,371 |

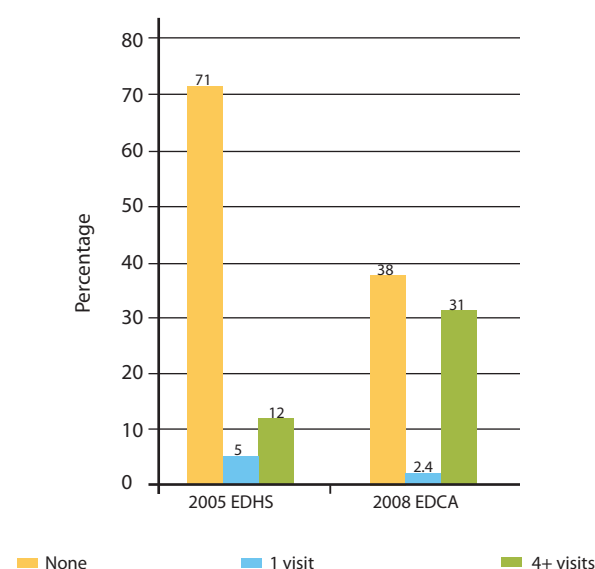
Study findings show that nearly 31% women made four or more antenatal care visits while 38% of the women did not make any antenatal care visits during their entire pregnancy. More women (38%) made four or more antenatal care visits at their first birth than at the fourth and above birth order.

Making four or more antenatal care visits was strongly related to the mother's level of education. Women with at least secondary education were more likely to visit antenatal care four or more time (63.4%) than women with primary education (40%) and those with no education (20%). Similarly women in the highest wealth quintals were more likely to make four or more antenatal care visits (68%) than women in the lowest quintals.

There was marked variation between women residing in urban areas (49.1%) and those in rural areas (19.1%). Higher proportion of women from Addis Ababa (67%) and Tigray Regions (41%) made four or more antenatal care visits compared to women from Somali Region (4%).

With regards to frequencies of mothers' antenatal care visits the 2008 EDCA findings show significant improvement compared to the findings of the 2005 EDHS.

Figure 5.5 Comparison of 2005 EDHS and 2008 EDCA findings about Number and Timing of Antenatal Care Visits, 2008.



5.3.3 Delivery Care

When delivery takes place in an unsafe place and/or undesirable hygienic conditions, the mother and the baby or both can be exposed to various health risks that may cause the death or serious illness of the mother and the baby or both. In order to reduce the risks it is important to increase the proportion of babies delivered in a safe and clean environment and under the supervision of health professionals. During the 2008 EDCA survey data on delivery care, deliveries that took place in a health facility and by skilled health professionals were collected for all births that occurred in the five years preceding the survey.

Table 5.12 documents the place of delivery, and Table 5.14 the person who assisted during delivery, by the background characteristics of respondents. Unlike the antenatal care information presented in Tables 5.9 and 5.11 which was collected only for the last live birth, information on delivery care was collected for all births in the five years preceding the survey. As such, Tables 5.12 and 5.14 were organized around all births in the five years preceding the survey. Summary measures are included: percentage of births delivered in a health facility (Table 5.12) and percentage delivered by a skilled provider (Table 5.14).

As shown in table 5.12, some 69% of the births were delivered at home in the five years before the survey while only 19.3% deliveries took place in health facilities. Nearly 18% of births were delivered in a public facility and about 2% of births were delivered in a private facility. Delivery in a health facility is more common among younger mothers age less than 35 (40%), mothers with first order births (23%), and mothers who have had at least 4 antenatal visits (50%). Mother's education level, wealth status and residence had high association with place of delivery. Mothers with secondary and higher education (63.3%), highest wealth quintals (71.4%) and urban areas (43%) were more likely to deliver in health facilities than their counterpart uneducated mothers (9.4%), mothers with lowest wealth quintile (6%) and mothers from rural areas (6.1%). Not surprisingly, deliveries in a private health facility were most common among mothers with fourth and above order of births, mothers with secondary and higher education, mothers with highest wealth quintals and mothers in urban areas. The proportion of births delivered in a health facility is high in Addis Ababa (68%) and ranges 10 to 25 percents in other Regions while it was less than 10 percent in Afar (5.4%) and Somali (4.1%) Regions.

Table 5.12 Place of delivery, Ethiopia, 2008

| Percent distribution of live births in the five years preceding the survey by place of delivery and percentage delivered in a health facility, by background characteristics, Ethiopia 2008 | | | | | | | | |
|---|-----------------|----------------|------|-------|---------|-------|---|------------------|
| | Health facility | | Home | Other | Missing | Total | Percentage delivered in a health facility | Number of births |
| | Public sector | Private sector | | | | | | |
| Mother's age at birth | | | | | | | | |
| <20 | 18.9 | 1.3 | 64.8 | 0.7 | 14.3 | 100.0 | 20.2 | 593 |
| 20-34 | 17.9 | 1.9 | 69.3 | 0.6 | 10.3 | 100.0 | 19.8 | 2,779 |
| 35+ | 14.6 | 0.7 | 72.3 | 0.9 | 11.6 | 100.0 | 15.3 | 458 |
| Birth order | | | | | | | | |
| 1 | 20.9 | 1.9 | 65.6 | 0.8 | 10.8 | 100.0 | 22.8 | 2,522 |
| 2-3 | 11.6 | 1.3 | 75.7 | 0.4 | 11.1 | 100.0 | 12.8 | 1,271 |
| 4-5 | 8.1 | 0.0 | 62.2 | 0.0 | 29.7 | 100.0 | 8.1 | 37 |
| Number of ANC visits | | | | | | | | |
| None | 3.4 | 0.2 | 93.3 | 1.0 | 2.1 | 100.0 | 3.6 | 1,045 |
| 1 | 9.2 | 1.5 | 83.1 | 1.5 | 4.6 | 100.0 | 10.8 | 65 |
| 2-3 | 17.9 | 2.0 | 77.7 | 0.4 | 2.0 | 100.0 | 19.9 | 457 |
| 4+ | 45.5 | 4.4 | 47.9 | 0.7 | 1.5 | 100.0 | 49.8 | 849 |
| Don't know | 28.9 | 0.0 | 71.1 | 0.0 | 0.0 | 100.0 | 28.9 | 90 |
| Missing | 9.7 | 1.6 | 43.1 | 0.4 | 45.2 | 100.0 | 11.3 | 248 |
| Education | | | | | | | | |
| No education | 9.0 | 0.4 | 79.1 | 0.6 | 10.9 | 100.0 | 9.4 | 2,333 |
| Primary | 22.3 | 1.3 | 64.0 | 0.7 | 11.6 | 100.0 | 23.6 | 940 |
| Secondary+ | 54.3 | 9.0 | 28.2 | 0.2 | 8.3 | 100.0 | 63.3 | 444 |
| Missing | 15.0 | 1.8 | 60.2 | 2.7 | 20.4 | 100.0 | 16.8 | 113 |
| Wealth index | | | | | | | | |
| Lowest | 4.9 | 0.8 | 81.6 | 0.5 | 12.2 | 100.0 | 5.7 | 933 |
| Second | 5.9 | 0.2 | 80.7 | 1.0 | 12.2 | 100.0 | 6.1 | 947 |
| Middle | 11.9 | 0.1 | 76.5 | 0.7 | 10.9 | 100.0 | 12.0 | 902 |
| Fourth | 36.2 | 1.8 | 51.8 | 0.3 | 9.8 | 100.0 | 38.1 | 599 |
| Highest | 60.9 | 10.5 | 20.1 | 0.8 | 7.8 | 100.0 | 71.4 | 399 |
| Missing | 16.0 | 2.0 | 70.0 | 0.0 | 12.0 | 100.0 | 18.0 | 50 |
| Residence | | | | | | | | |
| Urban | 38.7 | 3.9 | 47.7 | 0.8 | 9.0 | 100.0 | 42.6 | 1,393 |
| Rural | 5.7 | 0.4 | 81.1 | 0.6 | 12.3 | 100.0 | 6.1 | 2,437 |
| Region | | | | | | | | |
| Oromiya | 9.2 | 1.0 | 81.2 | 0.1 | 8.5 | 100.0 | 10.1 | 917 |
| Amhara | 12.2 | 1.2 | 78.8 | 1.2 | 6.4 | 100.0 | 13.5 | 482 |
| SNNPR | 17.3 | 0.2 | 64.2 | 0.8 | 17.5 | 100.0 | 17.5 | 590 |
| Tigray | 13.0 | 0.0 | 76.6 | 0.4 | 9.9 | 100.0 | 13.0 | 483 |
| Somali | 2.7 | 1.4 | 93.6 | 0.0 | 2.3 | 100.0 | 4.1 | 220 |
| Addis Ababa | 58.4 | 9.5 | 21.4 | 1.4 | 9.3 | 100.0 | 67.9 | 430 |
| Afar | 5.4 | 0.0 | 70.1 | 0.6 | 24.0 | 100.0 | 5.4 | 167 |
| Benshangul Gumuz | 11.6 | 0.0 | 68.6 | 0.8 | 19.0 | 100.0 | 11.6 | 121 |
| Diredawa | 22.0 | 2.5 | 46.6 | 0.0 | 28.8 | 100.0 | 24.6 | 118 |
| Gambella | 22.6 | 0.8 | 65.4 | 2.3 | 9.0 | 100.0 | 23.3 | 133 |
| Harari | 19.5 | 0.0 | 74.6 | 0.0 | 5.9 | 100.0 | 19.5 | 169 |
| Total | 17.7 | 1.7 | 68.9 | 0.7 | 11.1 | 100.0 | 19.3 | 3,830 |

Concerning utilization of health facilities by women for delivery in the five years preceding the survey, significant improvements have been observed in the 2008 EDCA survey compared to the 2005 EDHS, as indicated in table 5.13.

Table 5.13 Comparison of 2005 DHS and 2008 DCA findings about percentage of births delivered in a health facility, Ethiopia, 2008.

| Percentage delivered in a health facility | | |
|---|----------|----------|
| | 2005 DHS | 2008 DCA |
| Mother's age at birth | | |
| <20 | 6.3 | 20.2 |
| 20-34 | 5.4 | 19.8 |
| 35+ | 3.4 | 15.3 |
| Birth order | | |
| 1 | 13.1 | 22.8 |
| 2-3 | 5.8 | 12.8 |
| 4+ | 2.6 | 8.1 |
| Number of ANC visit | | |
| None | 1.8 | 3.6 |
| 1-3 | 8.3 | 30.7 |
| 4+ | 30.6 | 49.8 |
| Education | | |
| No education | 2.2 | 9.4 |
| Primary | 8.0 | 23.6 |
| Secondary+ | 57 | 63.3 |
| Wealth index | | |
| Lowest | 0.6 | 5.7 |
| Highest | 22.8 | 71.4 |
| Residence | | |
| Urban | 42.6 | 42.6 |
| Rural | 2.3 | 6.1 |

Delivery assisted by a trained health professional is recognized as critical for the reduction of maternal and neonatal mortality. Births delivered at home are usually more likely to be delivered without assistance from a health professional, whereas births delivered at a health facility are more likely to be delivered by a trained health professional.

Table 5.14 demonstrates percentage of live births in the five years preceding the survey by person providing assistance during delivery and percentage of births assisted by a skilled provider by background characteristics.

About 21.1% of births were delivered with the assistance of a trained health professional, that is, a doctor, nurse, or midwife, 32.3% were delivered by a traditional birth attendant and 33% of births were attended by a relative or some other person. 3.2% of all births were delivered without any type of assistance at all.

Births to young mothers that are less than 35 years (43.3%) and first births (25%) were more likely to be assisted by trained health professionals. Here also mothers' education level, wealth status and residence place had strong association with seeking assistances of a trained health professional during delivery. As indicated in table 5.14, more mothers with secondary and above, wealth quintals, residing in urban areas assisted by a trained health professional than their counterpart mothers. Furthermore, 39% and 38% of births to women in rural areas were delivered, respectively, with the help of a traditional birth attendant and relative or some other person, compared with 21.1 and 24% of births to women residing in urban areas. The proportion of births assisted by a trained health professional in most Regions, except in Addis Ababa which is quite high (68%), ranges from 13% to 25% while the proportion is less than this in Afar and Somali Regions, 8.4% and 5% respectively.

Table 5.14 Assistance during delivery, Ethiopia, 2008

| Percent distribution of live births in the five years preceding the survey by person providing assistance during delivery and percentage of births assisted by a skilled provider by background characteristics, Ethiopia 2008 | | | | | | | | | | |
|--|---|-------------------|----------------------|--------------------------------|---------------------------|------------|-------------|--------------|---|---------------------|
| | Person providing assistance during delivery | | | | | | | | | |
| | Doctor | Nurse/ Midwife | Auxiliary midwife | Traditional birth attendant | Relative/Friend/ other | No one | Missing | Total | Percentage delivered by a skilled provider | Number of births |
| Mother's age at birth | | | | | | | | | | |
| <20 | 6.6 | 12.6 | 2.0 | 28.7 | 32.4 | 3.2 | 14.5 | 100.0 | 21.2 | 593 |
| 20-34 | 8.2 | 11.4 | 2.4 | 32.9 | 32.1 | 3.1 | 9.8 | 100.0 | 22.1 | 2,779 |
| 35+ | 4.6 | 9.6 | 0.7 | 33.4 | 37.3 | 3.3 | 11.1 | 100.0 | 14.8 | 458 |
| Birth order | | | | | | | | | | |
| 1 | 9.2 | 13.1 | 2.3 | 28.4 | 33.1 | 3.1 | 10.8 | 100.0 | 24.5 | 2,522 |
| 2-3 | 4.4 | 8.2 | 2.0 | 39.5 | 32.8 | 3.3 | 9.8 | 100.0 | 14.6 | 1,271 |
| 4-5 | 2.7 | 2.7 | 2.7 | 51.4 | 8.1 | 2.7 | 29.7 | 100.0 | 8.1 | 37 |
| Place of delivery | | | | | | | | | | |
| Health facility | 37.0 | 52.8 | 5.1 | 1.1 | 2.3 | 0.0 | 1.8 | 100.0 | 94.9 | 741 |
| Elsewhere | 0.3 | 1.5 | 1.7 | 45.6 | 45.5 | 4.5 | 1.0 | 100.0 | 3.5 | 2,665 |
| Missing | 1.4 | 1.2 | 0.0 | 3.5 | 6.1 | 0.5 | 87.3 | 100.0 | 2.6 | 424 |
| Education | | | | | | | | | | |
| No education | 3.1 | 5.9 | 2.0 | 38.7 | 36.3 | 3.4 | 10.4 | 100.0 | 11.1 | 2,333 |
| Primary | 8.7 | 13.8 | 2.4 | 25.9 | 33.7 | 3.8 | 11.6 | 100.0 | 25.0 | 940 |
| Secondary+ | 29.1 | 34.9 | 1.6 | 13.3 | 13.1 | 0.7 | 7.4 | 100.0 | 65.5 | 444 |
| Missing | 4.4 | 10.6 | 5.3 | 27.4 | 29.2 | 1.8 | 21.2 | 100.0 | 20.4 | 113 |
| Wealth index | | | | | | | | | | |
| Lowest | 1.1 | 3.6 | 2.6 | 38.8 | 39.5 | 3.5 | 10.8 | 100.0 | 7.3 | 933 |
| Second | 1.3 | 4.1 | 1.9 | 36.5 | 40.9 | 3.9 | 11.4 | 100.0 | 7.3 | 947 |
| Middle | 2.7 | 8.5 | 2.2 | 36.5 | 34.1 | 4.0 | 12.0 | 100.0 | 13.4 | 902 |
| Fourth | 15.5 | 22.2 | 3.2 | 24.0 | 24.0 | 1.8 | 9.2 | 100.0 | 40.9 | 599 |
| Highest | 36.8 | 36.6 | 0.3 | 8.3 | 9.5 | 0.8 | 7.8 | 100.0 | 73.7 | 399 |
| Missing | 6.0 | 12.0 | 2.0 | 46.0 | 20.0 | 2.0 | 12.0 | 100.0 | 20.0 | 50 |
| Residence | | | | | | | | | | |
| Urban | 18.5 | 23.2 | 2.4 | 21.1 | 23.5 | 1.9 | 9.3 | 100.0 | 44.1 | 1,393 |
| Rural | 1.3 | 4.6 | 2.0 | 38.7 | 38.1 | 3.9 | 11.4 | 100.0 | 7.9 | 2,437 |
| Region | | | | | | | | | | |
| Oromiya | 2.7 | 8.1 | 1.9 | 41.7 | 33.4 | 4.6 | 7.7 | 100.0 | 12.6 | 917 |
| Amhara | 4.8 | 8.1 | 2.5 | 35.1 | 39.4 | 3.1 | 7.1 | 100.0 | 15.4 | 482 |
| SNNPR | 2.2 | 11.7 | 4.6 | 18.6 | 40.3 | 6.4 | 16.1 | 100.0 | 18.5 | 590 |
| Tigray | 2.1 | 12.2 | 2.7 | 17.6 | 56.1 | 0.4 | 8.9 | 100.0 | 17.0 | 483 |
| Somali | 0.9 | 3.6 | 0.0 | 83.2 | 10.5 | 0.0 | 1.8 | 100.0 | 4.5 | 220 |
| Addis Ababa | 39.1 | 28.4 | 0.2 | 7.7 | 14.0 | 0.7 | 10.0 | 100.0 | 67.7 | 430 |
| Afar | 0.0 | 6.0 | 2.4 | 24.0 | 42.5 | 0.6 | 24.6 | 100.0 | 8.4 | 167 |
| Benshangul Gumuz | 0.8 | 10.7 | 2.5 | 40.5 | 20.7 | 8.3 | 16.5 | 100.0 | 14.0 | 121 |
| Diredawa | 16.9 | 6.8 | 1.7 | 45.8 | 0.0 | 0.0 | 28.8 | 100.0 | 25.4 | 118 |
| Gambella | 6.8 | 14.3 | 2.3 | 10.5 | 52.6 | 3.8 | 9.8 | 100.0 | 23.3 | 133 |
| Harari | 10.7 | 8.3 | 0.6 | 69.8 | 1.2 | 3.0 | 6.5 | 100.0 | 19.5 | 169 |
| Total | 7.5 | 11.4 | 2.2 | 32.3 | 32.8 | 3.2 | 10.7 | 100.0 | 21.1 | 3,830 |

Generally, the 2008 EDCA survey finding revealed that notable improvements had been observed with regards to seeking assistances of trained health professionals by women for all deliveries in the five years preceding the survey when compared to the 2005 EDHS findings.

Table 5.15 Comparison of 2005 DHS and 2008 DCA findings about percentage of births assisted by a trained health professional, Ethiopia, 2008.

| | Percentage delivered in a health facility | | | | | |
|------------------------------|--|----------|-----------------------------|----------|-----------------------|----------|
| | Percentage delivered by a skilled provider | | Traditional birth attendant | | Relative/Friend/other | |
| | 2005 DHS | 2008 DCA | 2005 DHS | 2008 DCA | 2005 DHS | 2008 DCA |
| Mother's age at birth | | | | | | |
| <20 | 6.9 | 21.2 | 31.8 | 28.7 | 58.5 | 32.4 |
| 20-34 | 5.8 | 22.1 | 28.3 | 32.9 | 60.5 | 32.1 |
| 35+ | 3.8 | 14.8 | 23.9 | 33.4 | 62.8 | 37.3 |
| Birth order | | | | | | |
| 1 | 13.7 | 24.5 | 27.8 | 28.4 | 55.9 | 33.1 |
| 2-3 | 6.6 | 14.6 | 26.7 | 39.5 | 62.9 | 32.8 |
| 4+ | 5.1 | 8.1 | 58.1 | 51.4 | >100 | 8.1 |
| Education | | | | | | |
| No education | 2.3 | 11.1 | 29.4 | 38.7 | 62.0 | 36.3 |
| Primary | 8.5 | 25.0 | 25.5 | 25.9 | 62.1 | 33.7 |
| Secondary+ | 57.7 | 65.5 | 14.2 | 13.3 | 26.3 | 13.1 |
| Wealth index | | | | | | |
| Lowest | 0.7 | 7.3 | 36.8 | 38.8 | 55.2 | 39.5 |
| Highest | 26.6 | 73.7 | 26.9 | 8.3 | 46.6 | 9.5 |
| Residence | | | | | | |
| Urban | 44.6 | 44.1 | 22.9 | 21.1 | 30.6 | 23.5 |
| Rural | 2.6 | 7.9 | 28.5 | 38.7 | 62.9 | 38.1 |

6 Conclusion & Recommendations of the Evaluation

6.1 HIV/AIDS

This evaluation shows a significant increase in the Ethiopian government, the GFATM and PEPFAR spending on the national response to HIV/AIDS in the last five years. Particularly, the GFATM spending on HIV/AIDS program increased dramatically in 2007 and 2008. Although the World Bank spending on HIV/AIDS program in the last five year was considerable, it did not show a significant change over the last five year.

The increasing trend of GFATM spending on HIV/AIDS programs coincide with the accelerated HCT and ART service expansion. The number of both HCT and ART sites and the number of people who received service has increased in the last five years, with a spectacular increment in the last two years. The PMTCT program also demonstrated expansion in the number of sites and in the uptake and retention of the PMTCT clients in the last five years. However, the expansion was not dramatic as that of HCT and ART programs.

In spite of the level of women's knowledge about the transmission of HIV improved, the proportion of women with multiple sexual partners engaging in high risk sex slightly increased. However, use of condom with high risk sex had increased considerably.

Trend analysis of the national HIV prevalence between 2004 and 2008 indicates the prevalence appears to be stable. The urban epidemic is exhibiting a plateauing or even a declining trend and this is presumably due to the impact of the HIV/AIDS programs which mostly concentrated in the urban centers.

Recommendations

With regards to this we recommend the following:

- The findings of this evaluation demonstrated that with increasing availability of financial resource, both the prevention and treatment programs expanded with an extremely rapid pace. However, in order to further accelerate and maintain the pace of the scale up and reach the target, substantial increase in financial resources is a must.
- Although the achievement gained in increasing the coverage of prevention and treatment programs is encouraging, the overall coverage of the programs still needs further enhancement. Hence, the Government should continue to spearhead the expansion of these programs with increased vigor.

- The major increment of the GFATM financial input and expansion of the prevention and treatment programs were carried out in the last two to three years. This period is too short to assess the impact of a program. Hence, to assess the health impact of the GFATM financial input more accurately the undertakings in relation to the expansion of programs have to mature. Furthermore, similar evaluation should be repeated after three or more years.

6.2 Tuberculosis

The findings of this evaluation reveals that there are encouraging and promising progress, even though there are some weakness like incompleteness, inaccuracy, delay and/or absence in TBL and TB/HIV reporting of case finding and treatment outcome, lack of computerized recording and reporting system, weak feedback mechanism.

However, the pace at which TB services were expanded in the country over the last ten years is commendable and worth mentioning. TB DOTS coverage and accessibility of TB services shows clear improvement due to increase of funding by agencies like GFATM, WHO and others and commitments of the government on implementing TB control programme in the country according to the designed plan and strategy.

The findings of the impact evaluation, on the whole, indicate that if the pointed out weakness improved and the current national TB control strategies are more enhanced and alternative mechanisms for improved and intensified case finding are designed and implemented it is possible to achieve 85% treatment success and to increase the CDR to 70% as per the targets set by the country and WHO in the coming few years.

Recommendations

For further achievements in TB control we recommend the following:

- In the coming years focus must be made on improving the observed weakness by designing alternative mechanisms and strengthening TB control efforts for further success in all aspects and to achieve the goals set.
- Since rapid detection and cure of all infectious cases are the cornerstones of tuberculosis control programmes, attention should also be made to investigate and design better alternative mechanisms to detect 70% of new infectious tuberculosis cases and to cure 85% of those detected and to achieve the global targets for tuberculosis control.
- The findings of this evaluation demonstrates that with increasing availability of financial resource, tuberculosis control strategies and services coverage expand in the country in extremely encouraging pace. Nevertheless, in order to further accelerate the pace of improvement, to deal with challenges that emerged in the course of expansion and to achieve the target set for tuberculosis control, stepwise scale-up in financial resources is very essential.
- There is scarcity of population-based data on the prevalence and incidence of TB in Ethiopia. Fifteen years have passed since the nation-wide tuberculin survey was done. This warrants paying due attention and to plan to carry out nation-wide tuberculin survey.
- Furthermore, TB programme managers, policy makers and researchers need to analyze trends, challenges and opportunities on the ground and on time to design proper interventions within a local context.

6.3. Malaria

The evaluation findings demonstrate that the total annual funding for malaria prevention and control activities in Ethiopia prior to its receiving funding from the GFATM was very low but show marked increase in the five years after 2003.

This increased funding for malaria from the GFATM and other development partners had significantly helped the country to implement an accelerated scale up of ITNs and ACT distribution to beneficiaries; quelling the burden of malaria in the country.

Due to such intervention activities, worth mentioning improvements have been observed with regards to malaria prevention and control. The coverage of Insecticide Residual Spraying (IRS) for houses in malaria risk areas (altitude < 2000 m) of the country increased to 20% in 2007 from level of 17.3% in 2005.

Furthermore, the utilization of ITNs by children under five years of age and pregnant women has increased significantly in the past two to three years. As a result of such interventions of massive scale up of ITNs malaria morbidity is also declining in the country. However, in order to keep the momentum of the current achievement, adequate budget allocation by partners and the government for the malaria prevention and control should continue in the years to come.

Recommendations

Based on the findings we recommend the following:

- The malaria budget allocation by partners and the government, for malaria prevention and control should continue in the years to come to keep the momentum of the current achievement. Timely maintenance and replacement of ITNs is also crucial.
- As the level of ITNs utilization by mothers and under five children is low as compared to the coverage, ITNs use should be further strengthened.
- Use of anti-malarial drugs after the onset of fever is very low. Therefore it needs more awareness creation activity on the benefits of timely diagnosis and treatment.

6.4 Non-HIV/AIDS, tuberculosis and malaria health services

This study shows that poor, rural and uneducated women were less likely to use family planning, because they know less about family planning and modern methods were least accessible to them. In such condition, voluntary family planning programs with proven successful intervention is crucial to the health and wellbeing of women, and it is also a main component to the success of HIV/AIDS prevention, care and support programs.

Comparing this survey's result with both the 2000 and 2005 EDHS, it depicts a decreasing trend in prevalence of ARI in the two weeks preceding the survey and higher proportion were taken for treatment. However, the number of children with ARI who were taken to a health provider and treated with antibiotics is still low.

Similarly, comparing diarrhea related result of this survey with the 2000 and 2005 EDHS, far fewer prevalence of diarrhea present in the two weeks preceding the survey with a higher proportion that were taken for treatment, and proportion of giving ORS for children with diarrhea also increased. But, since less than half of children with diarrhea were taken to a health provider, and less than four in ten children with diarrhea were treated with Oral Re-hydration Therapy, the intervention in this

regard is still low.

When we compare the result of this survey with the 2000 and 2005 EDHS, coverage of BCG, DPT3, Polio 3, Measles and all basic vaccinations at any time before the survey give us a picture of an increasing trend. Although the survey result presents a significant improvement it is still in the lowest rate, yet only 23% of children in this survey were fully vaccinated.

Moreover, as indicated above, the findings of this evaluation reveals that women's utilization of health facilities for antenatal care in the five years preceding the 2008 survey is escalating in an encouraging fashion when compared to the previous survey, EDHS 2005. Significant proportions of women visits health facilities and received antenatal care and delivery assistance from health professionals during the pregnancy.

Generally, the increasing trend which we have seen in family planning, antenatal care usage and vaccination coverage may be the result of the decentralization of health services to the peripheral health units in Woredas and their accessibility as well as scale up of IEC about importance of family planning, vaccination and antenatal care utilization and possibly due to the increasing fund to fight HIV/AIDS, Tuberculosis and Malaria through GFATM and other funders, since escalation of funding will have an indirect effect on the provision of these and other routine health services in the country.

Recommendations

- All Ethiopian women should have access to relevant reproductive health information and resources so that it will help the country achieve the reproductive health related goals by realizing use of family planning and antenatal care.
- High impact intervention in family planning and antenatal care usage should be continued as services expand further in to rural areas, and full implementation of family planning logistics systems and a national community based reproductive health system should be strengthen.
- Child mortality increased due to children not receiving timely and appropriate treatment during illness, and hence, appropriate child health education should be strengthen at both health facility and community level, since it determines the long term health of child.
- Since ARI and Diarrhea are not always preventable; effective, affordable and accessible treatment options are necessary in order to maintain the health of children.
- Since Oral Re-hydration Therapy is a simple and inexpensive intervention to treat dehydration, an intensive health education should be given to be effectively used by poor, rural and uneducated mothers.
- Since continued improvement in vaccination coverage will have a great impact on reducing child morbidity and mortality, the available coverage in the country should be still improved.
- For poorest and rural households it should be given a special attention which enable them utilizing the near by health facility for their health care.

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