

Health Extension Workers in Ethiopia: Improved Access and Coverage for the Rural Poor

Nejmudin Kedir Bilal, Christopher H. Herbst, Feng Zhao, Agnes Soucat, and Christophe Lemiere

Health systems in Sub-Saharan African countries often suffer from weak infrastructure, lack of human resources, and poor supply chain management systems. Access to health services is particularly low in rural areas, where the majority of the population still lives. The few private outlets that are available usually favor urban or wealthy areas. Together with an uneven distribution of health workers, this pattern often results in little availability and poor quality of health services in rural areas.

Ethiopians' access to services was particularly low before the government came up with innovative ways of scaling up the delivery of essential health interventions, in particular through its Health Extension Program (HEP). The HEP was designed and implemented in recognition of the fact that the major factor underlying poor health services in Ethiopia is the lack of empowerment of households and communities to promote health and prevent disease. This chapter reviews Ethiopia's experience in producing and deploying health extension workers and summarizes some of the key factors that made the program a success.¹

THE PROBLEM: SHORTAGE OF HEALTH CARE PROVIDERS IN RURAL AREAS

With a population of 80 million people, Ethiopia is the second-most populous country in Africa. Throughout the 1990s poor nutritional status, infections, and a high fertility

rate, together with poor access to basic health services, contributed to one of the highest maternal and child mortality ratios in the world. Moreover, their use of available health facilities was low. In 2005 almost all births took place at home, with only 6 percent of women delivering in a clinic or hospital (CSA and Macro International 2005). Major causes of morbidity and mortality for children under age five were preventable. Extrapolations from the 2005 Demographic and Health Survey showed malnutrition to be the underlying cause of more than half of deaths of children under five (CSA and MACRO International 2005). In 2005 only 1 percent of households owned a bed net, of which less than 18 percent were insecticide treated.

The brunt of poor health falls on the rural poor, most of whom live out of reach of health providers. In 2005 only 40 percent of the population lived within 10 kilometers of a clinic or other health service delivery point. The number of trained health workers has historically been inadequate in Ethiopia, with shortages of almost all cadres of workers, particularly in rural areas. Throughout the early 1990s, universities and health professional training colleges focused on clinically oriented training rather than on more relevant rural-oriented community health training. Although more than 85 percent of the population lives in these rural areas, doctors and nurses preferred to work in urban hospital settings, where professional opportunities were better.

ADDRESSING THE PROBLEM: THE HEALTH EXTENSION PROGRAM

To address these problems, Ethiopia launched the HEP in 2003. The program's objectives were to reach the poor and deliver preventive and basic curative high-impact interventions to all of the Ethiopian population. The HEP is an ambitious government-led community health service delivery program designed to improve access to and utilization of preventive, wellness, and basic curative services.

At the heart of this program is the production and deployment of more than 30,000 front-line community health workers. These health extension workers are posted to rural communities across Ethiopia, where they provide better and more equitable access to health services for the poor, women, and children in a sustainable manner (Assefa et al. 2010; Ghebreyesus 2010). The program focuses on four major areas and provides 17 different packages to reach the poor and address inequities (table 24.1).

Training and deployment of health extension workers

Since 2003 the HEP has been rolled out step by step to reach full coverage of all rural villages by the end of 2010 (table 24.2; figure 24.1). As a result of the program, the ratio of health extension workers to people increased from 1: 23,775 in 2004/05 to 1: 2,437 in 2008/09.

Health extension workers are recruited from the communities in which they will work according to specific criteria: they are female (except in pastoralist areas), at least 18 years old, have at least a 10th grade education, and speak the local language. Females are selected because most of the HEP packages relate to issues affecting mothers and children; thus communication is thought to be easier between mothers

and female health extension workers and female workers are thought to be more culturally acceptable. In addition, their selection is seen as empowering women. Selection is done by a committee made up of members nominated by the local community and representatives from the district (*woreda*) health office, the district capacity building office, and the district education office (FMOH 2007b). Upon completion of training, pairs of health extension workers are assigned as salaried government employees to *kebeles* (neighborhoods), where they staff health posts and work directly with individual households. Each *kebele* has a health post that serves 5,000 people and functions as an operational center for a health extension worker. Five health posts and a health center work in collaboration and for the Primary Health Care Unit (PHCU) that serves 25,000 people. The health center serves as a referral center and logistic hub for a health post and also offers technical support. The health post is under the supervision of the district health office and the *kebele* administration and receives technical and practical support from the nearby health center.

Health extension workers are trained to manage operations of health posts; conduct home visits and outreach services to promote preventive health actions; refer cases to health centers and follow up on referrals; identify, train, and collaborate with voluntary community health workers; and provide reports to district health offices.

Upon assignment, health extension workers conduct a baseline survey of the village, using a standardized tool. They map households and the population by age category. They also prioritize health problems of the village, set targets with respect to the 17 packages of services, and draft a plan of action for the year. The draft plan of action is then submitted to the village council and approved. The plans are

Table 24.1 Major Areas and Packages of Health Extension Program

Hygiene and environmental sanitation	Disease prevention and control	Family health services	Health education and communication
1. Proper and safe excreta disposal system	1. Prevention and control of HIV/AIDS	1. Maternal and child health	1. Health education and communication
2. Proper and safe solid and liquid waste management	2. Prevention and control of tuberculosis	2. Family planning	
3. Water supply safety measures	3. Prevention and control of malaria	3. Immunization	
4. Food hygiene and safety measures	4. First aid	4. Adolescent reproductive health	
5. Healthy home environment		5. Nutrition	
6. Arthropod and rodent control			
7. Personal hygiene			

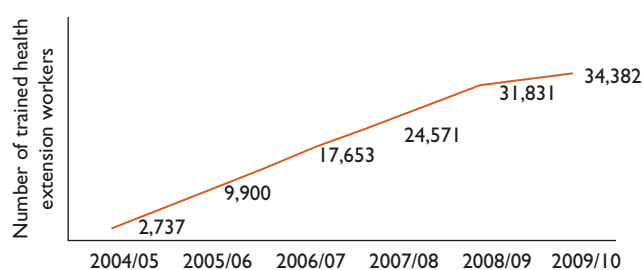
Source: FMOH 2005.

Table 24.2 Number of Health Extension Workers Trained and Deployed in Ethiopia, by Region, 2005/06–2009/10

Region	2005/06	2006/07	2007/08	2008/09	2009/10	Total
Afar	0	0	164	148	196	572
Amhara	3,500	2,631	680	382	330	7,342
B. Gumuz	0	59	120	315	403	924
Dire Dawa	0	33	0	0	63	142
Gambella	0	47	0	410	0	457
Harari	0	0	0	0	8	47
Oromia	1,296	3,524	2,884	4,526	524	13,487
SNNPR	1,500	2,666	2,650	800	627	8,542
Somali	0	0	420	545	327	1,427
Tigray	840	0	0	134	73	1,442
National	7,136	8,960	6,918	7,260	2,551	34,382

Source: FMOH 2009.

Figure 24.1 Number of Health Extension Workers Deployed, 2004/05–2009/10



Source: HSDP Annual Performance Report 2009/2010.

also disseminated to the district and regional councils and health offices.

The basic philosophy of the HEP is to transfer ownership of and responsibility for maintaining their own health to individual households by transferring health knowledge and skills to households. Health extension workers spend 75 percent of their time visiting families in their homes and performing outreach activities in the community. The house-to-house activity starts by identifying households to serve as role models. These households have earned the respect and credibility of the community because of their extraordinary performance in other social aspects, such as agricultural production. They are willing to change and, upon completion of the training, are able to persuade and convince other households to follow appropriate health practices. The model households are considered early adopters of health practices in line with health extension packages. They help diffuse health messages, leading to the adoption of the desired practices and behaviors by the rest of the community.

Two health extension workers are expected to train 360 model households a year. The training lasts 96 hours, after which the household “graduates” receive a certificate as

recognition. Health extension workers also work with communities through traditional associations, such as *idir* (community-level volunteer organizations that collect money on a regular basis to cover funeral costs and give some money to the family of the deceased), *mehaber* (professional and religious organizations), *ekub* (a scheme in which people regularly contribute money, which at a specified time is given to one group member; this process is repeated until all members receive a contribution), schools, women’s associations, and youth associations. These institutions help communicate health messages and mobilize the community to help with environmental cleanup, health post construction, and other efforts.

The health extension workers’ remaining time is spent providing services, including immunizations and injectable contraceptives, at the health posts. They are trained to provide first aid; conduct safe and clean deliveries; diagnose and treat malaria, diarrhea, and intestinal parasites. In 2010 the government added the diagnosis and treatment of pneumonia to the HEP, following an evidence-based analysis of the potential impact of different packages of high-impact interventions. The addition represents a significant step toward tackling a primary cause of child mortality.

Health extension workers also participate in local politics and are part of the multisectoral local decision-making process. One of the two health extension workers in a village sits on the village council, along with an elected village chairman, a teacher, an agricultural development agent, and a community representative. The council is the political administration of the village that serves to prioritize the work of the HEP, provide support to health extension workers, and review their regular performance reports.

Various institutions have well-defined roles in supporting the work of health extension workers once they are deployed. The Federal Ministry of Health provides medical equipment and supplies, such as vaccines, cold

chain equipment, contraceptives, and insecticide-treated bednets. Regional health bureaus and district health offices pay the salaries of the health extension workers and provide technical support and political leadership. Health centers play a crucial role in providing referral care and technical and practical support. In addition, volunteer community health workers work closely with health extension staff.

Impact of the intervention

More than 9 million households in Ethiopia (some 63 percent of all households) have completed their training on the 17 packages of the HEP. Training and “graduation” of households is an output indicator for monitoring the performance of health extension workers (table 24.3).

Health conditions, including the proportion of households with access to sanitation, improved disproportionately in HEP villages. A case control study conducted in HEP and non-HEP villages between 2005 and 2007 indicated that the proportion of households with access to improved sanitation reached 76 percent in the intervention villages (from 39 percent at baseline). In contrast, access to improved sanitation in the control villages increased from 27 percent at baseline to just 36 percent during the follow-up survey period (Center for National Health Development in Ethiopia 2008.) Awareness of HIV/AIDS also improved, with the level of knowledge of condoms as a means of

preventing HIV increasing by 78 percent in HEP villages and 46 in control villages.

Vaccination coverage improved significantly. A study by Admassiea, Abebaw, and Woldemichael (2009) finds that a significantly larger proportion of children in villages where health extension workers were deployed were vaccinated against diphtheria, polio, and tetanus (DPT); measles; polio; tuberculosis; and main antigens. A study by the Center for National Health Services indicates that more than 96 percent of health posts in the three largest regions of the country provide immunization services. A routine report from the Ministry of Health indicates that child vaccination is increasing in Ethiopia: by June 2010, 86 percent of children had received Penta 3/DPT 3 vaccine, 82 percent had received measles vaccine, and 62 percent had been fully immunized (FMOH 2010a), an average annual increase in the number of fully immunized children of 15 percent since 2006. A household survey in the four largest regions finds that 64 percent of children received Penta 3 and 68 percent of children 12–23 months had been vaccinated against measles, one of the indicators in the Millennium Development Goals (MDGs) (The Last Ten Kilometers Project 2009). Although the routine report and the household survey differ in terms of immunization coverage, both results indicate significant improvement.

Coverage of maternal health services also improved: 85 percent of health posts could provide family planning services, 83 percent could provide antenatal care, 59 percent could perform clean deliveries, and 47 percent could provide postnatal care (Center for National Health Services 2007). Health posts had also become the major source for current users of contraceptives, as reported by about 60 percent of women from the four largest regions; 22 percent of women cited health centers. A household survey conducted by the Last Ten Kilometers Project in the four largest regions documents that 32 percent of married women were practicing family planning; about 54 percent of these women received antenatal care services and 20 percent received focused antenatal care (four or more visits). Some 42 percent of women received at least two doses of *Tetanus Toxoid* vaccine (TTII), and 54 percent were inoculated against tetanus. The increase in the use of any contraceptive method among currently married women was also higher in HEP villages (where it rose from 31 percent to 46 percent) than in control villages (where it rose from 30 percent to 34 percent).

Ethiopia has made significant efforts in expanding coverage of key malaria interventions. Major scale-up efforts began in 2004/05, with the introduction of artemisinin-based

Table 24.3 Number of Households “Graduating” from the HEP, as of June 2010

Region	Number of households eligible, as of September 2009	Number of households “graduating,” as of June 2010	Coverage (percent)
Addis Ababa	0	n.a.	0
Afar	258,572	130	0
Amhara	4,209,129	2,508,472	63
Benishangul			
Gumuz	158,156	15,604	10
Dire Dawa	80,041	2,400	9
Gambella	72,304	–	0
Harari	49,488	2,159	11
Oromia	6,011,967	4,300,287	72
SNNP	3,272,573	2,417,012	74
Somali	708,028	30,490	17
Tigray	1,030,199	703,152	66
National	15,850,457	9,072,040	63

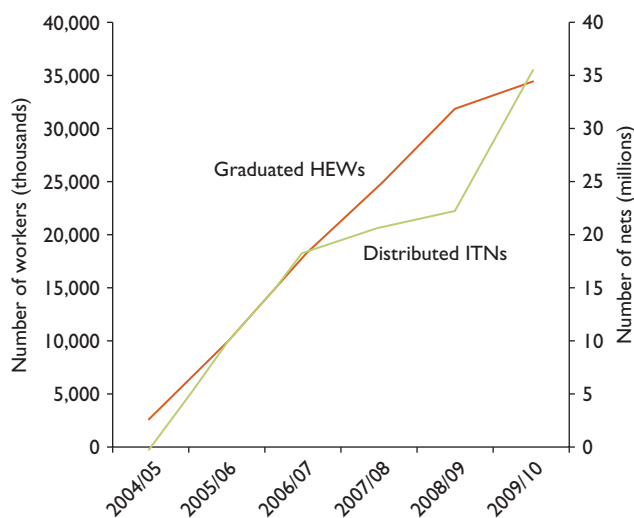
Source: FMOH 2010a.

Note: n.a. = Not applicable. – = Not available.

combination therapy (ACT) as the first line of treatment, expanded use of rapid diagnostic tests, and enhanced vector control and prevention through the wide distribution of long-lasting insecticide-treated nets coupled with targeted indoor residual spraying. Coverage with insecticide-treated nets has increased significantly since 2004/05 (figure 24.2). The 2007 Malaria Indicator Survey documents that overall coverage increased by a factor of 15 between 2004/05 and 2009/10, with 68 percent of households in malaria-affected areas protected by at least one net or indoor residual spraying. Use of insecticide-treated nets by children under five and pregnant women increased to nearly 45 percent in malaria-affected areas and to more than 60 percent in households that owned at least one net (FMOH 2007a). A case control study indicates that from roughly similar levels of coverage at baseline, ownership of nets increased more in HEP villages (87 percent) than in control villages (62 percent) during the follow-up period (Center for National Health Development in Ethiopia 2008). With this momentum, reaching universal coverage appears feasible.

Residents in HEP and control villages showed a marked difference in seeking treatment for malaria. In HEP villages, about 53 percent of patients with fever or malaria sought treatment with antimalaria drugs the day of or the day after the onset of symptoms. In control villages, only 20 percent of patients sought treatment under similar conditions. The baseline values were 33 percent and 26 percent.

Figure 24.2 Number of Health Extension Workers and Number of Insecticide-Treated Nets Distributed in Ethiopia, 2004/05–2009/10



Source: FMOH 2010a.

A report published in 2009 indicates that in-patient malaria cases fell by 73 percent and deaths in children under five fell by 62 percent (Otten and others 2009). Another study reports a 48 percent reduction in morbidity, a 54 percent reduction in admission, and a 55 percent reduction in mortality related to malaria.

In contrast to the progress made fighting malaria, post-natal care and assisted delivery coverage remain low. The recently completed third round of the HEP evaluation shows that less than 10 percent of women in Ethiopia receive postnatal care. Despite some improvements, many of them associated with the increased availability of health extension workers, more than 90 percent of women still give birth at home (Last Ten Kilometer Project 2009). The main underlying factor for the low rate of attended births is the low skill levels of health extension workers in assisting deliveries and to some extent the cultural barriers to delivering at a modern health facility (FMOH 2009). To deal with the problem, in 2009 HEP provided practical training to 5,000 health extension workers on performing clean and safe deliveries.

ELEMENTS OF SUCCESS FOR HEP

Several factors contributed to the success of the HEP. This section examines these factors.

Government leadership and political commitment

Ethiopia's national health policy and strategies clearly indicate that accelerated training of human resources for health and expansion of infrastructure and supplies are the priority vehicles for achieving the health MDGs. The national Health Sector Development Plan is a mechanism for translating Ethiopia's health policy into action. It serves as a guidebook for all stakeholders regarding priorities and operation modalities in the health sector.

Ethiopia's health policy focuses on providing quality promotive, preventive, and basic curative health care services in an accessible and equitable manner to reach all segments of the population, with special attention to mothers and children. The policy emphasizes establishing an effective and responsive health delivery system for rural residents.

The health strategy indicates the need for an adequate number of midwives and other required staff in order to tackle the leading causes of neonatal and maternal mortality. The Health Sector Strategic Plan III (HSDP-III) set a target of training and deploying 30,000 health extension workers at the community level and 5,000 health officers at health

centers and primary hospitals to address both the preventive and curative aspects of morbidity and mortality.

The HEP features at the top of the agenda of health sector leaders at all levels of the health system and in their discussions with stakeholders. In the bimonthly meeting of the Federal Ministry of Health (FMOH) with development partners—known as the Joint Consultative Forum (JCF) between the Ministry of Health and development partners—issues related to these priority areas are at the top of the agenda. The forum also regularly reviews the status of implementation of priorities and collectively tackles challenges.

The other important governance structure is the bimonthly meeting of the FMOH and the regional health bureaus. The meeting is chaired by the minister of health and includes the heads of the bureaus and the agencies and departments in the Ministry of Health. The main purpose of this steering committee is to align federal and regional stakeholders around priorities, review progress, identify challenges, share best practices, and agree on mitigation measures and actions. The HEP always comes at the top of the agenda of the steering committee. The priorities also appear as key messages in the opening remarks made by leaders and officials from the minister of health to district health officers during health sector–related meetings.

The key principle underpinning the scaling up of the HEP was ensuring ownership by the local community for meaningful and sustainable change. Local governments at the village and district levels, together with community representatives, formed a committee that selects candidate health extension workers for training based on nationally agreed upon criteria. Local communities also contribute to the construction of health posts, by providing construction materials and labor. One of the two health extension workers sits on the village council, which discusses the performance and challenges facing HEP and provides support to mitigate challenges on a regular basis. For the construction of health centers, local governments were given the authority to choose the site of construction so that it is within walking distance to about 25,000 people.

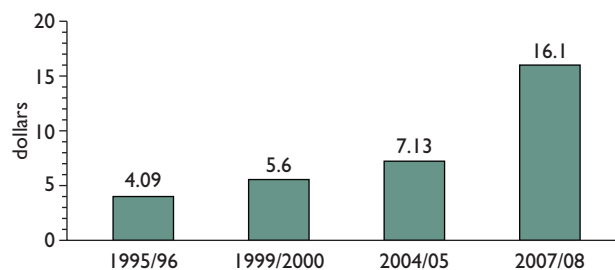
Effective intersectoral collaboration has been demonstrated in the last few years. Scaling up of health extension workers and health officers would not have happened had it not been for the strong collaboration between the Ministry of Health and the Ministry of Education, which provided the technical and vocational educational training (TVET) and resources, including teachers. Strong collaboration with the Ministry of Works and Urban Development (MWUD) and its offices at the subnational level facilitated the construction

of more than 2,500 health centers. MWUD’s support in providing contractors, supervision, and quality assurance of construction has been one of the key critical success factors in this area.

The most important success factor has been the increase in expenditure allocated to implement the HEP (figure 24.3). Total per capita health expenditure in Ethiopia was \$7.13 per capita in 2005 (FMOH 2005), 28 percent of it borne by the government. The MDG needs assessment conducted in 2004 recommended an additional \$3.48 per capita per year on average over the period 2005–15 from all sources, peaking at \$4.55 per capita in 2015 just for scaling up the HEP. To meet this guideline, the government committed to at least double its share of health expenditure over the life of HSDP-III (2005–10). By 2008 total health expenditure had reached \$16.10 per capita, following an increase in government expenditure to health of 77 percent over three years, indicating that the government is on track to fulfill its commitment over five years (FMOH/Abt 2010).

In addition to increasing expenditure, the federal government negotiated with the regional governments to share the cost of implementing the national health strategy. Roles and responsibilities were clarified and agreed upon by the FMOH and the subnational health authorities (FMOH 2009). Local governments (regions, zones, and districts) took responsibility for covering the full cost of constructing health posts, partially covering the cost of construction of health centers (\$230 million), and fully covering the salaries of health extension workers and health officers (\$143 million) over five years. The government supports these activities, through a commitment of Br 275 million (about \$21 million) a year for the salaries of health extension workers. The agreement defining the roles of different levels of the health system in scaling up health interventions is signed by the minister of health and the heads of the 11 regional

Figure 24.3 Total Health Expenditure in Ethiopia, 1995/96–2007/08



Source: FMOH/Abt Associates 2010.

health bureaus each year at the annual review conference. This system set a model for using development partner funds as a catalytic fund to provide incentives to different levels of health authorities to allocate more resources to agreed-upon priorities in the health sector.

Multifaceted, systemwide approach

A multipronged strategy that would address systemic weaknesses was at the heart of the development of the HEP. Simply increasing the number of health extension workers was not viewed as likely to be effective in isolation. The increase had to be implemented together with improvements in other system requirements.

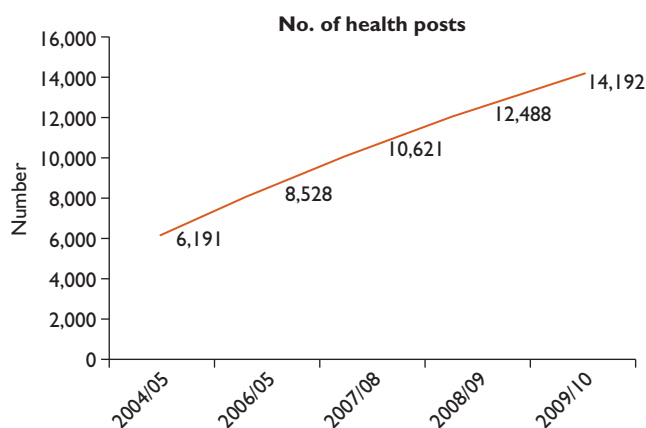
One important factor in the success of the HEP in rural areas was the strategic commitment of regions and districts to address complementary and supportive factors, including the availability of other health cadres; the availability of health infrastructure (health posts and health centers) together with adequate supplies of equipment and pharmaceuticals; and health information systems. All of these strategic elements have been addressed, with various degrees of success.

INFRASTRUCTURE. One of the components of the sector strategy was the construction and rehabilitation of health facilities. The number of health posts staffed by health extension workers increased from 6,191 in 2004 to 14,192 in 2010 (FMOH 2009) (figure 24.4). Funds were secured from development partners to equip all health posts. As of 2009, health posts were present in 70 percent of the *kebeles* of Ethiopia's four largest regions (Last Ten Kilometer Project 2009).

As of 2007 about 94 percent of villages had health posts built by the local communities or the government (Center for National Health Development in Ethiopia 2007). The majority of these health posts were equipped with basic furniture. However, access to other important services (clean water, electricity, telephone, and means of transportation) was generally low in all regions.

MEDICAL CADRES FOR SUPERVISION, SUPPORT, AND REFERRAL OF HEALTH EXTENSION WORKERS. The training of health extension workers was part of a larger government effort to increase the number, distribution, and performance of health workers. Over the past few years, there has been a significant increase in the intake and output of health training colleges and universities for other categories of health workers (table 24.4). The output of nurses has

Figure 24.4 Cumulative Number of Health Posts Constructed in Ethiopia, EFY 2004–09



Source: FMOH 2009.

Table 24.4 Ratio of Health Human Resources in Public Sector to People in Ethiopia, 2001/02–2008/09

Category	2001/2002	2004/2005	2008/2009
All physicians	1:35,603	1:35,604	1: 34,986
General practitioners	1: 54,385	1:58,203	1:76,302
Health officers	1:138,884	1:104,050	1: 20,638
Nurses (excluding midwives), BSc and diploma	1:5,613	1: 4,980	1: 4,895
Midwives (senior)	1:77,981	1: 55,782	1: 57,354
Health extension workers	n.a.	1: 23,775	1: 2,437

Source: FMOH.

Note: n.a. = Not applicable.

increased, boosted by the proliferation of private training institutes. The number of universities involved in training of medical doctors also increased, from three to six, over a decade, raising the average annual output of doctors from 90 to 350. One of the most significant achievements of these universities was the production of cadres with intermediate skill mixes adapted to the Ethiopian context.

In 2005 the government began preparing a new midlevel health cadre called health officers. Health officers provide most of the curative care services at the first level of clinical services (health center) level. The program was launched with the financial support of the U.S. Agency for International Development and the technical support of the Carter Center. A network of 5 universities (Jimma, Haramaya, Hawassa, Mekelle, and Gondar) and 21 hospitals in

7 regions was strengthened to provide theoretical and practical training to trainees. The accelerated training of health officers lasts five years, including three years at university and two years in training hospitals. After completion of their training, health officers are supposed to provide support to the HEP by working in health centers with other health team members in providing curative, preventive, promotive, and rehabilitative health care. Their duties include the following:

- Assess community health needs
- Plan, implement, and evaluate activities and resources of the primary health care unit
- Collect, organize, and analyze health and health-related data from health institutions, communities, and other relevant areas and use and disseminate the information to the community and other concerned bodies
- Conduct and provide on-the-job training to the staff of the primary health care unit and to community health workers
- Provide comprehensive outpatient care and in-patient services
- Perform minor surgical procedures
- Refer difficult cases and follow up on return to ensure continuity of care
- Mobilize individuals, families, and communities for health action
- Promote and be engaged in intersectoral activities
- Undertake essential and operational health research
- Document and report all primary health care unit activities
- Oversee the equity and efficiency of health services

Public health officers can go on to become physicians or public health specialists, or they can pursue master's level training on emergency surgery.

The health officers program has more than tripled the uptake and production of health officers training in Ethiopia (see table 24.4). More than 5,500 health officer students have entered the training program. By August 2010, 3,871 (71 percent) of the overall target had graduated.

An independent study of graduating students (Carter Center 2009) reveals the following:

- 90–97 percent feel prepared to diagnose and manage or refer common adulthood infectious diseases and common chronic illnesses.
- 80–90 percent feel prepared to diagnose, manage, or refer surgical emergencies (acute abdominal problems) and

perform minor surgical procedures (wound and trauma management).

- 80–95 percent feel confident to provide antenatal and postnatal care and to diagnose and manage or refer normal labor and common gynecologic problems.
- 55–65 percent feel confident to perform common obstetric and gynecologic procedures, such as manual removal of placenta, instrumental delivery (vacuum), safe abortion, and postabortion care. The low level of confidence is attributable mainly to inadequate on-the-job training caused by a shortage of obstetricians, surgeons, and surgical equipment and supplies.

ACCOUNTABILITY STRUCTURE FOR HEALTH EXTENSION WORKERS. A supportive accountability mechanism was established to support health extension workers. Supervisors were trained and deployed in 3,200 health centers. Each supervisor supports 10 health extension workers in 5 satellite health posts, which together form a primary health care unit. An independent survey indicates that two-thirds of the health posts were supervised during the three months preceding the survey and that 75 percent of these health posts received feedback from supervisors (Carter Center 2009).

ADEQUATE SUPPLIES AND EQUIPMENT. Ensuring continuous logistics supply—equipment, contraceptives, vaccines, insecticide-treated nets, delivery kits, and so forth—is a crucial area of support to health extension workers. At the federal level, FMOH engaged in a continuous dialogue with development partners to improve aid effectiveness by supporting priorities (such as the HEP) and improving harmonization and alignment to reduce transaction costs. Two pooled fund arrangements, Protection of Basic Services and the MDG Performance Fund, were established and made functional at the federal level. The establishment of these funds contributed significantly to financing the procurement of contraceptives, vaccines, insecticide-treated nets, and equipment. In addition, funds from global health initiatives, particularly the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) and the Global Alliance for Vaccines and Immunisation (GAVI), contributed to the financing and procurement of equipment and pharmaceutical supplies as part of their support to health system strengthening.

Ensuring timely and continuous logistic supply requires an efficient procurement and distribution system. Building such a system takes time. Ethiopia had to come up with a quick transitional mechanism while building sustainable capacity of the health sector in supply chain management

through the implementation of the logistic master plan. One mechanism it adopted to do so was the use of development partners with comparative advantage in procurement and distribution of commodities to the health posts. FMOH negotiated with UNICEF and the United Nations Population Fund (UNFPA) for the procurement and distribution of vaccines, cold chain equipment, insecticide-treated nets, contraceptives, and health post kits. This partnership provided a remarkable short-term solution to the logistic challenges associated with the HEP.

INFORMATION SYSTEMS. Information systems that facilitate the collection, analysis, use, and dissemination of data were perceived as significantly improving the support provided to the HEP as well as the quality and relevance of the HEP to beneficiary communities. Accordingly, the FMOH designed a robust, simplified, and standardized health management information system contextualized to the Ethiopian setting. Family folders were developed based on the 17 packages of health interventions, and health extension workers and HEP supervisors were trained on the system's application and use. Each household has a family folder that records the status of its members (for family planning, antenatal care, expanded program of immunization, and so forth) and the household in general (ownership and use of a latrine, clean water supply and use, waste disposal, and so forth) in terms of completing the desired changes indicated in the HEP. The Ministry of Health is printing family folders to make sure that all households in Ethiopia have a formal medical record.

Innovative training strategy

Training more than 30,000 health extension workers could not have been done through traditional means. Innovative approaches were applied through the use of existing TVET for theoretical training and health centers for practical training. FMOH provided training materials; regional health bureaus provided the stipend and transportation services for the students.

Health extension workers must complete a 12-month course of theoretical and field training. One-quarter of the period is allocated to theoretical teaching at TVET institutions; three-quarters of the period is spent in a practicum in the community. The average monthly cost of the program per health extension worker was about \$234 for training, \$178 for apprenticeships, and \$83 for salaries.

The TVET institutions are run by the Ministry of Education. The number of institutions involved in the training of

health extension workers grew every year, reaching 36 by 2007. The same year, 140 TVET tutors were given trainers instruction in HEP teaching methodology as well as an integrated refresher training course. Appropriate education materials were developed, printed, and distributed to the TVET institutions.

Mobilizing financial support from development partners

The progressive increase in domestic resource allocation to priorities was key to ensuring sustainability. With regard to the HEP, an agreement was reached between FMOH and regional health bureaus under which the ministry mobilizes funds from development partners to provide support to the TVET institutions for printing the HEP training manuals and tools and for procuring and distributing medical equipment, insecticide-treated nets, contraceptives, and other supplies; subnational governments allocate domestic resources for stipends to health extension workers during training, pay their full salary on deployment, and cover the costs of building the health posts.

FMOH mobilized resources from development partners to provide teaching materials, transportation services, and other relevant supplies for the accelerated training of health officers. To put in place 3,200 health centers by the end of 2010, the regional health bureaus agreed that subnational authorities would construct one matching health center for every health center the FMOH constructed using donor funds. As part of this agreement, FMOH covers the required medical equipment while the regional health bureaus cover the cost of furnishing the centers.

Significant support was mobilized from various development partners to support the new initiatives. GFATM and GAVI provided financial support for the construction of 512 health centers and procurement of medical equipment for 7,340 health posts and 300 health centers (table 24.5). Development partners that contributed to the Protection of Basic Services program—the World Bank, the United Kingdom's Department for International Development (DFID)], RNE, Irish Aid, Canadian International Development Association (CIDA), Italian Cooperation—also provided support for the procurement of medical equipment for 2,295 health centers and 7,000 health posts, contraceptives worth \$37 million, essential drugs worth \$10 million, and insecticide-treated nets worth \$7.9 million. These contributions helped provide the required inputs to maintain HEP basic services.

Table 24.5 Support from Development Partners in Key Areas of Scaling Up of Health Interventions, 2006–2010

Development partner/area	Support (millions of dollars)
<i>Global Alliance for Vaccines and Immunisation (GAVI)</i>	
Health center construction (212)	25.8
Health center equipment (300)	6.8
Health post equipment (7,340)	20
Subtotal	52.6
<i>Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)</i>	
Health center construction (300)	55.4
<i>Protection of Basic Services I and II (World Bank, DFID, RNE, Irish Aid, Canadian CIDA, Italian Cooperation)</i>	
Health center equipment (1,999)	31.2
Health post equipment (7,000)	5.6
Contraceptives	43.6
Insecticide-treated nets	31.6
Vaccines and cold chain equipment	9.8
Artemisinin-based combination therapy (ACT)	2.4
Essential drugs	18.5
Subtotal	142.7
<i>MDG Performance Fund</i>	
Health center construction	15
Health management Information system printing	6.5
Contraceptives	3.1
Vaccines	5
Advocacy and training	2.3
Insecticide-treated nets	4.8
Subtotal	36.7
<i>USAID</i>	
Accelerated training of health officer (5 universities and 21 teaching hospitals)	11.8
Total	287.4

Source: Authors' compilation, based on data from FMOH and Financial Resource Mobilization Directorate.

In addition to their own financial support, UNICEF and UNFPA helped in the bulk procurement and distribution of health commodities to the service delivery points by using the funds provided by the Global Fund, GAVI, the World Bank protection of basic services (PBS), and the MDG Performance Fund. UNICEF provided support in procuring and distributing insecticide-treated nets, vaccines, and health post kits to health facilities. UNFPA supported the government by procuring and distributing contraceptives.

LESSONS LEARNED

The HEP has been successful largely because of the strong political commitment to strengthening health systems, with the ultimate goal of improving coverage of and access to

health services by the rural poor. Investment in health extension workers has been part of a wider package of support services that is showing promising results.

Some weaknesses remain, and not all regions show a similar level of success. Incentive packages for health human resources are lacking, and the link between compensation and performance is weak. The capacity of the district health offices to provide supervision, monitoring, and evaluation is low. These and other constraints need to be addressed if gaps in coverage are to be filled and access scaled up even further.

A number of lessons can be drawn from the implementation of the HEP, which can be replicated in other countries:

First, political leadership and champions at higher levels are a critical success factor in improving health outcomes. Adoption of the HEP as a major political agenda of the government at various levels of the health system tightened the focus and galvanized the involvement of various stakeholders. Beyond the general increase in its fiscal space to finance the HEP, the government made sure that such increments happened at local levels. Accordingly, salaries of health extension workers, construction of health posts, and the basic running cost of the HEP are financed mainly by subnational health authorities (regions, districts, and zones), creating the foundation for local ownership and sustainability of the program.

Second, delivery of services and management of programs should be integrated into existing systems. Vertical programs and projects can be successful in the short term, but they are often unsustainable. What HEP has demonstrated is that vertically mobilized resources can be used for systemwide interventions that make disease-specific programs successful while strengthening health systems. Adopting this approach avoids creating parallel systems and procedures in the delivery of services and management of programs, averting unnecessary administrative burdens, transaction costs, and inefficiencies.

Third, community ownership is a key to sustainable impact. The major principle underpinning the HEP is transferring the right knowledge and skills to communities and households so that they are able to adopt behaviors that improve their own health. Households are trained and certified, after which they take responsibility for promoting behaviors that lead to positive health outcomes.

Fourth, all components of the health system need to be addressed to make a program work. The HEP does not merely train and deploy health extension workers. Significant investment is made in setting up and equipping

health posts to serve as formal institutional hubs for the program. A health information system has been adapted, and HEP supervisors have been trained and deployed to enhance supportive supervision and continuous improvement in quality of program management and service delivery. Continuous assessment and in-service training have been conducted to fill the gap in capacity of health extension workers. Referral levels (to health centers, health officers, and so forth) have been expanded to ensure delivery of a complete package of essential services. A major shift in the amount and modality of financing of the sector has been undertaken to support the key components of the program.

Fifth, buy-in and involvement of key stakeholders is crucial.

A unique model for partnership and collaboration has evolved in Ethiopia between the government and various actors in the health system, including the community, development partners, and other sectors. The growing trust among these stakeholders has resulted in harmonization of financing, program implementation, monitoring, and evaluation, leading to further strengthening of health systems.

Sixth, a program needs to be flexible and adaptable to various contexts. The HEP has been implemented in settings with significant diversity in socioeconomic, cultural, and geographic conditions without compromising the basic principles that led to its success. Ethiopia designed three versions of the HEP (agrarian, urban, and pastoralist) to modify and fit key aspects of program implementation in these widely varying contexts. This flexible nature of the program provides key lessons that are unique to the different environments, facilitating replication in other countries.

Seventh, success of a program or an intervention should be assessed by concrete and measurable improvements in health outcomes. Implementation of HEP has shown encouraging results in a short time in increasing coverage of essential interventions and reducing morbidity and mortality related to communicable health diseases.

NOTE

1. Certain criteria were applied to identify an intervention as successful. An intervention is considered successful if it addresses diseases of public health importance; is owned and financed by the government (to ensure sustainability); fits into the country's conventional health system without creating parallel structures and systems; is flexible enough to be applied in different socioeconomic, cultural, and geographic settings; is embraced and supported by development partners, nongovernmental organizations, and other stakeholders; is delivered at low cost; and shows concrete results in terms of improving health outcomes.

BIBLIOGRAPHY

- Admassie, A., D. Abebawa, and A. Woldemichael. 2009. "Impact Evaluation of the Ethiopian Health Services Extension Program." *Journal of Development Effectiveness* 1 (4): 430–49.
- Assefa, A., Alebachew, H. Fassil, N. Haniko, M. Ihalainen, A. Zwandor, and B. Kinfegebriel. 2010. "HIV/AIDS and the Health-Related Millennium Development Goals. The Experience in Ethiopia." *Lancet*.
- Carter Center. 2009. *Evaluation of the Quality of Training of Health Officers and Quality and Utilization of Health Learning Materials*. Report of an Independent Assessment. Addis Ababa.
- Center for National Health Development in Ethiopia. 2008. *Ethiopia Health Extension Program Evaluation Study, 2005–2007*, vol. I. *Household Health Survey*. Addis Ababa.
- Center for National Health Services, 2007. *Functioning of Health Posts*. Addis Ababa.
- CSA (Central Statistical Authority), and MACRO International. Ethiopia *Demographic and Health Survey, 2005*. Addis Ababa.
- FMOH (Federal Ministry of Health). 2005. *Third National Health Account Report*. Addis Ababa.
- . 2007a. Ethiopian National Malaria Indicator Survey. Addis Ababa
- . 2007b. Health Extension Program in Ethiopia Profile. Addis Ababa.
- . 2009. *Report of the Joint Review Mission of HSDP III*. Addis Ababa.
- . 2010a. *Annual Performance Report of HSDP*. Addis Ababa.
- . 2010b. *Ethiopian National Malaria Indicator Survey*. Addis Ababa.
- FMOH (Federal Ministry of Health), and Abt Associates. 2010. *Fourth National Health Account Report*. Addis Ababa.
- Ghebreyesus, A. T. 2010. "Achieving the Health MDGs: Country Ownership in Four Steps." *Lancet* 376 (9747): 1127–28. [http://www.lancet.com/journals/lancet/article/PIIS0140-6736\(10\)61465-1/fulltext?_eventId=login](http://www.lancet.com/journals/lancet/article/PIIS0140-6736(10)61465-1/fulltext?_eventId=login).
- Last Ten Kilometers Project. 2009. *Baseline Household Health Survey: Amhara, Oromiya, SNNP and Tigray*. JSI Research & Training, Inc., Addis Ababa.
- Otten, Mac, Maru Aregawi, Wilson Were, Corine Karema, Ambachew Medin, Worku Bekele, Daddi Jima, Khoti Gausi, Ryuichi Komatsu, Eline Korenromp, Daniel Low-Beer, and Mark Grabowsky. 2009. "Initial Evidence of Reduction of Malaria Cases and Deaths in Rwanda and Ethiopia Due to Rapid Scale-Up of Malaria Prevention and Treatment." *Malaria Journal* 8 (14).

