



Maternal Health Task Force



HARVARD SCHOOL OF PUBLIC HEALTH

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and Population

 **integreare**
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Health Extension Workers in Ethiopia

**Delivering community-based antenatal and
postnatal care**

OVERVIEW OF ETHIOPIA

The Federal Democratic Republic of Ethiopia is the most populous landlocked country in the world. Located in the horn of East Africa, Ethiopia is bordered by Eritrea, Djibouti, Somalia, Kenya, South Sudan, and Sudan. Its 96 million people live throughout Ethiopia's one million square kilometres of landmass, the majority in rural settings.¹

Figure 1: Map of Ethiopia^A



Ethiopia is divided administratively into nine ethnically-based states and two self-governing districts. Addis Ababa, located near the centre of the country, is its capital city. Each state is divided into woredas (counties), which are further divided into kebeles (cities/towns).

Historical and Political Context

Ethiopia is the oldest country in Africa and one of the oldest in the world, tracing its sovereign history back more than 2,000 years to the Aksumite Kingdom.¹ Ethiopia maintained its freedom from colonial forces with the exception of a brief Italian occupation from 1936–1941, making it unique among African countries. Ethiopia was a monarchy until 1974 when its last monarch, Emperor Haile Selassie, was overthrown by a military group known as the Derg. Ethiopia was then established as a socialist state and for many years faced coups, civil unrest, and widespread drought. The socialist regime was brought down in 1991 by the Ethiopia People's Revolutionary Democratic Front. Ethiopia ratified its first constitution in 1994 and held its first democratic election in 1995 during which Meles Zenawi was elected prime minister. Zenawi ruled until his death in 2012 when his deputy prime minister, Hailemariam Desalegn, stepped into the role, representing the first peaceful transition of power in decades.¹

Economy

With an economy largely based on agriculture, Ethiopia's major export crops are coffee, sugarcane, corn and vegetables. Ethiopia is one of the world's largest exporters of coffee. Agriculture in Ethiopia is primarily subsistence-based and the government owns all land, providing long-term leases to occupants.¹ The Ethiopian government is making a strong push to diversify production into other industries such as textiles, energy, and manufacturing.¹

While Ethiopia continues its economic development, around 30% of its population lives below the international poverty line (earning less than \$1.25 per day).² Ethiopia's GDP per capita growth rate between 1990–2012 was 3.2%,³ though the World Bank projects this growth to stagnate or decrease in the years to come.³

Demographics

In 2012, Ethiopia's human development index (HDI) ranked 173rd out of 187 countries and territories.⁴ Less than half (49%) of households have access to an improved water source, and almost one third are living below the international poverty line.

With a high fertility rate, Ethiopia's population is young and growing.⁵ The country ranks 14th in the world for population size and rate of growth.⁵ Mortality related to HIV/AIDS has been a major factor affecting population size and median age in recent decades as working-age adults have borne the brunt of the epidemic. Some key socioeconomic and demographic indicators are summarized in Table 1.

Status of Women

Women in Ethiopia have a longer life expectancy than men, living on average to age 65, while men live to 62 years of age.⁵ The adult mortality rate, measured as the probability of a 15-year-old dying before the age of 60 per 1,000 population, is higher for men (250) than for women (212).⁷ The adult literacy rate for women lags behind that of men, though is slightly higher for the younger generation aged 15–24.² School enrolment is approaching gender parity, such that boys and girls are attending almost equally. Primary school attendance ratios are 64.3% and 65.5% for boys and girls, respectively.² Attendance ratios by sex are almost equal at the secondary level as well, although fewer than one in six children are receiving a secondary education (15.7% of males and 15.6% of females).²

Women still occupy a lower socioeconomic status than men in Ethiopia and experience disproportionate rates of discrimination and violence. Out of 136 countries, Ethiopia ranks 118th on the Global Gender Gap Index; despite the gender equity in educational attendance, the country is 131st in equity of educational attainment, largely due to the extensive gap in literacy rate (29% for women and 49% for men).⁸ In a commitment to gender equality, the Ethiopian government issued a national

Table 1: Socioeconomic and demographic indicators

INDICATOR	ETHIOPIA
Population (millions) ⁵	91.73
Urban population (%) ²	17
Population under 15 (%) ²	43
Population median age (years) ⁵	17.93
Household size (mean) ⁶	4.6
Human Development Index (HDI) ⁴	0.396
Gross national income (GNI) per capita (US\$) ²	410
Gini coefficient ²	33.6
Population below international poverty line (%) ²	30.7
Primary school enrolment, net (% / % female) ²	64.5 / 51
Years of schooling, mean ⁴	8.7
Literacy rate, adults ≥15 (%) ³	39
Access to improved water source (% households) ³	49

policy on women in 1993 that granted equal rights to women in the country's constitution.⁹

HEALTH IN ETHIOPIA

Average life expectancy has increased significantly, from about 49 years in 1994 to 63 years in 2012.² Communicable diseases still cause the majority of deaths, representing 70% of the country's mortality burden.⁵ Ethiopia's total expenditure on health was 4.7% of their GDP in 2011.⁵ The government's investments in health through the development of health infrastructure and improvement of access to clean water sources and sanitation has kept Ethiopia's health status on an upward trend in recent decades. Key health indicators are summarized in Table 2.

Health system

The Ethiopian Federal Ministry of Health (FMOH) has made major strides over the last 15 years, investing heavily in building the country's health infrastructure. Significant political will has motivated the FMOH to achieve the Millennium Development Goals related to maternal and neonatal health by 2015.¹¹

Table 2: Health and epidemiologic indicators

INDICATOR	ETHIOPIA
Average life expectancy at birth (years) ²	63
Physicians (per 1,000 population) ²	0.3
Midwives, nurses, and doctors (per 1,000 population) ²	0.5
HIV prevalence, adults 15–49 (%) ⁵	1.3
Anti-retroviral therapy coverage in people with advanced HIV (%) ²	60
Anti-retroviral therapy coverage in pregnant women living with HIV (%) ¹⁰	38

The fourth iteration of the Health Sector Development Program (HSDP-IV), currently in place through 2015, focuses on making pregnancy safer by providing free maternal and child health services to its population, improving health infrastructure throughout the country, and enhancing the training of its primary health care workforce.¹¹

The health sector is organized into a three-tier system:¹¹

Level 1: Each catchment area within the Woreda District Health System includes a primary hospital which serves 60,000–100,000 people; health centres serving 15,000–25,000 people each; and kebele-level health posts, which serve 3,000–5,000 people).

Level 2: General referral hospitals in larger cities serve 1–1.5 million people each.

Level 3: Specialized hospitals serve a patient population of 3.5–5 million each.

The health sector is managed in a decentralised manner. Regional Health Bureaus oversee how care is delivered in each service area, adapting approaches as needed for reasons of geography or population density. There are just 1.9 hospital beds per 10,000 people in Ethiopia, which compares to an average of nine beds per 10,000 people for Sub-Saharan Africa and 27 beds per 10,000 people globally.¹¹

COMMUNITY-BASED CARE IN ETHIOPIA

The FMOH has invested heavily in developing a model for community-based primary care that is feasible and sustainable in low-resource settings. Ethiopia's Health Extension

Table 3: Health Extension Worker Training Packages

MAIN THEME	MODULES	TOPICS
Health education and communication	1	Health education
Hygiene and environmental sanitation	6	Personal hygiene, Healthy home environment, Food hygiene and safety measures, Water supply and safety measures, Solid and liquid waste disposal, Excreta disposal
Disease prevention and control	3	First aid emergency measures, Malaria prevention and control, HIV/AIDS & other STIs and TB prevention and control
Family health	5	Maternal and child health, Family planning, Immunization, Nutrition, Adolescent reproductive health

Worker (HEW) cadre, modelled after the country's successful agricultural extension worker programs, was launched in 2003. The HEW model was created under the principle that if "the right health knowledge and skill is transferred, households can take responsibility for producing and maintaining their own health."¹¹ Young women with at least a grade 10 education are recruited at the kebele and woreda levels to be trained as HEWs.¹² They receive one year of didactic and practical training in 16 health care packages (Table 3).¹³ Their primary charge is to promote health, including education, screening, prevention, and selective clinical interventions. HEWs are deployed in pairs, two for every kebele, and affiliated with each kebele's health post, part of the level one primary health care unit. HEWs receive mentoring and supervision from health officers stationed at the local health centre. The FMOH has also been developing a strategy for Continuous Professional Development.¹¹

By the end of HSDP-III in 2010, a total of 33,819 HEWs had been trained and deployed, reaching 89% of communities throughout Ethiopia.¹¹ The country is close to its service provision goal of one HEW per 2,500 people, currently hovering around 1: 2,544.¹¹

Maternal Health

The FMOH of Ethiopia is firmly committed to achieving Millennium Development Goal 5a, a reduction of maternal mortality of 75% from the 1990 levels by the year 2015. In 1990, Ethiopia's maternal mortality ratio (MMR) was 950 per 100,000 live births.¹⁴ In 2013, the country's MMR was 420 per 100,000 live births, translating into 13,000 maternal deaths annually (see Table 4).¹⁵ While this most recent measurement by the World Health Organization and partners represents a reduction of 56% since the country's 1990 MMR, there is far to go to reach the MDG. Women

in Ethiopia are dying from the five major direct causes of maternal mortality: postpartum haemorrhage, sepsis, eclampsia, obstructed labour, and unsafe abortion. Despite advances in the health system, rates of skilled attendance at birth remain very low at 10%. Several reasons are cited for the low uptake of maternal health services, particularly in facilities, including distance, lack of transportation, cost, poor quality of care, and women's lack of decision-making power.¹⁷

Working within this context and in a low resource setting, the Ethiopian FMOH has sought to improve access to emergency obstetric care in hospital settings and to move a substantial portion of primary care for pregnant women into the community setting. The FMOH's network of Health Extension Workers is responsible for identifying pregnant women within their catchment area, delivering antenatal care and connecting them with the formal health system in the event of elevated risk or complications. HEWs are also charged with following up with women during the postnatal period when care is critical for both mother and newborn.

COMMUNITY-BASED ANTENATAL CARE

Focused Antenatal Care (FANC) is the accepted model in Ethiopia. Women receive care from nearby health posts or the associated HEWs; since the inception of the Health Extension Programme (HEP), the proportion of health posts that are capable of providing antenatal care has increased to 83%.¹⁸ Developed through a multi-country research study in 2001 and adopted by the WHO in 2002, FANC promotes a four-visit antenatal schedule in contrast to the 16–18 visits suggested with traditional antenatal care. HEWs are trained to provide four focused antenatal care visits throughout a woman's pregnancy.¹⁹

Table 4: Maternal and child health indicators

INDICATOR	ETHIOPIA
Total fertility rate (live births per woman) ²	4.63
Maternal mortality ratio (per 100,000 live births) ²	420
Under-five mortality rate (per 1,000 live births) ²	68
Infant mortality rate (per 1,000 live births) ²	47
Neonatal mortality rate (per 1,000 live births) ²	29
Immunisation coverage, all basic, among 1-year-olds (%) ⁶	21.7
Contraceptive prevalence (% of married women 15–49) ⁵	28.6
Unmet need for family planning (%) ⁶	25.3
Age at first birth (median, women 25–49) ⁶	19.2
Antenatal care coverage, at least 1 visit / 4 visits ^a (%) ³	42.5 / 19.1
Births attended by skilled provider ^b (%) ²	10
Births in a health facility (%) ⁶	9.9
Birth weight <2500g (%) ³	20
Births by Caesarean section (%) ⁶	1.5
Postnatal care visit within 2 days of birth (%) ⁶	6.7

a: A skilled provider is defined by the WHO as a doctor, nurse or midwife trained in life-saving obstetric care, as well as in providing care during pregnancy, childbirth and the postpartum period.¹⁶

b: 'Skilled provider' is defined by the WHO as doctors, nurses or midwives trained in life saving obstetric care, as well as providing care during pregnancy, childbirth, and the postpartum period

First visit: After 16 weeks of pregnancy

Second visit: Between weeks 24–28

Third visit: Between weeks 30–32

Fourth visit: Between weeks 36–40

As the system is designed, a woman sees the same HEW for all four home visits. The HEW conducts a physical exam and evaluation at each visit, checking the mother's body and the growth of the foetus. HEWs use an integrated maternal and child care card to track antenatal care (see Appendix 1).¹⁹ FANC in Ethiopia promotes an integrated approach, using antenatal care as an opportunity to incorporate family planning, HIV testing and counselling, malaria prevention and nutrition. HEWs treat all pregnancies with the potential for risk, communicating with women and their families about the danger signs of complications so that there is shared responsibility for identification and action when needed. HEWs work with each woman to develop an individualised birth preparedness and complication readiness plan, involving the women's partner or support whenever possible. The same HEW is able to assist when it comes time to deliver. HEWs are trained in pre-referral clinical procedures such as starting intravenous fluids and catheterisation.¹¹ They are also trained in appropriate referral procedures and to accompany a woman to a health facility for delivery. After delivery, HEWs follow up with each woman for an initial postnatal care visit, ideally within four hours of delivery.²⁰ They are also trained to conduct follow-up postnatal visits at two days, six days, and six weeks.

MONITORING, EVALUATION, AND RESULTS

Antenatal care coverage, measured as the percentage of women receiving at least one ANC visit, has substantially increased in Ethiopia from 26.8% in 2000 to 42.5% in 2011. This gain is due in part to the development and deployment of the HEW cadre. In the Tigray region, a cross-sectional study found that 85% of women reported at least one ANC visit, and 48% had at least four visits. Almost half (44%) received their ANC from a HEW, indicating the importance of this cadre in improving access to care.²¹

While Tigray has seen improvements, countrywide increases in access to care have occurred more slowly; coverage for four or more ANC visits has increased but is still slow, up to 19% in 2011 from 10% in 2000.²² Similarly, antenatal care coverage has not yet translated into significant increases in the number of women delivering with a skilled birth attendant.²³ A cross-sectional study in the Tigray region found that while the majority of women in the area (54%) receive antenatal care, just 4.1% gave birth at a health facility. Of the women who delivered at home, only 6.8% were assisted by a HEW. Those women who did not seek an institutional delivery cited having an "easy labour" or "sudden onset of labour" as the reason.²³ Other studies have shown that while HEWs provide antenatal care and community follow up, they continue to have a limited scope in assisting births.^{12,24}

Questions remain about the knowledge and performance of the HEW cadre. Several independent studies have confirmed significant barriers cited both by HEWs themselves and by the populations they aim to serve, such as limited training opportunities for HEWs, poor working conditions at health posts, and limited supervision which reduce the HEWs' ability to provide effective focused antenatal care.^{12,21} On average, HEWs only assist in 5.8 births every six months, and only about 20% have received professional assistance from a midwife. HEWs mentioned that continuing education opportunities were poor, and suggested that behaviour change in the community could lead to a greater proportion of births at facilities.²¹

SCALABILITY AND SUSTAINABILITY

The Ethiopian FMOH is committed to bringing its Health Extension Programme to full-scale implementation across Ethiopia. Efforts are underway to enhance training and supportive supervision for Health Extension Workers as a means to both improve quality and promote retention. Additional support is needed to improve the promotion of family planning and specific maternal interventions, such as community-distribution of misoprostol for active management of third stage of labour, referral coordination, and immediate postpartum visits.¹²

The Ethiopian model has been designed so that it may be adopted for implementation by other countries. All training resources are available free of charge and adaptations for other contexts are encouraged.

INSIGHTS FROM THE HEALTH EXTENSION PROGRAMME

- **Continual education maintains quality.** Community health workers must have opportunities to keep up their skills and receive continual training in order to deliver quality care.
- **CHWs can save lives.** Community-based health worker cadres can deliver high-quality antenatal and postnatal care, promote institutional deliveries, and refer women to Skilled Birth Attendants, improving the health of the mothers and babies they serve.
- **Strong referral networks are key.** Helping women to reach health facilities quickly, and receive care promptly, is crucial. Without existing relationships between community-based workers and health facilities, any referral system will face difficulties.
- **Community-based care improves access.** Moving primary care services to the community level has enabled Ethiopia to reach more women by making their homes and villages the point of care.
- **Provider continuity builds women's trust.** Having women see the same provider for all antenatal care visits supports the development of a strong patient-provider relationship and increases the likelihood that a woman will deliver with a skilled birth attendant.
- **MDGs provide focus.** Ethiopia has launched an impressive effort, requiring and supported by great political will and intensive resource allocation, to improve maternal and neonatal health to achieve MDGs4 and 5. Health sector planning beyond the 2015 deadline will require the same level of investment.

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Appendix 1. Antenatal Care Card from the Ethiopian Federal Ministry of Health's 'Integrated Maternal and Child Care Card'.²⁶

Mother's Name:		DOB: / /		ID:		
General Condition		Pregnancy follow up				
Gravidity		Visits	1st	2nd	3rd	4th
Parity		Date of Visit	/ /	/ /	/ /	/ /
LMP (last menstrual period)	__ / __ / __	GA				
EDD (expected date of delivery)	__ / __ / __	BP				
Referred for STI testing ()	HIV test result R / NR / I	Weight				
Referred for HIV testing ()		FHB (fetal heart beat)				
		Anaemia/ Oedema				
Obstetric history		Sign/symptom of illness				
1. Previous stillbirth or neonatal loss? N/Y		Action taken				
2. History of 3 or more consecutive spontaneous abortions? N/Y						
3. Birth weight of last baby < 2500g N/Y						
4. Birth weight of last baby > 4000g N/Y						
5. Hospitalization for hypertension or pre-eclampsia/eclampsia? N/Y						
6. Previous C/S (caesarean surgery) N/Y						
Current pregnancy						
7. Age less than 16 years? N/Y		Folic acid				
8. Age more than 40 years? N/Y		Mebendazol				
9. Vaginal bleeding? N/Y		Birth Preparedness				
10. Diastolic blood pressure 90mm Hg or more at booking? N/Y		Plan for Delivery place				
		Plan for Birth attendant				
General medical history		Plan for check up one week after birth				
11. Diabetes mellitus? N/Y		Saving of birth cost				
12. Renal (kidney) disease? N/Y		For Delivery:				
13. Cardiac (heart) disease? N/Y		Plan for transportation				
14. Known substance abuse? N/Y		Contact person in case of emergency				
15. Any other severe medical disease or condition like malaria, TB, HIV? N/Y						
Remarks		Intended plan done? (If not why?)				

Mebendazol is a drug used to treat hookworm infestation

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