A WORLD BANK STUDY

The Health Workforce in Ethiopia

ADDRESSING THE REMAINING CHALLENGES

Berhanu Feysia, Christopher H. Herbst,
Wuleta Lemma, and Agnes Soucat
Editors

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Acronyms and Abbreviations

Br	Ethiopian birr
CSA	Central Statistics Authority
DHS	Demographic Health Survey
EFY	Ethiopian fiscal year
EmONC	Emergency Obstetric and Newborn Care
FDRE	Federal Democratic Republic of Ethiopia
FMOE	Federal Ministry of Education
FMOH	Federal Ministry of Health
GDP	Gross domestic product
GOE	Government of Ethiopia
GP	General practitioner
HERQA	Higher Education Relevance and Quality Assurance Agency
HEW	Health extension worker
HEWP	Health extension worker programme
HIV	Human immunodeficiency virus
HMIS	Health Management Information System
HNM	Health need method
HO	Health officer
HR	Human resource
HRD	Human resource department
HRH	Human resources for health
HRM	Human resource management
HSDP	Health Sector Development program
HSEP	Health Service Extension Program
IECW	Integrated Eye Care Worker
IESO	Integrated Emergency Surgical Officer
IHP	International Health Partnership
ISCO	International Standard Classification of Occupation
M&E	Monitoring and evaluation
MDGs	Millennium Development Goals
MOFED	Ministry of Finance and Economic Development
NGO	Nongovernmental organization
PPD	Plan and Program Department
RHB	Regional Health Bureau
SE	Standard error
SNNPR	Southern Nation, Nationalities, and People's Region
TUTAPE	Tulane University Technical Assistance Program in Ethiopia
WHO	World Health Organization

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In 2010, $1 was equivalent to Br 13.6.

Executive Summary

Health indicators in Ethiopia, particularly on child health and malaria, have improved significantly in recent years, with the next challenge now focused on improving maternal health indicators. Improvements in child health and malaria in particular can be attributed to strong government commitment towards health results, reflected in a number of notable policies and programs related to Human Resources for Health (HRH), in particular the health extension worker program. However, indicators related to maternal health remain problematic. Ethiopia has one of the lowest levels of assisted deliveries in the region. Although increases in the number of health workers particularly in rural areas may have contributed to improving access to some health services, it is in the government's interest to further improve the stock, distribution, and performance of relevant health workers in Ethiopia, particularly to bring about improvement in access to maternal health services for the poor. This document reviews the current HRH situation in Ethiopia, summarizes the evidence on population *use* of select health services, and offers relevant policy options to assist the government finalize its new Human Resources Strategy and address remaining health challenges.

Introduction

Access to sanitation, immunization, family planning, and malaria services has increased significantly in recent years. Coverage of insecticide treated nets increased 15-fold between 2005 and 2007, with 68 percent of households in malaria affected areas protected by at least one net. Inpatient malaria cases fell by 73 percent and deaths in children under five fell by 62 percent. There was a 48 percent reduction in morbidity, a 54 percent reduction in admissions, and a 55 percent reduction in mortality related to malaria.

In part, these improvements are attributed to strong government commitment to improve health outcomes in Ethiopia, reflected in part by the Health Extension Program (HEP), at the heart of which was the deployment of more than 30,000 health extension workers to rural areas across the country, which improved access to basic health services for the poor.

Yet despite these notable interventions and successes, some serious challenges remain in the area of maternal health. The neonatal mortality rate in Ethiopia is 36 per 1,000 live births, compared to an average of 41 in sub-Saharan Africa (SSA), or an average of 3 in developed countries. The reported maternal mortality ratio (2005–09) is 670 per 100,000 live births compared to an average of 824 per 100,000 in SSA, or an average of 9 in developed countries.

The government of Ethiopia is now seeking to address these remaining challenges, acknowledging the importance of improving the provision of antenatal care and assisted deliveries particularly for the rural poor. One frequently cited study (albeit one that does not take into account skill mix, nor performance variables) found that to achieve an 80 percent rate of assisted deliveries, developing countries should have at least 2.28 qualified health workers (doctors, nurses, midwives) per 1,000 people.[1] As this document shows, health worker numbers, particularly in rural areas in Ethiopia, are still nowhere near this benchmark. Moreover, even when health workers are present, they may not

always be appropriately skilled or competent to provide priority services, particularly those related to maternal health.

Objective and Nature of the Report

This report, produced jointly by the Federal Ministry of Health, the World Bank, and Tulane University, brings together the evidence to underpin policy discussions on HRH and help finalize the new HRH strategy (2011–16). The report adopts a labor market framework to review and analyze the HRH situation, and relies on existing evidence and data from numerous background studies on HRH, as well as source data from the FMOH and DHS (2005).

Focusing primarily, but not exclusively, on doctors and nurses, this report provides evidence on the number, distribution, and performance of health workers in Ethiopia, as well as on population *use* of specific health services such as maternal and antenatal care services, particularly by the rural poor. The report concludes by discussing some of the key policy options that may ultimately be taken into consideration to bring about further improvement in the HRH situation, and ultimately health outcomes, particularly those related to maternal health.

Stock: The Number of Human Resources for Health (Chapter 1)

Ethiopia is one of the countries with the least number of physicians in the world. Overall the current stock of physicians is 0.03 (n2152) per 1,000 population. This number is largely insufficient to reach both national and international benchmarks, nowhere near the 0.55 doctors per 1,000 population required to achieve 80 percent of coverage of live births. A recent study found that the number of doctors and midwives is unlikely to reach desired national staffing requirements by 2015.

Nurses and some mid- and lower- level cadres such as paramedics and health extension workers on the other hand seem to be growing adequately with one study expecting them to reach national staffing requirements by 2015 (currently they still remain below international benchmarks). This is related to a steady output of nurses and increase of specific mid- and lower- level cadres due to the scaling up of training programs and physical training infrastructure. Nurses and mid- and lower-level cadres also tend to migrate less.

Although intake of students into medical school has also increased significantly in recent years, doctors much more than nurses tend to migrate abroad reducing their stock. This is believed to be both a function of the nature of the training environment of medical doctors, which tends to produce medical workers for the international rather than national labor market, as well as dissatisfaction with existing salary levels and lack of opportunities for further education and career development.

Sectoral Distribution (Chapter 2)

The vast majority of health workers in Ethiopia work in the public sector, with only 5.8 percent of all health workers formally working in the private sector both for profit and not for profit.

Health workers on the whole in Ethiopia see distinct qualities in working for the public sector. They report that most private clinics are owned by lay investors who have

a profit motive. They see this may have positive consequences on performance, yet it may have negative consequences on workload, training opportunities, and job security. Whereas a private sector job may offer more flexibility, access to modern technology, and higher salaries, the public sector offers job security, benefits, and access to training.

Medical doctors followed by nurses are the two cadres most represented in the private sector. A large proportion of medical doctors—about 15 percent of general practitioners and close to 40 percent of specialists—work full time in the private sector. Less than 5 percent of nurses do . Within the private sector, nurses tend to be employed more in the private not-for-profit sector, whereas medical doctors in private for profit facilities and universities.

The small but rising proportion of doctors and nurses employed in the private sector may be linked to both growth in the number of private sector health facilities in recent years, and with it private labor market demand, particularly for nurses and doctors (that is, growth in private sector funding to employ health workers).

On the supply side, private job uptake of nurses and doctors is often linked to dissatisfaction with public sector work characteristics. Data on satisfaction with job characteristics (including salary, access to further training, chances of promotion, and so forth) of a proportion of both nurses and doctors reveal some dissatisfaction with working in the public sector working environment. The proportion of those doctors and nurses "completely unsatisfied" in the public sector is 70 percent, compared to 40 percent in the private sector.

The fact that medical doctors are particularly represented in the private for-profit sector can largely be attributed to salary differences between the sectors. Although the salary gap between the public and private sector has been narrowed in recent years for most health cadres, a wide gap still exists for high-level professionals such as medical doctors. Medical doctors earn several times more in the private sector than in the public sector.

Geographic Distribution (Chapter 3)

The distribution of health workers, particularly medical doctors and specialists, is largely skewed towards the urban areas.

The so- called "lottery mechanism,," a government deployment initiative, with its potential to "deploy" higher level cadres to rural areas does not seem to work. Evidence suggests that the system is not widely used and is easily bypassed.

Evidence from a cohort study shows that nursing and medical school graduates disproportionately enter into the urban labor market after graduation, primarily due to perceptions of (i) better promotion opportunities, (ii) access to education and health care, and (iii) closeness to families and friends. Interestingly, salary level is not a main variable in this decision of graduates to choose an urban job above a rural one.

Lower level cadres are far more evenly distributed. This may be related to the background of the cadre. A study of a cohort of nurses and doctors found that a larger proportion of nurses was rural trained or come from rural backgrounds. Higher level cadres predominantly come from urban backgrounds. Evidence shows a strong correlation with urban background or urban study with job preference and subsequent job uptake.

Perhaps unique to Ethiopia is the strong government commitment to serve the rural poor. This is reflected in recent efforts to scale up production and deployment of a number of "rural cadres." More than 30,000 health extension workers have been trained,

hired, and deployed in rural areas together with a concerted effort to increase the number of health centers and health posts in rural areas. These workers are not competitive in the national labor market and are not likely to migrate.

The more even distribution of lower level cadres may be linked to higher levels of altruism. There is evidence that nursing graduates are more driven by intrinsic motivation and the "opportunity to serve their community" than physician graduates. Similar evidence was found for health extension workers.

Over time altruistic decision making gives way to other—financial—priorities, however, and the proportion of the rural cohort dwindles. Within three years of working in a rural area, transfers into an urban location are common. Dissatisfaction with the rural location and particular with monetary compensation is a primary reason for this subsequent move, particularly for doctors. Although salaries tend to be higher in rural than in urban areas, the opportunity for additional income by working in the private sector may explain this.

The Performance of Health Workers (Chapter 4)

Health worker performance can be measured by looking at variables such as availability, competence, responsiveness, and productivity. Evidence on performance is very limited, and when available, specific only to a limited number of cadres. Evidence on productivity is not available.

When it comes to competence, there is some reason for concern, particularly with regards to the knowledge of nurses on maternal care. The *knowledge* of nurses related to maternal care is quite low, including abortion care and care for victims of sexual violence. Health officers' knowledge on clinical competency areas seems to be more adequate than on public health competence, although weaknesses were found related to obstetrics. Only 12 percent of graduating health officers were able to plot progress of a laboring mother on a partograph. Finally, a 2010 assessment of general practitioners who graduated in the previous five years showed that more than 70 percent of them rated poor in the area of competency related to basic emergency obstetric care .

Regarding availability, there are indications that *absenteeism* is common among health workers, particularly medical doctors; however, rates are fairly low. Estimated to be around 10 percent, this is far below the percentage in countries such as Uganda and Zambia, where absenteeism levels among doctors in urban areas have been reported to be close to 50 percent. Waiting times in hospitals in Ethiopia are found to be acceptable.

The satisfaction of patients with the responsiveness of health workers is mixed. A recent study shows a relatively high level of satisfaction of patients with the health services that they receive, with more than 80 percent of household members who visited health providers during the survey period satisfied with key aspects including waiting time, and courtesy of staff. A study in Ethiopia in the West Shoa Zone found more than 73 percent rating provider empathy to be good, and 82 percent rating nonverbal communication good, very good, or excellent. Such findings do not track earlier studies, one of which found that the large majority of clients were not satisfied with staff politeness and another which found that more than 93 percent felt that staff members were impolite and uncooperative.

The observed problems in competence may in part be linked to capacity limitations related to pre-service education. The lack of adequately qualified teachers at health training institutions is a frequent concern, as the availability of instructors does not seem to have kept pace with scale up efforts by the government. Some studies also point to problems related to classroom availability, laboratories and libraries, and available clinical equipment and supplies. Curricula moreover may not always focus on, and reflect, the relevance of the local and rural need. The extent to which maternal and child health is reflected in medical and nursing school curricula remains to be assessed.

Competence may also be negatively affected by problems of in-service training, which often falls short , is rarely needs based, and is said to suffer from poor planning, coordination, and quality. Doctors also tend to receive marginally more training than lower level cadres. One study found that only 2.7 percent and 4.5 percent of nurses and midwives in hospitals and health centers, respectively, had received in-service training to provide basic emergency obstetric care, compared to 9.1 and 8.8 percent of doctors and health officers respectively.

Problems with responsiveness as well as absenteeism in particular may be exacerbated by existing and inefficient management and accountability systems, which remain relatively centralized. Facility-level managers hold little authority over checking that staff skill sets are advanced, rewarded for good performance, held accountable when performing inadequately, or are absent altogether. Perhaps as a result, evidence shows that supervision problems are rampant, although they vary in scale by region. The majority of managers practice medicine alongside their managerial responsibilities. This may leave them little time to focus on their managerial responsibilities. The majority of existing managers, including those at the regional level, feel they are not adequately trained in managerial skills.

Adverse working environments, marked by perceptions of high workloads and inadequate equipment and supplies, may also explain and further undermine key performance aspects. Health workers consider their workload to be substantial, with a significant proportion of doctors and nurses finding impossible to carry out all required tasks. Health workers are also confronted with environments where there is low availability of basic supplies and equipment related to providing emergency obstetric and newborn care . A national baseline survey found that the availability of key obstetrical emergency drugs such as oxycontin and ergometrine was inadequate. The same study found basic and emergency neonatal equipment in short supply at maternity wards of hospitals and health centers.

Dual practice seems widely accepted and acknowledged by health workers although not fully recognized legally. Of a cohort sample of medical doctors and nurses, 21 percent of doctors and 5 percent of nurses were thought to be working in secondary jobs in health, largely in the private sector, to "cope with" and address "limited income potential" when working in the public sector alone. This may explain existing levels of absenteeism, and may negatively affect health worker responsiveness to patient needs as the workload in their public sector role increases. Many lower level health workers moreover deal with staff absenteeism and lack of available regular staff through so called "skill substitution," which may negatively impact competence variables if a lower level cadre takes on tasks for which they are not appropriately trained .

Finally, there are some indications that overall performance of health workers may be affected by the lack of satisfaction with existing working conditions (which may negatively impact their motivation to perform). There is a general sense of dissatisfaction among health workers in Ethiopia, which applies to salary, access to further training and promotion, lack of mentoring, as well as some of the inadequate physical conditions at the workplace. In rural areas, more than 20 percent of respondents were completely unsatisfied with working conditions. More research is required to determine the extent to which lack of satisfaction with such working conditions by health workers actually impacts performance.

Impact of HRH Situation on Use of Critical Health Services (Chapter 5)

The observed problems with regards to stock, distribution, and performance of health workers in Ethiopia negatively affects access to health services, particularly maternal health services for the poor, and is likely contributing to high levels of neonatal deaths and maternal mortality ratios in Ethiopia.

The vast majority of women in Ethiopia do not visit qualified health workers for antenatal care. Those who visit a health professional (doctor, nurse, or midwife) tend to belong to the richer quintiles of the population. The likelihood of performing specific antenatal care services, such as drawing of blood and urine samples and provision of tetanus injections or iron tablets, varies considerably across socioeconomic quintiles

Most women in Ethiopia deliver babies with the help of a relative or friend, not with the assistance of a skilled health worker. The rate of assisted delivery in Ethiopia is one of the lowest in SSA.. In 2005, health professionals and trained birth attendants attended only 7 percent and 6.5 percent of deliveries respectively; of those numbers, women from high- income quintiles were disproportionately represented. In 2009 more than 91 percent of deliveries still took place at home (the average of assisted deliveries in SSA is 46 percent). Less than 1 percent of women in the bottom quintile in Ethiopia get assistance from a health professional. Postnatal care is virtually non existent in the four biggest regions in Ethiopia, with less than 1 percent of mothers receiving care within 2 days after delivery from a health worker and 2 percent within 2–45 days.

Residents in more urban regions in Ethiopia use significantly more curative care than rural residents. The availability of a provider "close to home" is a primary reason of both rural and urban populations seeking medical care with a particular provider.

The rural poor are more reliant on community health workers and accessibility to their services has improved. In 2005, community health agents and distributors reached less than 7 percent of women in Ethiopia. By 2009 more than 36 percent of women reported being contacted by a health extension worker (HEW). HEWs rarely address health messages concerning to pregnancy care, newborn care, and treatment practices for sick children. Pregnant mothers are referred by them to the nearest health center.

Moving toward Solutions (Chapter 6)

Given the remaining health challenges in Ethiopia, particularly on maternal and neonatal health, policies will need to continue to focus further on improving access, particularly for poor women and children. This may be accomplished by improving the numbers of skilled health workers, particularly in rural areas, and scaling up skills related to addressing maternal health concerns. The availability of an adequately performing health

workforce, particularly in rural areas, is critical to move the country towards achieving the MDGs, and particularly MDG 5. A number of policy options can be considered to increase overall number, distribution, and performance of health workers. Such policy options may be categorized as follows: (i) improving education and training capacity to produce cadres, enhance skill sets, and tailor curricula to local needs; (ii) improving monetary and/or non monetary compensation for health workers (a discrete choice experiment and contingent valuation shows that a focus on nonmonetary compensation may be more effective and sustainable than an increase in salaries); and (iii) improving HRH management capacity and accountability structures at the facility level.

Concrete attempts to develop specific policies will require additional research. Although the evidence presented in this report may fuel and inform the strategy and discussion on HRH in Ethiopia, serious policy design may require additional analytical work (particularly on midwives and Health Officers, evidence of which was scarce). There is particular need for further studies on performance, and, importantly, an assessment of the overall current fiscal and political environment surrounding HRH. Successful implementation of the HRH strategy will not only depend on a large evidence base, but also a favorable financial and political environment within which interventions can be developed and passed.

Notes

1. Chen, Lincoln, and Alii (2004), "Human Resources for Health: Overcoming the Crisis," *Lancet* 364: 1984–90.

Introduction

Over the last 10 years, Ethiopia has made steady progress in health outcomes. Access to sanitation, immunization, family planning, and malaria services has increased significantly. Coverage of insecticide treated nets increased 15-fold between 2005 and 2007, with 68 percent of households in malaria affected areas protected by at least one net. A report published in 2009 indicates that inpatient malaria cases fell by 73 percent and deaths in children under five fell by 62 percent. Another study reports a 48 percent reduction in morbidity, a 54 percent reduction in admissions, and a 55 percent reduction in mortality related to malaria.

Health challenges however remain. In contrast with the progress made fighting malaria, maternal health indicators remain a challenge. The neonatal mortality rate in Ethiopia is 36 per 1,000 live births (UNICEF[1]), compared to an average of just 3 in the most developed countries worldwide (WHO, 2006[2]). Furthermore, the reported maternal mortality ratio (2005–09) is 670 per 100,000 live births (UNICEF[3]), high when compared with an average of 9 in developed countries (WHO[4]).

The situation points to remaining challenges of access to maternal and infant health care services. Globally, maternal and neonatal mortality indicators are closely linked to the provision of antenatal care and assisted deliveries by skilled health professionals (WHO, UNICEF, WB UNDP[5]). One frequently cited study (albeit one that did not take into account skill mix, rural urban distribution, or performance capacity) found that to achieve an 80 percent rate of assisted deliveries, developing countries should have at least 2.28 qualified health workers (doctors, nurses, midwives) per 1,000 people.[6] Without the relevant health services provided by qualified and well performing health workers, the government of Ethiopia will not be achieving MDG 5, which seeks the reduction in maternal mortality.

Ethiopia's government recognizes the important role that Human Resources for Health (HRH) play in improving health outcomes, and achieving the MDGs (particularly MDG5). Its commitment to improving the country's stock, distribution and performance of health workers and thus cross country accessibility to competent health professionals is reflected in a number of HRH reforms including the lauded health extension worker (HEW) program that rolled out in 2004. This program has produced and deployed more than 30,000 community health workers to rural areas throughout Ethiopia, and has helped provide better and more equitable access to health services for the poor, women, and children in a sustainable manner. Recent improvement in some of the health indicators, particularly those related to child health and malaria in Ethiopia, are often attributed to this program (Berhanu and others, 2011). The government's commitment to improving the health workforce situation further, and with it access to health services, is well reflected in efforts to develop and implement a new HRH strategy (2011–16), one that is to be evidence based, and will build on these previous, very notable efforts and experiences, to scale up the health workforce in the country.

Objective and Nature of the Report

This report, produced jointly by the Federal Ministry of Health, the World Bank, and Tulane University, aims to provide the necessary evidence base to fuel discussions on HRH and help finalize and move towards implementing the new HRH strategy. The report relies on existing evidence and data from numerous background studies (most notably Serra, Serneels, and Lindelow, 2010, and Jack and others, 2010), as well as source data from the FMOH and DHS which was analyzed for this report (see box 1 for some of the limitations of such multi-source analysis).

Box I.1. Limitations of multi-source analysis

This paper faces several limitations, some typical of multiple-source analysis.

- Evidence on the health labor market was primarily available for doctors and nurses only. Insufficient evidence existed to analyze labor market dynamics for all cadres, particularly midwives and health officers.
- Evidence on performance was very limited, focusing only on very specific cadres and specific performance variables.
- Data on the private sector was very limited. The primary focus of this report is thus on the public sector.
- The report draws on evidence from studies that have used different methodologies to draw conclusions on the health labor market. Caution is required particularly when comparing data from such studies.
- Much of the evidence used throughout this report is about 3–4 years old. Certain aspects on HRH may have changed since then.

Source: World Bank.

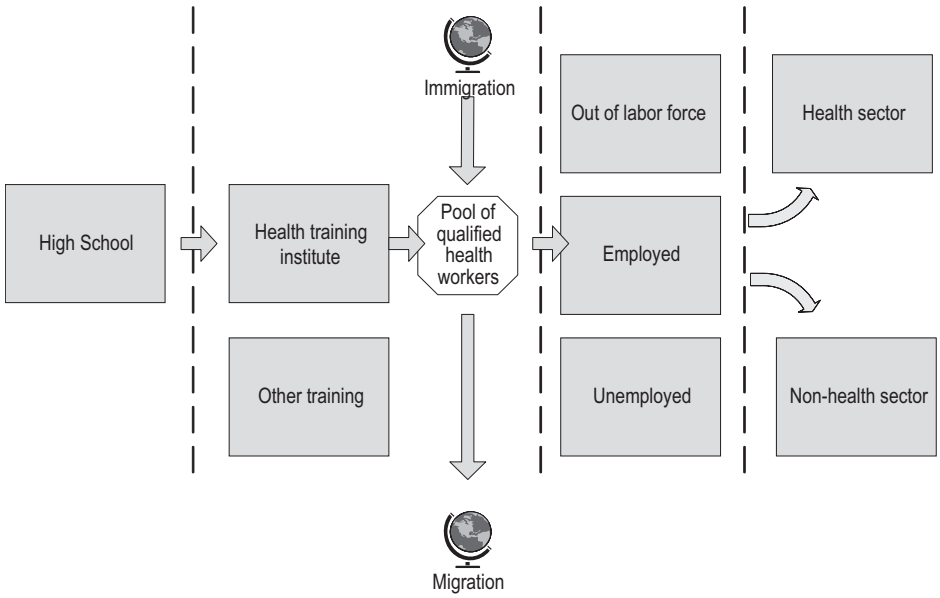
Focusing primarily, but not exclusively, on doctors and nurses, the report adopts a labor market perspective to analyze the stock, distribution, and performance of health workers in Ethiopia (box 2). This perspective reviews how "HRH outcomes" of stock and distribution may have been determined by the supply side behavior of health workers, the flow of health workers (figure 1) motivated by a number of monetary and non-

Box I.2: The labor market perspective to analyzing HRH

The labor market perspective recognizes that to a large degree, health workers function within a market, and that the flow of health workers (figure 1) in a free labor market is influenced by monetary compensation (job availability, salaries, and allowances) and nonmonetary compensation (career opportunities, working and living conditions). Combined, they affect (i) the willingness of health workers to enter into a specific labor market (referred to as labor market supply), and (ii) the willingness and ability of employers to hire health workers (referred to as labor market demand). At the same time, the labor market perspective recognizes that in practice, health labor markets in SSA are seldom fully free, and this paper pays consideration to potential government intervention in the form of policies or management practices that may also influence the behavior and decision making of health workers.

Source: World Bank.

Figure I.1: Flow of individuals into the health labor market



Source: Vujicic and others 2004.

monetary incentives, as well as government interventions into the health labor market. Due to data limitations, the report provides less discussion of evidence on the labor market demand (that is, the willingness and ability of employers in the health market to hire health worker).

The report also reviews the picture on population *use* of specific health services, such as assisted delivery and use of antenatal care services (key determinants of maternal health indicators and access to health workers), particularly by the rural poor. Although there are other determining factors of *use*, which are not reviewed here, the availability of adequately skilled health workers are an important determinant of such indicators. The report concludes by discussing some of the broad policy options that may ultimately be taken into consideration—and which may require additional research and analyses—to bring about improvement in the HRH situation and ultimately health outcomes, including those related to maternal health.

Notes

1. http://www.unicef.org/infobycountry/ethiopia_statistics.html.
2. http://whqlibdoc.who.int/publications/2006/9241563206_eng.pdf.
3. http://www.unicef.org/infobycountry/ethiopia_statistics.html.
4. http://www.who.int/making_pregnancy_safer/topics/maternal_mortality/en/.
5. http://www.undp.org/mdg/goal5.shtml.
6. Chen, Lincoln, and Alii (2004), "Human Resources for Health: Overcoming the Crisis," *Lancet* 364: 1984–90.

PART 1
Human Resources for Health in Ethiopia

CHAPTER 1

The Number of Human Resources for Health

Number, Density, and Skill Mix

Although Ethiopia has one of the highest numbers of health workers in sub-Saharan Africa , its large population leaves it with a very low health worker to population ratio. The Federal Ministry of Health (FMOH) reported 65,554 health workers—public, private, and NGO—which translates into a total density of 0.84 per 1,000 people (table 1.1).

Table 1.1: Stock and density of all health workers, selected countries

	Number	Ratio to 1,000 population
SSA Countries		
Ghana	46,040[b]	1.93 (2009)
Rwanda	13,133	1.22 (2008)
Benin	9,323	1.11 (2007)
Zambia	12,219	1.05 (2007)
Côte d'Ivoire	19,784	0.96 (2007)
Ethiopia	65,000	0.84 (2008)
Non-SSA Countries		
Thailand	193,577	3.0 (2006)
India	2,297,233	1.95 (2006)[a]

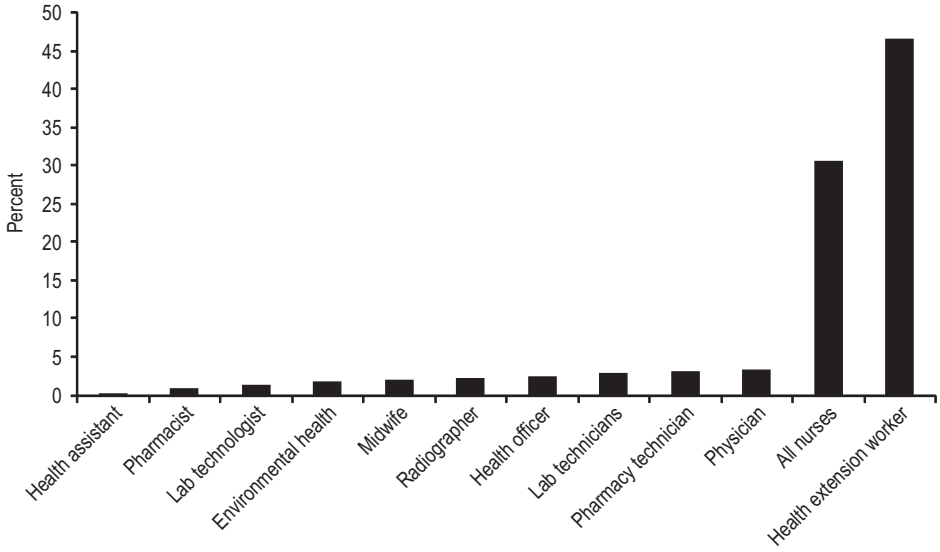
Source: For Ethiopia, FMOH 2007/8; for Rwanda, CSR-Health (2009)/FMOH Clinton Foundation; for Côte d'Ivoire, CSR-Health (2010); for Zambia, CSR-Health (2009); for Benin, CSR-Health (2009); for Thailand, Medical Council (2006); for India, Medical and Dental Council, India Medical Council, India Pharmacy Council, GOI Bulletin on Rural Health Statistics in India, Department of AYUSH; for Ghana, FMOH, IPPD (2009).

Note: a. The density is assumed to be higher now.

b. A total of 18,950 trainees are on the FMOH payroll (paid a stipend) but are not included as part of the total health workforce of Ghana.

Health Extension Workers (box 1.1) constitute the largest single group in the health workforce in Ethiopia, at about 47 percent. Nurses represent the second largest group (figure 1.1). Doctors and Midwives form a significantly smaller share (FMOH 2008/9).

Figure 1.1: Skill mix of health workers, Ethiopia



Source: FMOH 2008/9.
Note: Physician includes general practitioners and specialist.

Box 1.1: Alternative cadres in Ethiopia

Health extension workers. HEWs are young women, with secondary education, paid and trained by the government, that woredas have identified to serve their local community. The training of the first cohort of health extension workers started in 2003. HEWs 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.

Health officers. Health officers provide clinical service at both health centers and primary hospitals, and manage district health offices. They hold skill sets and carry out tasks somewhere between a nurse and a doctor. The training of health officers started at Gonder University in 1954 due to the shortage of physicians.[a] Health officers hold bachelor's degrees and undergo a three-year training program plus one-year internship. Those who complete the master's degree provide advanced care, such as emergency surgery.[b]

Source: FMOH 2008/9.
Note: a. Kruk and others, "Human Resource and Funding Constraints for Essential Surgery in District Hospitals in Africa: A Retrospective Cross-Sectional Survey," *PLoS Medicine* (http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1000242).
b. Mullan F, Frehywot S., "Non-Physician Clinicians in 47 Sub-Saharan African Countries," *Lancet* 370: 2158–63.

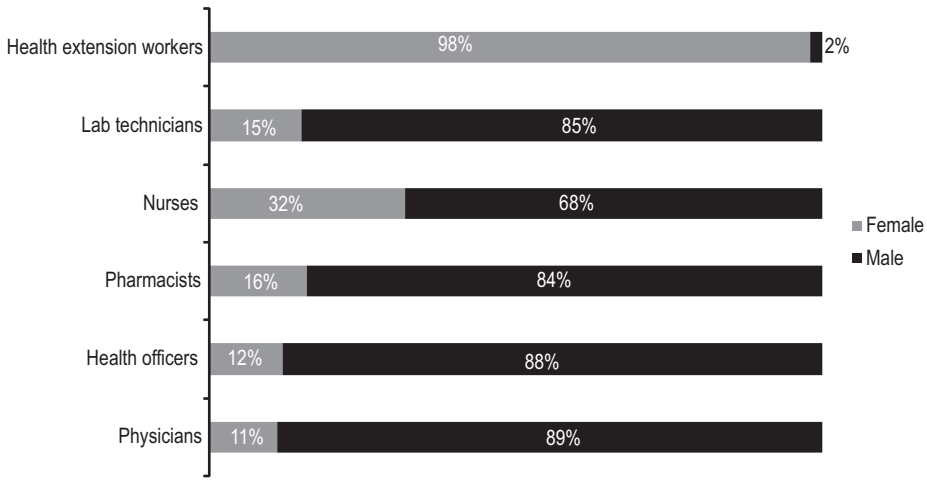
The data shows a steep increase in the number of some mid-level health workers relative to physicians over the past decade. The nurse-to-doctor ratio, for example, climbed from 3:1 to 10:1 over the 10 years to 2008 (FMOH 2007/8).

Box 1.2: Gender distribution of HRH

Female health workers are underrepresented in the professional and mid-level categories in Ethiopia (figure 1.2). Even in professions such as nursing, traditionally considered a female domain, only 32 percent are women. Just 11 percent of physicians are women. The picture on health extension workers is the opposite. HEWs alone have more females than men (the program was designed that way), apart from a few regions.

Source: FMOH 2008/9.

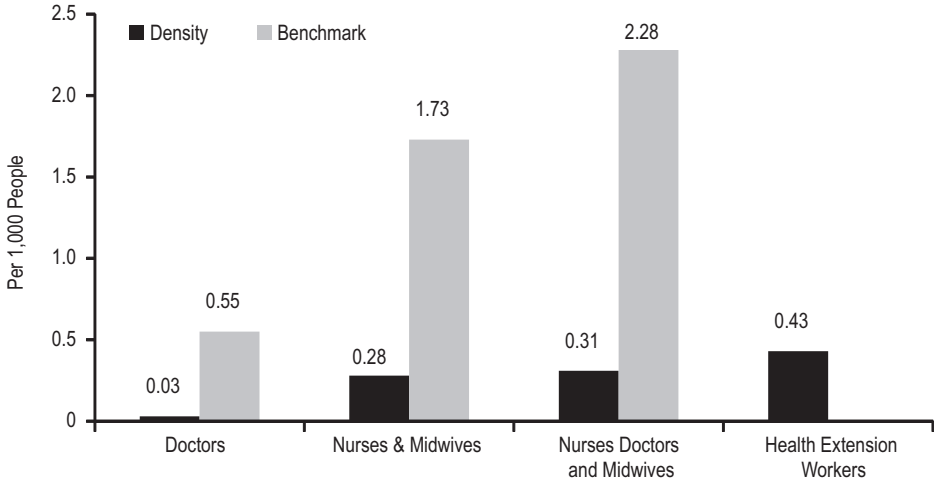
Figure 1.2: Distribution of health workers by gender



Source: FMOH 2008/9.

The low health workforce density is far below the estimated benchmarks deemed important to achieve 80 percent coverage of live births. The number of doctors, midwives, and nurses per 1,000 population (together) is nowhere near the well-cited benchmark of 2.28.[1] Existing numbers of nurses/midwives and doctors are also nowhere near the dissected benchmarks suggested by Scheffler and others (2007). For example, there is a shortfall of 0.52 doctors per 1,000 people, which is the estimated requirement for 80 percent coverage of live births (figure 1.3). Densities of health extension workers, although no benchmark exists, are much larger.

Figure 1.3: Physician, nurse/midwife densities against popular benchmark in Ethiopia, 2009



Source: FMOH 2007/8; WHO 2006.

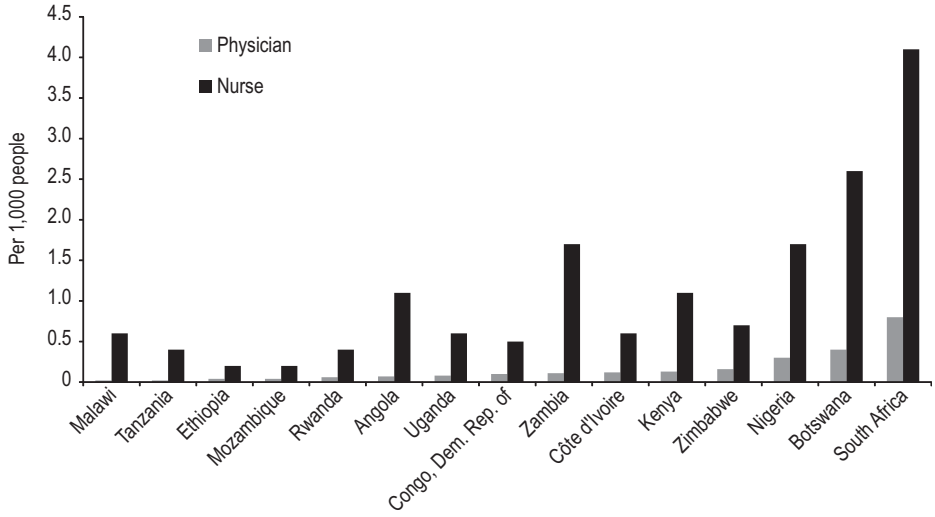
Table 1.2: Total numbers and density for key HRH categories, 2009

Category	Number	Ratio per 1,000 people
Health extension worker	34,382	0.43
All nurses	20,109	0.26
Lab technologist and technicians	2823	0.04
Physician (general practitioners and specialists)	2,152	0.03
Pharmacy technician	2,029	0.03
Health officer	1,606	0.02
Radiographer	1,486	0.02
Midwives	1,379	0.02
Environmental health	1,246	0.02
Pharmacist	632	0.01

Source: Population data (CSA 2009); health worker data (FMOH 2008/9; FMOH 2010).

A comparison of ratios of doctors and nurses to the population in Ethiopia with those in other SSA countries finds Ethiopia fairing particularly badly (figure 1.4).

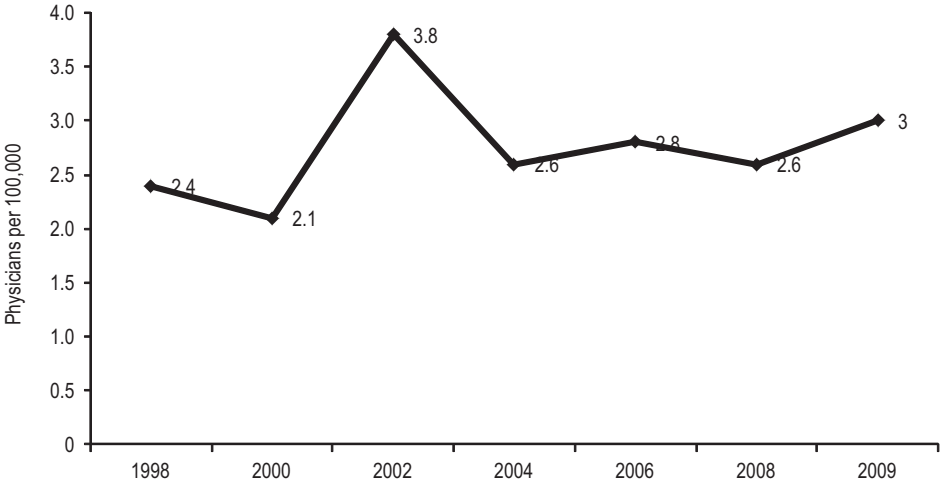
Figure 1.4: Physician and nurse density per 1,000 people, selected countries



Source: FMOH 2007/8; WHO 2006.

Unlike the ratio for some mid-level workers, the ratio for physicians to the population has hardly moved in a decade (figure 1.5)[2] (Behan 2008; FMOH 2006/7, 2007/8).

Figure 1.5: Number of physicians per 100,000 population, Ethiopia, 1998–2009



Source: Calculated from FMOH publications, various years.

The number of doctors and midwives is unlikely to reach desired national staffing requirements by 2015 whereas the picture on nurses and select other mid-level cadres looks more positive (FMOH 2009).A recent projection exercise using the WHO service target approach [3] found that, unlike nurses and some other mid-level cadres, the number of doctors and midwives is not expected to reach normative requirements by 2015. The suggested requirement for general practitioners and midwives by 2015 was found to be 10,846 and 8,635, respectively (figure 1.6). From the 2009 level, this would require the stock of midwives to grow by more than 6,000 and the stock of medical doctors by more than 8,000 in just five years (Girma and others 2009). Expected production levels coupled with continuing rates of outmigration of doctors (discussed in the next section) renders these targets out of reach.

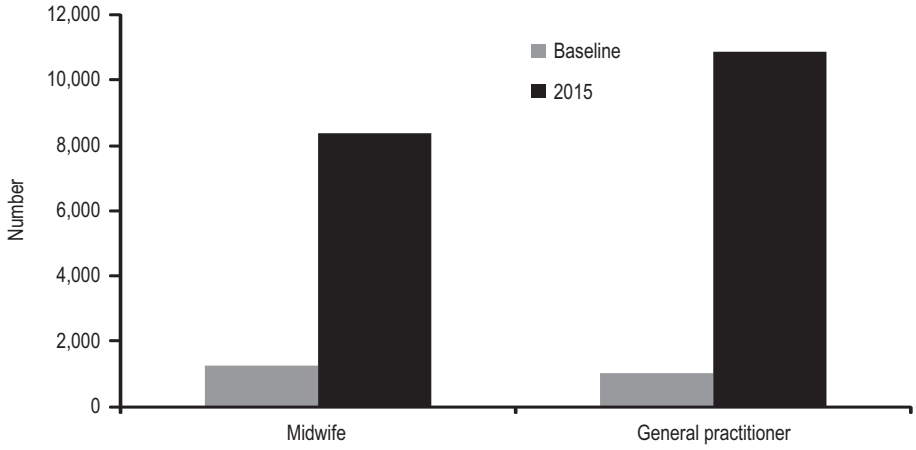
Explaining the Number Problem

The number of health workers is a function of the numbers of health workers produced, graduates entering the national health labor market after graduation (production and labor market entry), and health workers leaving that labor market (via migration, death, and so forth).

Production

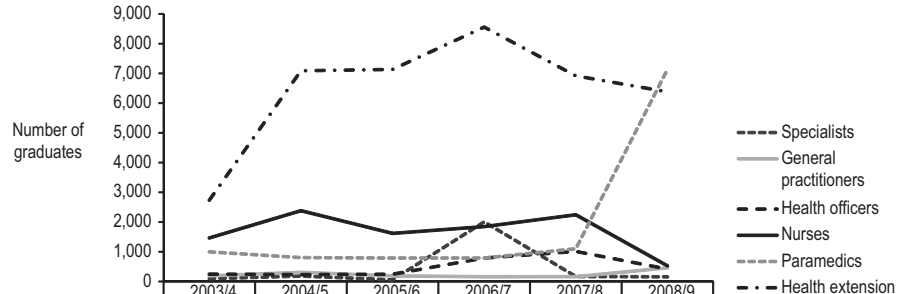
Overall the production of medical doctors has largely remained stagnant over the last decade while the production of some mid-level health workers and lower level cadres such as HEWs increased greatly (figure 1.7). Annual production of mid-level cadres such as paramedics and health officers increased significantly between 2003 and 2009. More than 34,000 HEWs were trained between 2003 and 2005.

Figure 1.6: Number of midwife and medicals in 2007 and the suggested FMOH requirement by 2015



Source: FMOH 2009.

Figure 1.7: Trends in annual output of graduates, major HRH categories, 2003–09

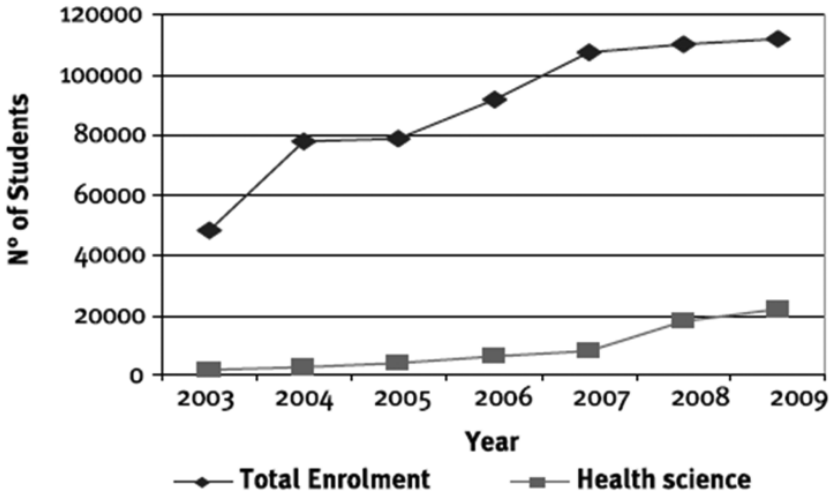


	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9
Specialists	96	183	57	2,007	168	157
General practitioners	193	309	188	161	162	460
Health officers	249	233	247	789	1,013	421
Nurses	1,465	2,384	1,618	1,846	2,246	529
Paramedics	999	803	791	789	1,103	7,136
Health extension workers	2,737	7,090	7,136	8,560	6,918	6,379

Source: WHO report.

The production output of mid-level cadres is the result of significant training scale-up efforts. Between 2003 and 2009, 48 (25 public and 23 private) health science schools were upgraded to train mid-level health professionals (WHO report). The increase of the production of mid-level cadres in part is a reflection of the government's decision that the ratio of intake between the natural sciences/engineering/technology and social sciences/humanities fields should be 70:30. This ratio has not been reached yet: in 2009, 20 percent of the 110,000 student intake capacity was health science students (figure 1.8).

Figure 1.8: Total and health science enrollment capacity for university students



Source: WHO report.

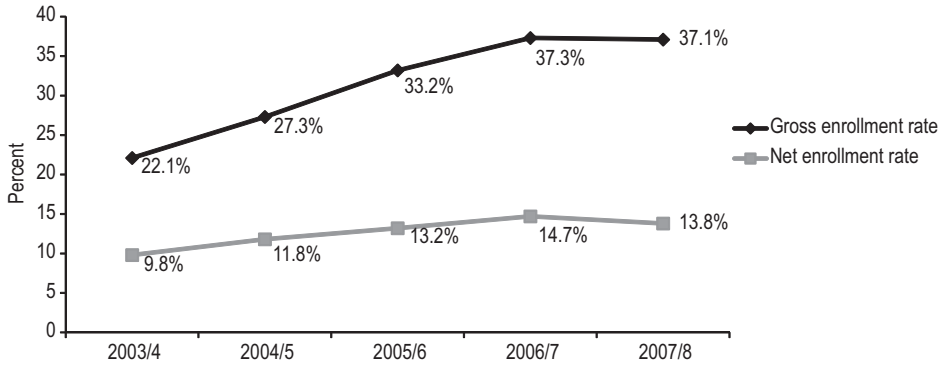
The increased output of health officers can be explained by the launch of the training of health officer programs in both universities and through the Accelerated Health Officer Training Program. To address a shortage of clinicians at the primary health center level, an accelerated program of health officer training (pre-service and upgrade) began in 2005. By 2008, more than 900 had graduated and 3,168 were under training. By February 2009 2,287 (1,013 generic and 1,274 post basic) health officers had graduated and deployed. By August 2010 3,871 (71.3 percent of the overall target) had graduated (FMOH 2010).

Box 1.3: The supply of secondary school graduates in Ethiopia

Inadequate supply of secondary school graduates does not seem to be much of a restricting factor for entry into health science training, although the actual supply of secondary students with a scientific background would warrant further research. Although no data exists on secondary school *graduation rates*, both the gross and net secondary school *enrollment* rates increased through 2007/8 (figure 1.9).

Source: FMOE 2007/8.

Figure 1.9: Gross and net secondary school enrollment rate, 2003–08



Source: FMOE 2007/8.

The rapid production of health extension workers is a reflection of strong government commitment and effort to increase the number of "suitable cadres" for the poor. Amid some of the worst health indicators in Africa and the country's chronic shortfall in conventionally qualified health workers, the Ethiopian government introduced the Health Service Extension Programme (HSEP) in 2003. A the heart of this was the production of more than 30,000 health extension workers, largely females selected by their communities, and with secondary school education, who are trained to provide a package of basic preventive, promotive, and curative services to the population in Ethiopia (Nejmudin and others, 2011).

The stagnant production of medical doctors is the product of significant neglect for many years. Despite a long history of medical education, Ethiopia was until 2003 served

by only three medical schools with an output of fewer than 150 medical graduates a year (Berhan 2008). This chronic shortage in training output contributed to the low stock of doctors.

Box 1.4: Planning capacity of the FMOH to increase health worker numbers

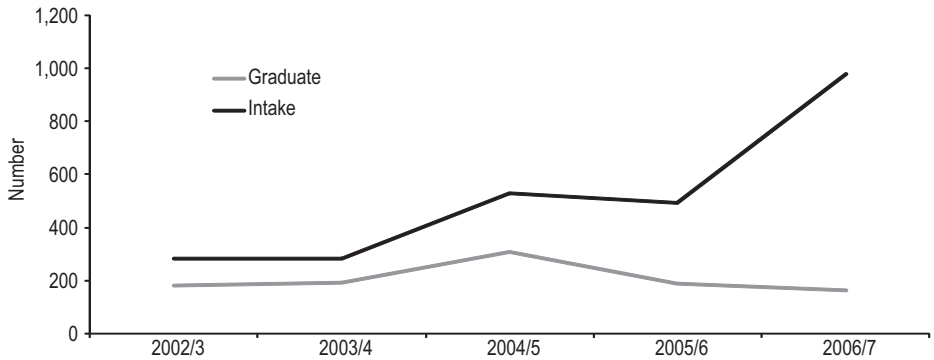
The Directorate of Human Resource Management in the FMOH is responsible for planning of HRH, including increasing the numbers of health workers. One often cited problem in this area is the lack of adequate collaboration and planning with the Federal Ministry of Education (FMOE), which is also involved and responsible for production particularly of higher level cadres. Furthermore, the lack of updated and accurate information on all areas of HRH is often problematic. Effective and efficient implementation of an HRH strategy requires accurate information that guides the planning and policy-making process. However, the existing HR data systems in the health sector cannot share information with each other because of lack of standardization, differences in definitions and coding, and because information flows bypass potential users. Information on staff dynamics and attrition is also particularly lacking (FMOH, 2009). Towards improving the HRIS, the FMOH is working with development partners on modernizing the HRIS.

Source: FMOH 2009.

Production of medical doctors in future years however is set to increase with the recent rapid expansion of medical schools. The government's capacity-building and privatization policies have lifted the number of public and private training institutions in the years to 2009. Medical universities grew from three in 2003 to eight in 2008. Two of them are private, Hayat and Bethel. By 2011, there were 14 medical universities, most of them in the regions, including the Defense Health Science College (WHO report).

Correspondingly, the intake of medical students into medical schools has already increased and is soon expected to make an impact on overall levels of medical doctor stock. By 2006/7 the annual intake of medical students had increased to just below 1,000—see figure 1.10 (TUTAPE and FMOE 2008). By 2010 the annual intake had increased to 1,383 (FMOH, 2011).

Figure 1.10: Annual graduates and intake of doctors, 2002–07



Source: FMOH 2002/3–2006/7; FMOH and Tulane University 2008.

Graduate Labor Market Entry

Most doctors enter the labor market immediately after graduation while it is less the case for nurses. A cohort study carried out between 2004 and 2007 (see box 1.5) found that a small yet significant number of nurses produced do not immediately enter the health labor market following graduation. Of a cohort of medical and nursing students interviewed as final year students in 2004 and traced three years after their graduation, 95 percent of doctors but only 82 percent of the nurses who graduated in 2004 were working in health in 2007. More than 1 in 10 nurses went on to further education (table 1.3). The "loss" of such nurses to further education after graduation is not an explanation for stock deficiencies, as it rather reflects a delayed entry into the health labor market.

Table 1.3: Primary activities of health workers three years after graduating

	Doctors	Nurses	Total
Currently working	84 (95%)	145 (82%)	229 (86%)
In the health sector	84 (95%)	143 (81%)	227 (86%)
Outside the health sector	0 (0%)	2 (1%)	2 (1%)
Not currently working	0 (0%)	32 (18%)	36 (14%)
Further education	0 (0%)	26 (15%)	26 (10%)
On maternity leave	0 (0%)	2 (1%)	2 (1%)
On sick leave	0 (0%)	1 (1%)	1 (0.4%)
Recently quit job	3 (3%)	2 (1%)	5 (2%)
Could not find likeable	1 (1%)	1 (1%)	2 (1%)

Source: Serra, Serneels, and Lindelow 2010.

Despite frequent assumptions to the contrary, few doctors and nurses migrate within the few years immediately after graduation. The cohort study found that only 4 percent of nurses and 2 percent of doctors in the 2004 sample had migrated abroad within three years after graduating. More nurses rather than doctors migrated during that time.

Box 1.5: The Ethiopia cohort study (2004–07)

The Ethiopian health worker cohort study was designed by the World Bank (Serra, Serneels, and Lindelow 2010) to generate insights on health worker career choices, preferences, and job satisfaction; the study followed the same health workers over time. The first wave of the study was conducted in April 2004 and surveyed 219 nursing students and 90 medical students who were in their final year of study. In the second wave of the survey, which took place between May and September 2007, researchers re-interviewed the nurses and the doctors, who had now entered the labor market. The results were analyzed to form an understanding of health worker flows and the types of incentives that motivate health workers to make specific decisions in Ethiopia.

Source: Serra, Serneels, and Lindelow 2010.

Health workers who migrated abroad were all unmarried and without children in 2004, although 50 percent of the nurses had a partner then (table 1.4). The nurses who left the country were on average older than the ones who stayed, and were usually female (77 percent versus 33 percent male). Health workers who could not be reached were more likely to be men and less likely to be married or to have a partner or children compared with the re-interviewed health workers, which may mean that they were also more likely to have left the country.

Table 1.4: Characteristics of the cohort sample, migrants, and the missing

	Doctors				Nurses			
	Sample in 2004	Sample in 2007	Migrants	Missing in 2007	Sample in 2004	Sample in 2007	Migrants	Missing in 2007
Age in 2007 (years)	26.3	26.3	26	0	25.3	25.4	26.3	24.9
Male	86%	86%	50%	0%	49%	45%	33%	67%
Married in 2004	4%	4%	0%	0%	10%	12%	0%	0%
Married in 2007	0%	17%	0%	0%	0%	11%	0%	0%
With partner in 2004	25%	26%	0%	0%	30%	32%	50%	17%
With children in 2004	3%	3&	0%	0%	10%	12%	0%	5%
With children in 2007	0%	3%	0%	0%	0%	24%	0%	0%
Total observations	90	88	2	0	219	177	9	30

Source: Serra, Serneels, and Lindelow 2010.
Note: Two nurses passed away, and one nurse joined a monastery.

Labor Market Exit

After three years of graduation, attrition does occur quite significantly, and is largely related to migration and, to some smaller extent, premature death. Although attrition out of the health labor force is relatively limited within three years of graduating, in later years attrition greatly affects HRH stock, particularly of high-level professionals such as doctors. Box 1.6 discusses retirement and the age structure of the labor force.

Box 1.6: Retirement and age structure

Retirement of health workforce is a less likely reason for exit from the health labor market in Ethiopia, as the existing health workforce is relatively young. It may only become an issue in the distant future. Currently more than half (51 percent) of the health workforce are young and under 30 years (table B1.6.1). Only a few (5 percent) are 50–60 years. The low age structure of many medical workers reflects the recent and increased scale up in the production of HRH cadres.

Table B.1.6.1. Health workers by age group and cadre, 2009

		Age group				
Occupational category	Total	Under 30	30–39	40–49	50–59	60 and older
General practitioner	752	281	283	123	63	2
Physicians specialists	714	95	231	290	94	4
Nurses (excluding midwives)	15,967	7,955	4,445	2,695	846	26
Midwives	1,059	600	333	89	37	0
Health officers	1,291	610	405	213	61	2
Dental technician	25	15	5	3	2	0
Pharmacists	530	435	76	14	5	0
Pharmacy technician	1,578	1,153	349	51	23	2
Laboratory workers	2,191	1,466	479	164	71	11
Environment and public health workers	1,030	673	263	74	20	0
Radiographer	128	56	23	30	18	1
X-ray technician	110	33	30	30	14	3
Health assistant	1,275	135	416	436	265	23
Health extension worker	1,563	1,226	254	66	17	0
Other health professional	1,171	518	400	189	60	4
Total	29,384	1,5251	7,992	4,467	1,596	78

Source: WHO 2009.

Migration

A significant number of doctors and nurses migrate abroad, with more recent data showing a slightly improved picture. A study drawing on earlier data (Clemens and Pettersson 2008) showed that outmigration of doctors and nurses was high already in 2000—at 30 percent and 17 percent of the stock, respectively—with the United States the preferred destination, followed by the United Kingdom and Canada (table 1.5). A more recent analysis estimated that 26.4 percent of physicians trained in the country have migrated abroad (Bhargava, Docquier, and Moullan 2010). Indeed, a few years ago more Ethiopian doctors were practicing outside the country than in it (Neusy and others 2007). Such rates of out-migration, particularly of doctors, are significant, and contribute to the stagnant doctor to population densities despite recent increases in production.

Table 1.5: Ethiopian doctors and nurses abroad by country of destination, 2000

	Doctors	Nurses
Domestic "stock"	1,310	5,342
Emigrated to		
United States	420	888
Canada	30	75
United Kingdom	65	61
Australia	9	37
France	16	16
Portugal	1	0
Spain	1	0
Belgium	2	0
South Africa	9	0
Total abroad	553	1,077
Proportions of migrants	30%	17%

Source: Clemens and Pettersson 2008.

Many doctors and nurses plan to migrate within three years of graduating. The study (Serra, Serneels, and Lindelow 2010) found that 52 percent of nurses and 60 percent of doctors in 2007 were planning to migrate. More than 80 percent of them had applied for a "lottery visa," which would allow them to leave the country. The same study found that protestants and those who are less satisfied with their jobs are more likely to have migration plans. Activities of U.S. NGOs, which tend to be protestant, expose health workers to opportunities elsewhere (Serra, Serneels, and Lindelow 2010).

Some analysts attribute high levels of outmigration to the fact that Ethiopia's curricula, as in many other countries in SSA, are oriented toward training "western doctors." Hence, instead of producing doctors to serve Ethiopia's health needs, Ethiopia tends to train doctors for the international labor market. Graduates obtain their skill sets and knowledge from "western style" curricula and "western" specializations and work practices which often have little relevance to health practice in Ethiopia (Neusy and others 2007).

From the migrants' viewpoint, the urge to migrate may stem from dissatisfaction with earnings and working conditions (Serra, Serneels, and Lindelow 2010). Counting private and public nurses and doctors, about 80 percent of health workers were either unsatisfied (20 percent) or completely unsatisfied (about 60 percent) with their salary. A contingent valuation, which determines the hypothetical salary increase required to keep health workers from migrating abroad, found that only 30 percent of nurses and doctors would be willing to stay in the country at the current salary level (Serra, Serneels, and Lindelow 2010). Among other variables, slightly fewer health workers were dissatisfied with their chances of promotion and access to further training. (Serra, Serneels, and Lindelow 2010). These, including other factors, may be push factors that contribute to the motivation of health workers to migrate aboard.

Similar to Clemens and Pettersson (2008), Serra, Serneels, and Lindelow (2010) found that the large majority of potential migrants hoped to work in the U.S. health sector, earning a high salary. Nearly 90 percent of health professionals planning to emigrate wanted to go to the United States, and almost all of them (97 percent) wanted to work in the health sector if they moved abroad; only 25 percent thought it might be difficult to work in health abroad. The average doctor expected to earn $11,280 a month and the average nurse $10,198 a month (Serra, Serneels, and Lindelow 2010). This is far from the entry level baseline salary that medical doctors or nurses received in Ethiopia in 2007—$146.177 (Br 2,488) and $96.11 (Br 1,636) respectively (not taking into account other benefits and incomes).

Premature death

Although significantly lower than in many other countries in SSA, another reason for attrition and thus a downward pressure on stock is premature death. Some estimates of premature mortality in selected countries in Sub-Saharan Africa found those rates in Ethiopia to be higher than in others (Adjuik and others 2006). WHO estimates on the other hand suggest that the crude death rate of health workers is significant, although lower than in many other countries in SSA. Table 1.6 shows that the crude death rate per 1,000 active health workforce in Ethiopia was estimated to be 23, and for nurses 20. One possible factor for premature death in Ethiopia is HIV/AIDS (the most prominent reason for premature death) with an HIV/AIDS adult prevalence rate of 2.3 percent in 2010, which is however significantly lower than in many other countries in SSA, particularly in Eastern and Southern Africa (Index Mundi 2010).

Table 1.6: Estimates of premature mortality in selected countries in the Africa Region

	Crude death rate pre 1,000 active health workforce among:	
Country	**Physicians**	**Nurses and midwives**
Central African Republic	25	21
Congo, Democratic republic	23	19
Côte d'Ivoire	25	22
Ethiopia	23	20
Kenya	23	23
Liberia	24	20
Madagascar	21	20
Rwanda	25	19
Sierra Leone	26	22
Tanzania	24	22
Uganda	26	22
Zambia	28	22
Zimbabwe	28	24
Grand total	24	21

Source: Kinfu and others 2006.
Note: The estimated deaths only refer to the stock of health workforce aged under 60 years and does not include those who die after age 60. The national sex-specific life tables required for the calculation are from WHO database (WHO 2005).

Notes

1. Considering physicians, nurses, and midwives, Speybroeck and others (in an article published by WHO) estimate that countries with less than 2.28 health workers per 1,000 people (that is, 23 per 10 000 populations) will present problems to achieve 80 percent skilled coverage of births, one of the interventions considered by the Millennium Development Goals (MDG).
2. It is not clear what the spike in 2002 reflects, and this may be an issue of FMOH data quality.
3. Target-based approaches set targets for specific health care services, based on health worker supply or health services demand (Hall, 2001). Targets are created using information about current services provided, technologies in use, demand, and expert opinion (Dreesch and others, 2005). These targets are then translated into staffing requirements for personnel and productivity norms for health care facilities (Dreesch and others, 2005; Hall, 2001).

CHAPTER 2

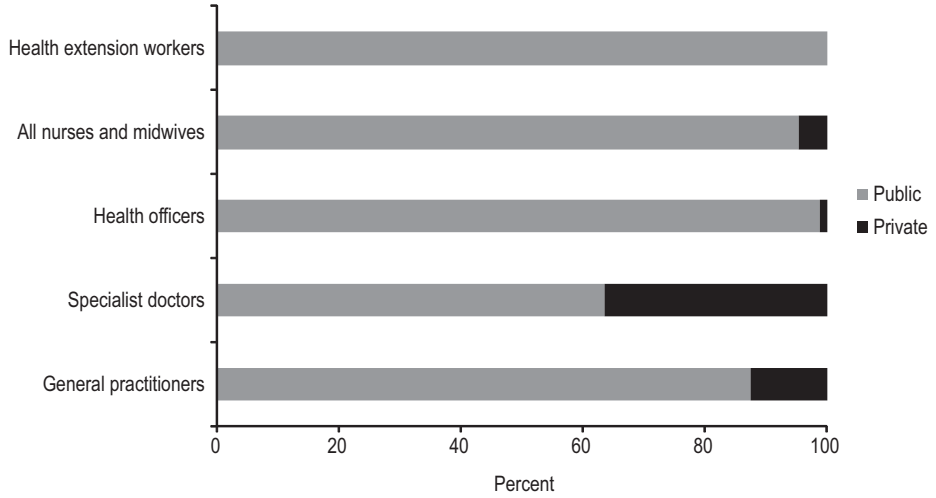
Public–Private Distribution of Human Resources for Health

The vast majority of health workers in Ethiopia work in the public sector. Only 5.8 percent of health workers in the formal sector are working solely outside the public sector according to FMOH (2009).[1] This probably underestimates the true proportion as there are no census data or other studies to substantiate this figure.

Of all health workers, medical doctors followed by nurses are the two cadres most represented in the private sector. Figure 2.1 shows that when disaggregating by cadre, a larger proportion of medical doctors (approximately 15 percent of general practitioners and close to 40 percent of specialists) work full time in the private sector than nurses (less than 5 percent). The study by Serra, Serneels, and Lindelow (2010) found that from a total of 227, 18 percent of doctors and 27 percent of nurses were working in the private sector three years after graduating.[2]

Within the private sector, nurses tend to be employed more in the private not-for-profit sector, whereas medical doctors work in private for-profit facilities and universities (box 2.1). This may be related to the higher levels of altruism that nurses often exhibit over doctors, which is discussed in chapter 3 of this paper.

Figure 2.1: Distribution of physicians and nurses by the sector they are working

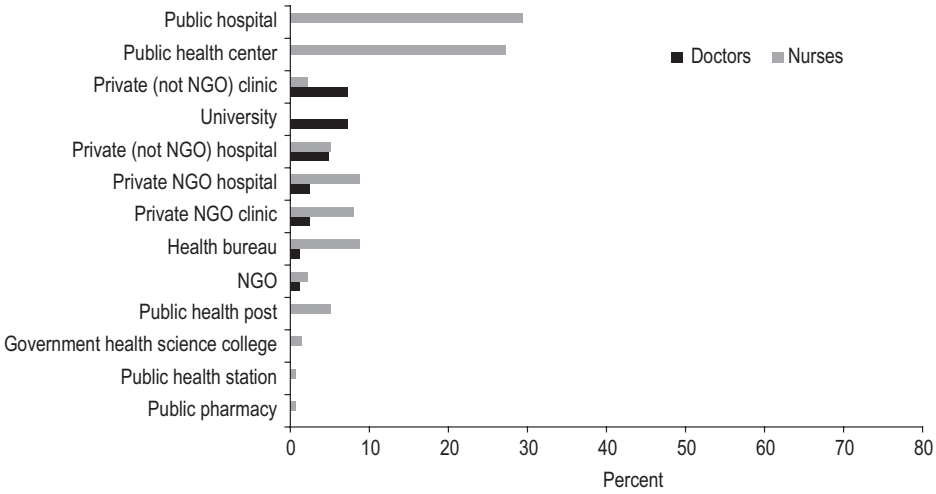


Source: FMOH 2009.

Box 2.1: Distribution of a sample of nurses and doctors by level and type of facilities

The cohort sample studied by Serra, Serneels, and Lindelow (2010) offers a look at the distribution of doctors and nurses within particular health facilities in both the public and private sector. The study found that out of the study sample of 227, three years after graduating doctors work especially in a public hospital (74 percent), at the university (7 percent), a clinic (7 percent), or a private for-profit hospital (5 percent), while nurses work especially in a public hospital (29 percent), a public health centre (27 percent), a health bureau (9 percent), a private not-for-profit hospital (9 percent), or a not-for-profit clinic (8 percent).

Figure B.2.1.1. Distribution of a sample of nurses and doctors by level and type of facilities



Source: Serra, Serneels, and Lindelow 2010.

Explaining the Public–Private Distribution

The skewed distribution of the health workforce towards public sector employment is largely a result of a strong government public sector emphasis in Ethiopia. This has resulted in the creation of a relatively "large" public sector health labor market, and with it public labor market demand for health workers.[3] Government funding for the public health sector has recently increased by 128 percent, from $522 million in 2004/05 to more than $1.2 billion in 2007/8. The public health sector wage bill (measured through a proxy as the proportion of recurrent expenditure) as a share of overall health expenditure has also been increasing, from less than 4 percent in 1990 to over 10 percent in 2006/7 (Fourth Round National Health Accounts).

Increased growth of the number of profit and not-for-profit health facilities has brought with it increased labor demand in the private sector, which explains existing private sector job uptake. Growth of private health facilities in the country is evident, and private hospitals are appearing in all regional towns (Girma and others, 2007). There is an increasing trend in the expansion of private health facilities in the foreseeable fu-

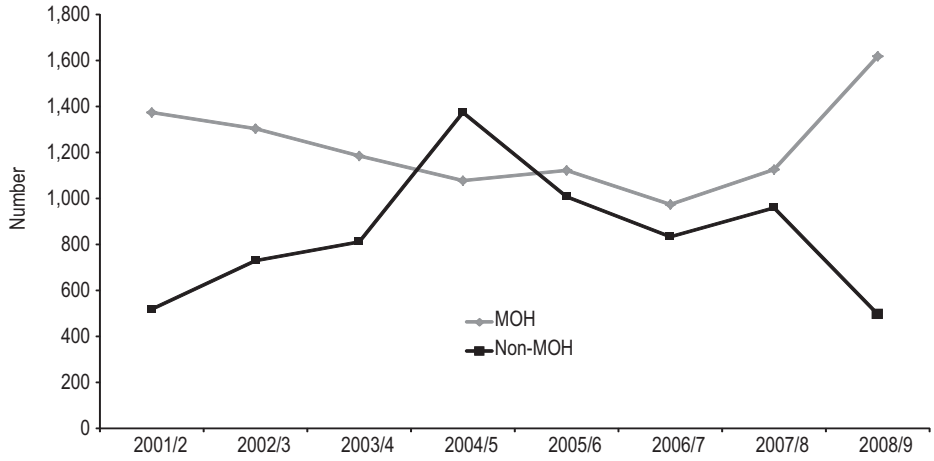
ture. A study in 2007 suggested that the proportion of health workers in the private and NGO sector "may reach up to 50 percent in the future, depending on the HRH category" (Girma and others, 2007). Interestingly, evidence on the distribution of doctors in 2009 shows otherwise. The number of doctors working in FMOH facilities in recent years has increased at the expense of those in the private sector (figure 2.2).

On the supply side, health workers in Ethiopia see distinct qualities of working in both the public sector and the private sector. They remark that most private clinics are owned by lay investors who have a profit motive. Although this may have positive consequences for performance, it may have negative consequences for workload, training opportunities, and job security. Thus, whereas a private sector job may offer more flexibility and access to modern technology, and higher salaries (for some cadres—see below), the public sector offers job security, benefits, and access to training (Lindelow, Lemma, and Serneels 2005).

There is evidence that the existing private sector job uptake of nurses and doctors may in part be linked to their stronger dissatisfaction with public sector work characteristics. The cohort survey of nurses and doctors employed in the health sector in Ethiopia found that while 70 percent of private sector health workers are "unsatisfied" with their job, for example, the proportion for those "completely unsatisfied" is below 40 percent compared with 70 percent in the public sector (figure 2.3).

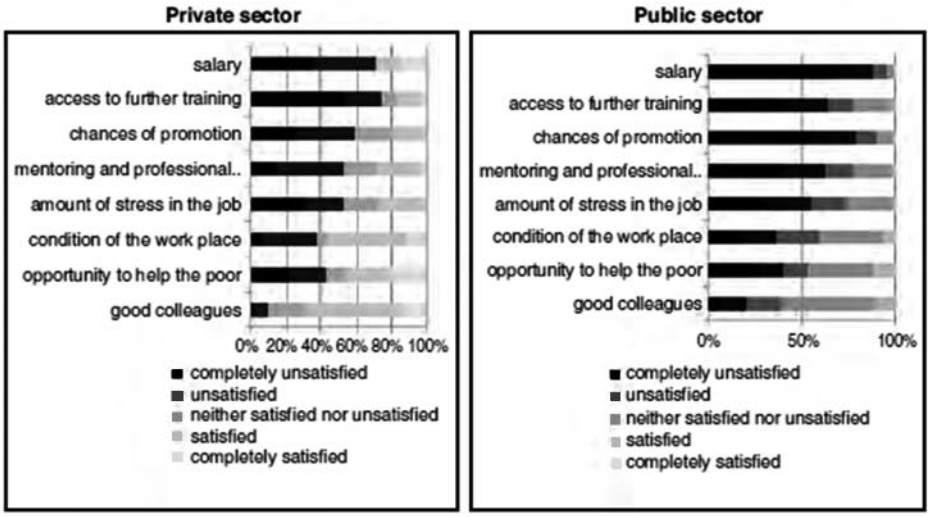
The fact that medical doctors as a cadre are most represented in the private sector can largely be attributed to remaining salary differences between the sectors. Although salary increases for health workers between 2003 and 2008 (see box 2.2) helped narrow the gap between the public and private sectors for mid-level workers, a wide gap still exists for high-level professionals such as medical doctors. A sample study by Serra, Serneels, and Lindelow (2010) shows that a doctor employed in a public health facility in 2007 earned on average Br 2,050 ($224) a month, or almost one-third of the salary in the private sector, which is Br 5,545 ($608). Similarly, a nurse working in the public sec-

Figure 2.2: Distribution of physicians, FMOH and Non-FMOH facilities, 2001–09



Source: Girma and others 2010.

Figure 2.3: Satisfaction with job characteristics by sector (doctors and nurses)



Source: Serra, Serneels, and Lindelow 2010.

Box 2.2: Increase in base salary in the public sector for selected HRH categories (2002–07)

			Initial monthly base salary, Br		
Category	**Level**	**Education level**	**2001/2**	**2004/5**	**2006/7**
Clinical specialist	PS 9/1	3–4 years training after being general practitioner	2,325	2,645	4,264
General practitioner	PS 4/1	6–7 years after high school graduation	1,255	1,435	2,488
Health officer	PS 1/1	4 years after high school graduation	805	942	1,636
B.Sc. nurse	PS 1/1	4 years after high school graduation	805	942	1,636
Diploma nurse	JP 6/2	3 years after 10th grade	595	716	884
Certificate professional and health extension worker	JP 4/2	1 year after 10th grade		502	763

Source: FMOH 2010.

tor earned on average Br 724 ($80) a month, or nearly half the salary he or she would make in the private sector, which is Br 1,280 ($141). At the same time, a comparison of the salary gap needs to be taken with caution: the picture on salaries alone does not reflect the true picture on compensation (for example benefits, allowances, and additional income—through dual practice for example—often obtained in addition to baseline salaries) (table 2.1).

Table 2.1: Total net salary by sector and location 2007

	Doctors				Nurses			
	Public		Private		Public		Private	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Total net salary (Br)	2,494	1,991	5,619	3,828	705	748	1,126	1,353
p-values for equality of means test	p=0.005		p=0.03		p=0.37		p=0.21	
Minimum salary (Br)	1,810	1,206	3,500	2,690	576	582	375	700
Maximum salary (Br)	3,165	3,200	8,000	7,500	1,181	2,300	3,163	5,114

Source: Serra, Serneels, and Lindelow 2010, p. 26.

Notes

1. This does not take into account dual practice, which is discussed in chapter 4.
2. The private sector includes for-profit and not-for-profit health facilities.
3. Labor market demand is defined as the ability of the employer to hire health workers. This in turn is dependent on adequate physical capacity, such as health facilities, as well as a budget with which to pay health worker salaries.

CHAPTER 3

The Geographic Distribution of Human Resources for Health

Urban–rural and regional imbalances are large in Ethiopia, and rural and remote regions are particularly underserved particularly by doctors. Of the 973 physicians classified as working in the public sector in 2008, for example, 37 percent were working in the capital, Addis Ababa, home to only 4 percent of the population (CSA 2008). Physicians outside the capital also work in major cities (Jack and others 2009). Serra, Serneels, and Lindelow (2010) reported a similar rural paucity for the cohort (table 3.1) and a much lower rate for doctors than nurses.

Table 3.1: Distribution of doctors and nurses by location, cohort sample, 2007

	Doctors	Nurses	Total
Rural	17% (14)	36% (51)	29% (65)
Urban	83% (70)	64% (88)	71% (162)

Source: Serra, Serneels, and Lindelow 2010.

Taking into account population numbers, the ratio of health workers to the population also shows a heavy urban bias particularly of higher level cadres but also midwives (table 3.2). (Addis Ababa, Harari, and Dire Dawa are urban settings.) The ratio is particularly skewed among doctors particularly specialists: Benishangul Gumuz, for example, had no surgeon and Gambella had only one surgeon in 2007 (FMOH 2008/9). A similar picture was observed for obstetricians.

The rural ratio of nurses to the population is more favorable, as is the ratio of health extension workers to the population. The more than 30,000 health extension workers are unique in that they are found particularly well distributed across rural regions. In rural regions such as Gambella for example, there is one health extension worker for every 728 people, a staggering ratio considering that the same region is home to only one midwife per 83,150 population.

Table 3.2: Population-to-health worker ratio by category and region

Region	Population	Physicians	Health officers	Nurses	Midwives	HEWs
Afar	1,473,863	98,258	50,823	7,967	—	3,930
Oromia	28,756,503	76,075	64,189	5,706	100,197	2,234
Somalia	4,672,984	65,817	389,415	14,882	103,844	4,248
Southern Nation, Nationalities, and People's Region	15,927,649	65,817	72,398	4,002	50,404	2,126
Ben-Gumuz	711,702	59,309	16,945	1,575	19,235	1,426
Amhara	17,804,309	58,567	41,024	4,698	83,983	2,775
Tigray	4,532,875	44,880	24,111	1,944	24,502	3,600
Gambella	332,599	25,585	25,585	3,655	83,150	728
Diredawa	360,183	6,796	18,957	1,324	18,009	4,867
Harari	193,002	6,655	6,226	699	6,655	6,031
Addis Ababa	2,854,462	3,056	16,791	845	11,699	—
National	77,812,236	36,158	48,451	3,870	56,427	2,545

Source: FMOH 2009.

Explaining the Geographic Distribution

The geographic distribution of health workers is largely determined by the number of health workers entering the rural labor market (relative to the urban market), and the number of health workers exiting the rural labor market.

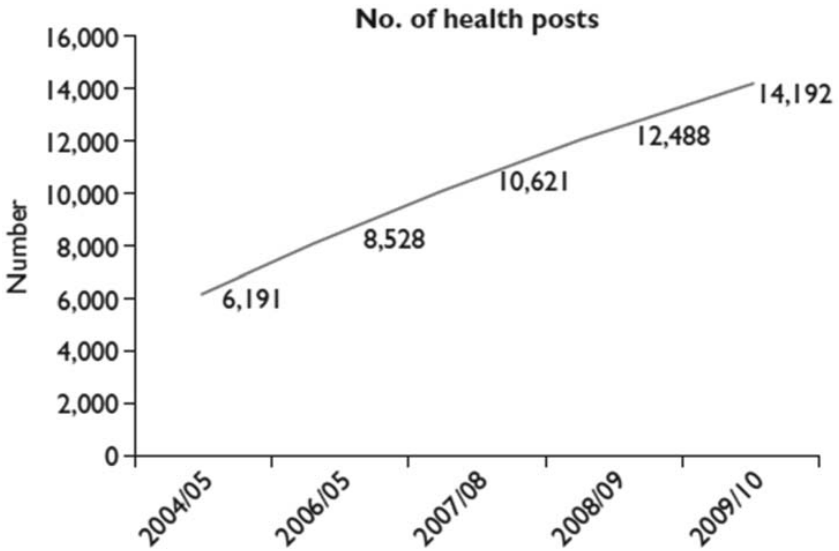
Rural versus Urban Labor Market Entry

Higher level cadres in particular tend to be distributed toward urban areas in part because funding and infrastructure to hire and accommodate health workers remains largely urban-biased. Health expenditures in Ethiopia have historically been distorted in favor of urban areas, and health facilities in Addis Ababa have traditionally received the largest share of public funds (Serra, Serneels, and Lindelow 2010).

At the same time, in recent years, strong government commitment to address the rural health crisis has led to concerted efforts to improve labor market demand, particularly for mid- and lower-level cadres (which partly explains their favorable distribution). The number of rural health facilities and with it funded vacancies has increased significantly over the past few years, along with an increase in health posts and health centers (figure 3.1). This is slowly changing the makeup of the public health provision, and is often reported to have resulted in a gradual increase in HRH, especially HEWs and mid-level professionals in the rural areas (FMOH 2007/8).

On the supply side, the large majority of nurses and even more doctors enter into an urban job after graduating. The cohort study by Serneels and others (2010) found that in their first jobs after graduating, only 44 percent of health workers (doctors and nurses) and just 25 percent of doctors were in rural postings. The disproportionate entry into urban areas is largely linked to weaknesses in the current deployment mechanism (see box 3.1) and the preferences of higher level health workers (particularly doctors) for urban practice. A survey of final year nursing and medical school graduates in 2004 found that only 9 percent of medical students and 34 percent of nursing students expressed a preference for working in a rural location after graduation

Figure 3.1: Number of rural health posts built through the HEP, EFY 2004–09



Source: FMOH 2009.

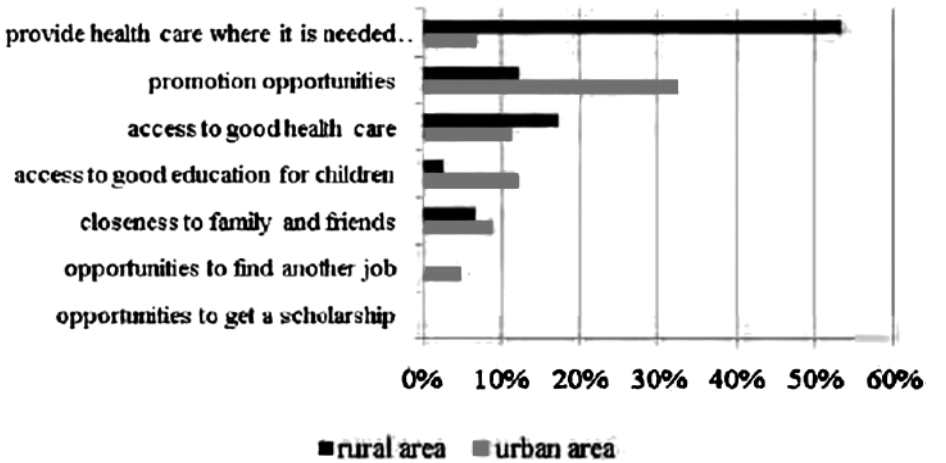
Box 3.1: The impact of a "lottery" to deploy nurses and doctors to rural areas

The government has developed a mechanism to intervene in the health labor market, and deploys physicians who have graduated to public health worker posts by lottery. The aim is to make rural assignment impartial and provide equality of opportunity. Some reports suggest that the lottery system is not widely used or easily bypassed, and thus does not seem to make much of an impact on deployment and rural/urban distribution patterns of doctors and nurses In Ethiopia, one study reported that participation in the lottery, which has historically been consistent at 50–70 percent, fell to about 20 percent in 2006* (Jack and others 2010). Serra, Serneels, and Lindelow (2010) reported that health workers felt that the lottery system was corrupt and that assignments were not really randomly attributed. They thought that the better connected and higher level cadres could usually obtain a place by choice.

Source: Jack and others 2010; Serra, Serneels, and Lindelow 2010; HRD 2009.
Note: *The government now reports that in more recent years, and since this study, open discussion between new graduates and FMOH management about the lottery and other issues has convinced more than 95 percent of new graduates to take part in the lottery (HRD 2009).

Urban locations are preferred by nursing and medical graduates due to a number of factors, including better promotion opportunities, access to education and good health care, closeness to families and friends, providing health care were needed, and opportunities to find another job. Figure 3.2 illustrates these responses of final nursing and medical school students in a 2004 cohort (Serra, Serneels, and Lindelow 2010).

Figure 3.2: Reasons nursing and medical school graduates want to enter a rural or urban location, 2004



Source: Serra, Serneels, and Lindelow 2010.

Evidence suggests that many of these assumptions of urban jobs are based on fact. The study by Serra, Serneels, and Lindelow (2010) found that doctors working in an urban public facility receive more training and receive more frequent formal evaluations, daily checks of presence, and monitoring from clients through complaints offices than their rural public counterparts. Nurses in rural areas seem to work more hours but, perhaps interestingly, have more access to training (table 3.3). The latter may be explained by the fact that the Ethiopian government is making concerted efforts to offer oppor-

Table 3.3: Nonmonetary compensation in rural and urban locations, 2008

	Doctors				Nurses			
	Public		Private		Public		Private	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Hours worked (average)	9.5	9.01	10.1	9.3	8.9	8.4	9.7	8.9
p-values	p = 0.34		p = 0.23		p = 0.05		p =0.12	
Training in first job (%)	62	66	17	22	70	55	21	48
p-values	p = 0.43		p = 0.40		p = 0.07		p = 0.05	
Promotion in current job (%)	12.5	13	17	44	16	15	29	44
p-values	p = 0.48		p =0.13		p = 0.43		p = 0.17	
Free access to health care (%)	88	57	33	66	67	67	100	76
p-values	p = 0.05		p = 0.10		p = 0.48		p = 0.02	
Daily checks of presence (%)	50	82	50	56	97	100	71	96
p-values	p = 0.02		p = 0.41		p = 0.08		p = 0.01	
Regular evaluation (%)	0	10	50	33	49	39	71	68
p-values	p = 0.18		p = 0.26		p =0.16		p = 0.41	
Complaints offices (%)	50	54	17	33	27	61	14	36
p-values	p = 0.41		p = 0.24		p = 0.000		p = 07	

Source: Serra, Serneels, and Lindelow 2010.
Note: Apart from the average hours worked row, all rows give the percentages of health workers responding affirmatively to the corresponding question.

tunities for postgraduate training , particularly for professionals who served in remote health facilities (such as in Tigray) (FMOH and TU, 2010).

A preference for urban jobs is associated with the urban origin of nursing and medical students. The study by Serra, Serneels, and Lindelow (2010) indicated that health professionals who were born in Addis Ababa and, to a lesser extent, who took their medical education in Addis Ababa, were more likely to work in an urban area, confirming that an urban background may greatly decrease the likelihood of ultimately working in a rural area. A rural orientated training strategy may also explain why some mid-level and lower level health cadres are more evenly distributed (box 3.2).

Box 3.2: Improved distribution of mid- and lower-level cadres attributed to expansion of rural training initiatives

Over the last decade there has been significant expansion of mid-level and community-level training institutes, which is thought to contribute to improvements in the rural urban distribution of HRH. Most importantly, the new training institutions are established in emerging regions, where the deployment and retention of health workers is challenging. The regional training colleges provide training on various mid-level and community-level training categories including nursing, pharmacy technicians, laboratory technicians, and HEWs. Health extension workers themselves tend to come from rural backgrounds (that is, they are nominated by rural communities) and are trained in rural contexts, which aids their subsequent rural deployment.

Source: Serra, Serneels, and Lindelow 2010.

Altruistic reasons shape the behavior of those willing to work in rural areas. Figure 3.2 shows that the minority of nurses and doctors preferring rural to urban postings (which includes a larger share of nurses than doctors) did so mainly to "provide health care where it is needed" (Serra, Serneels, and Lindelow 2010). Health extension workers revealed similar motivations. When asked in another study for the main reason they joined the Health Extension Program (HEP) 45 percent listed "to help the community" as the primary reason (Center for National Health Development in Ethiopia 2008).

Box 3.3: Overview of the study by Jack and others, 2010

The study by Jack and others, 2010 called "Incentives and Dynamics in the Ethiopian Labor Market" was produced by the Africa Region HRH Program of the World Bank. The study uses data from nearly 1,000 health workers in 2007 to examine the incentives and constraints that health workers face when choosing where to work, the likely responses of workers to alternative incentives packages, and the long-term performance of the health worker labor market. For the detailed findings of the analyses see Jack and others, 2010.

Source: Jack and others 2010.

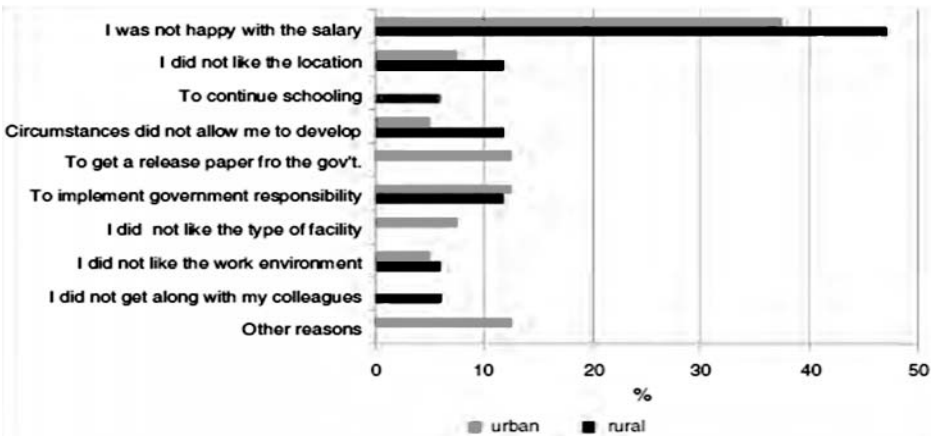
Rural Labor Market Exit

Nurses and particularly doctors deployed in a rural area for their first job, tend to rapidly transfer to an urban posting not long into their career. In the cohort of Serra, Serneels, and Lindelow (2010), the proportion of health workers who obtained a job in a rural area declined over time. Three years after graduation, from a total number of 227 observations in 2007, only 29 percent of health workers (doctors and nurses) employed in the

health sector were still in rural areas (down from 44 percent of graduates in their first job in 2004). Disaggregating by cadre, the proportion of doctors had fallen to 17 percent from 25 percent.

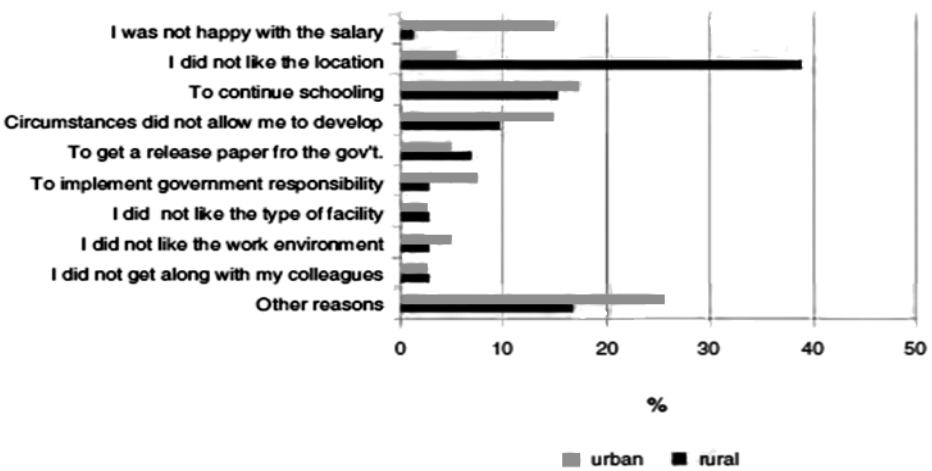
This shift towards urban areas three years into their career largely reflects increasing dissatisfaction with salaries and the location. The cohort study found that among those health workers who had quit their first rural area jobs and moved to urban areas, dissatisfaction with salary (more among doctors) and location (more among nurses) were the most important reasons for leaving the rural job (figures 3.3 and 3.4). It suggests that intrinsic motivation of graduates decreases over time and gives way to new prioritizations and the often harder realities of rural life.

Figure 3.3: Reasons doctors quit their first job, by location



Source: Serra, Serneels, and Lindelow 2010.

Figure 3.4: Reasons nurses quit their first job, by location



Source: Serra, Serneels, and Lindelow 2010.

The dissatisfaction particularly of doctors with salaries is interesting, given that baseline salaries plus benefits and allowances in Ethiopia in the public sector tend to be higher in rural than in urban areas (this is quite unusual in Africa). Salaries and allowances for doctors in rural public sector employment are significantly higher than those of nurses (table 3.4).

Table 3.4: Salaries and most important allowances by sector and location

	Doctors				Nurses			
	Public		Private		Public		Private	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Observations	8	61	6	9	37	67	14	25
Net salary (Br)	1,332	1,423	4,967	3,792	678	708	1,051	1,249
p-values	p = 0.23		p= 0.09		p = 0.20		p = 0.24	
Location allowance (Br)	912	279	0	0	0	4	17.5	0
p-values	p = 0.0001		p = /		p = 0.23		p = 0.09	
Housing allowance (Br)	187	199	75	0	19	4	18	48
p-values	p = 0.43		p = 0.06		p = 0.008		p = 0.32	
Occupational allowance (Br)	62	71	210	0	15	3	4	30
p-values	p = 0.44		p = 0.13		p= 0.06		p = 0.19	

Source: Serra, Serneels, and Lindelow 2010.

At the same time there is evidence of marked differences in financial benefits and allowances for the same categories of HRH assigned to similar rural hardship categories. A study by Jack and others (2010) showed that for example in Tigray, the top-up for a medical specialist assigned at level C hospitals is Br 3,443.50, while similar professionals at level C get Br 1,500 in Amhara, Br 2,400 in Oromiya, and Br 3,000 in SNNPR. Furthermore, there are also variations in eligible categories for financial incentives (box 3.4). Such variations may contribute towards dissatisfaction and instability for some health workers.

Box 3.4: Variations of regions in eligible HRH categories for financial incentives

The regions show some variation in eligible HRH categories for financial incentives. According to a recent review of retention mechanisms (FMOH and TU 2010), in almost all regions, medical specialists and GPs are the main categories eligible for top-up and improved duty and other allowances. In Oromiya, however, the top-up extends to all health professionals who have a first degree and above. Taking into account the existing market imperatives, the Oromiya region has revised the scheme to include only scarce skill professionals.

Source: Serra, Serneels, and Lindelow 2010.

Perhaps most importantly, dissatisfaction with rural salaries further reflects the potential to earn significantly more in urban areas by working in the urban private sector or by carrying out additional income activities. The study on health worker salaries of medical doctors by Jack and others (2010) show that public sector doctors in Addis Ababa earn additional income equal to 21 percent of their salaries (the equivalent figures

in SNNPR and Tigray are 17 percent and 33 percent)—see chapter 4 for details on dual practice and earnings.[1] The study also found that asset ownership is higher in Addis Ababa, with 50 percent and 25 percent of the doctors working in private and public facilities reporting ownership of a car, compared with less than 2 percent and 5 percent, respectively, in rural regions of SNNPR and Tigray. These patterns of ownership match the patterns of earned incomes.

Notes

1. Dual practice in Ethiopia is largely illegal, although some regions (including Tigray, Somali, and Harari) allow private practice in non-office hours.

CHAPTER 4

Performance of Human Resources for Health

Performance is a broad concept which is challenging to assess. The conclusions in this chapter should be viewed with caution, given the lack of hard evidence and the reliance a limited number of studies and evidence only. Much more research is required, particularly pertaining to evidence on performance of specific health worker cadres.

Performance can be measured by assessing variables such as health worker availability, competence, responsiveness, and productivity.[1] These may be explained or further affected by five main determining factors: training, management and accountability structures, adverse working environments, coping mechanisms, and motivation of health workers (motivation can in turn be affected by the previous four factors) (table 4.1).

Table 4.1: Core performance variables and factors affecting them

	Availability	Competence	Responsiveness	Productivity
Training (pre and in-service)		X		
Management and accountability	X	X	X	X
Working environment (workload, equipment and supplies)	X	X		X
Coping mechanisms (dual practice, skill substitution)[a]	X	X		X
Motivation	X		X	X

Source: World Bank.
Note: The effects of "coping" mechanisms both affect performance variables, as are they symptoms of performance variables.

Availability

Qualitative evidence highlights the strong frustrations from both health workers and patients at hospitals in Ethiopia with complaints about health workers being absent during working hours (Serneels and Livens, 2010). Quantitative data from some government sources suggest that absenteeism levels in Ethiopia are relatively low, at less than 10 percent. In countries such as Zambia, health worker absenteeism of medical doctors in urban areas was measured to be more than 50 percent (Herbst and others, 2011). Such low levels in Ethiopia are quite surprising given that dual practice, particularly of medical doctors, seems to be significant (discussed below).

There is also evidence that waiting times (another indicator for low availability and also low responsiveness) *in hospitals* are generally found acceptable. A recent study on 100,000 households found that only 19 percent of clients were either partially satisfied or not at all satisfied with waiting times, leaving the vast majority satisfied or very satisfied (FMOH/ABT 2010). In another recent study, interviewees from 294 health centers and

health posts said that after arriving in their health facility before they are first attended by a medical worker, 62 percent wait for 15 minutes or less, and 26 percent for 16–30 minutes (CNDC 2010). In light of supply side problems, as well as suggestions that dual practice is prevalent in Ethiopia, reported evidence on absenteeism and waiting times, particularly in nonhospital settings, needs to be given further attention.

Knowledge and Competence

With regards to physicians, one concern is general practitioners' skills in basic emergency surgery. A 2010 assessment of general practitioners who graduated in the previous five years showed that more than 70 percent of them rated poor their competency in this area (Tulane University–CGHE, 2010: Preliminary analysis).

Some studies suggest that knowledge, particularly of nurses on life-saving procedures, is low. For example, the maternity care, particularly of nurses, is not always adequate (table 4.2). Especially worrying is the maternity care–related knowledge of nurses and their responses to what needs to be done when a woman arrives with, or develops, heavy bleeding after birth.

Table 4.2: Knowledge scores related to select maternity care, by health worker cadre

	Total (n=730)	Health officers (n=19)	Midwives (n=359)	Nurses (n=352)
Knowledge of focused antenatal care				
Average score (out of 6)	2.9	3.0	3.0	2.8
Knowledge of which pregnant women are at risk				
Average score (out of 8)	3.4	3.6	3.5	3.3
How do you know when a pregnant woman is in labor?				
Average score (out of 4)	2.9	2.9	3.0	2.8
What do you monitor when a woman is in labor?				
Average score (out of 9)	5.4	6.0	5.6	5.1
Where do you record this information?				
Average score (out of 5)	1.1	1.1	1.2	1.0
What are the steps of AMTSL?				
Average score (out of 4)	2.2	2.4	2.5	2.0
What do you look for when a woman arrives with or develops heavy bleeding after birth?				
Average score (out of 6)	3.1	3.1	3.3	2.8
What do you do when a woman arrives with or develops heavy bleeding after birth?				
Average score (out of 7)	3.6	3.5	3.9	3.3
What do you do when a woman has given birth and retained the placenta?				
Average score (out of 10)	4.0	4.0	4.4	3.6

Source: FMOH 2008, EmONC Baseline Assessment, p. 106.

Table 4.3: Knowledge scores related to abortion care and care for victims of sexual violence, by health worker cadre

	Total (n=730)	Health officers (n=19)	Midwives (n=359)	Nurses (n=352)
What are the complications of unsafe abortion?				
Average score (out of 4)	2.6	2.8	2.7	2.5
What do you do for a woman with an unsafe or incomplete abortion?				
Average score (out of 9)	4.2	4.4	4.5	3.9
What information do you give to women after unsafe or incomplete abortion?				
Average score (out of 6)	3.1	2.8	3.2	2.9
What do you do for the victim of sexual violence?				
Average score (out of 8)	3.2	3.1	3.3	3.0

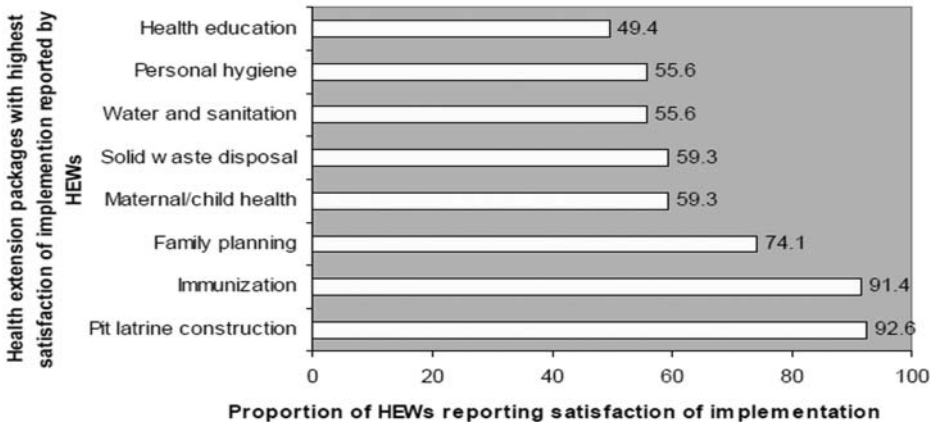
Source: FMOH 2008, EmONC Baseline Assessment, p. 108.

The study also suggested that knowledge related to abortion care and care for victims of sexual violence, particularly by nurses, is inadequate (table 4.3).

Health officers' knowledge on clinical competency areas seems to be more adequate than on public health competence, although worrying weaknesses remain including related to maternal care. A study was conducted on 747 graduating class health officer students through a standardized written examination on essential clinical and public heath competency in the curriculum. The majority (89 percent) of students scored above a passing mark (60 percent). The mean test score was 70.5 percent (SD=+/−9.3). Students scored better on clinical medicine than public health test items, with a mean test score of 77.6 percent (Carter Center 2009). Health officers' knowledge on internal medicine, pediatrics, and surgery is adequate, but not for obstetrics and gynecology (Carter Center 2009). Only 12 percent of the students were able to plot progress of a laboring mother on a partograph. Similarly only 27 percent of health officer students could use manual vacuum aspiration correctly. In addition, students' ability to pick and interpret clinical investigation findings was very poor with only 32 percent of generic and postbasic students able to pick typical X-ray findings of pulmonary tuberculosis.

Focus group discussions with health extension workers in 2008, who were asked to assess their own performance with regards to various aspects of service delivery revealed some concerns related to maternal and child health interventions (figure 4.1). This included particular dissatisfaction with their inability to attend to women in labor. (USAID, FMOH, 2008[2]) The finding was corroborated by a household survey which found that Health Extension workers are rarely addressing health messages concerning pregnancy care, newborn care, and treatment practices for sick children, among others to women (Last Ten Kilometers project, 2009). This is perhaps not surprising. HEWs currently only refer these women to the health center or hospital.

Figure 4.1: HEWs reporting highest satisfactory performance with implementation of the specific health extension packages



Source: USAID, FMOH, 2008.

Responsiveness of HRH

Many studies show a positive picture of health worker responsiveness towards patients. A recent study of 10,000 households on the satisfaction of patients with health worker services provides an overall positive picture. More than 50 percent stated that they were "very satisfied" with the courtesy received from staff, and around 40 percent was "satisfied" (FMOH, Abt Associates 2010).

Another survey also paints a positive picture on responsiveness. Conducted on 768 outpatients of six health centers in West Shoa Zone, Central Ethiopia, this cross-sectional, facility-based study assessed patient satisfaction with health care provider interactions (Birhanu and others 2010). Perceived empathy, perceived technical competency, nonverbal communication, patient enablement, being told the name of one's illness, type, and frequency of visit, knowing the providers, and educational status were the main independent predictors of patient satisfaction. Of the respondents, 73 percent felt the provider's empathy to be good; 82 percent rated nonverbal communication to be good, very good, or excellent (on a five-point scale) (Birhanu and others 2010).

Table 4.4: Level of patient satisfaction with health care provider interactions at public health centers, Central Ethiopia, January 2009

Level of satisfaction	Number	Percent
Highly satisfied	76	9.9
Moderately satisfied	405	52.7
Neither satisfied nor dissatisfied	80	10.4
Somewhat dissatisfied	182	23.7
Highly dissatisfied	25	3.3

Source: Birhanu and others, 2010, p. 9.

Other surveys however point to some problems. Abdosh (2006) in his study of secondary (zonal) hospitals in eastern Ethiopia found that about 46 percent of patients were not satisfied with the overall service they received from health workers, while 58 percent were not satisfied with staff politeness. Similarly, exit poll data of a quantitative service delivery survey reported that clients perceive services to be unfriendly and intimidating: 93 percent of respondents said that staff members were impolite and uncooperative and only 23 percent felt that staff treating them were interested and attentive (CNDC 2009).

There are some indications that patients do not always leave health facilities understanding their illness and treatment options (health worker communication skills may be weak). Exit poll data of a quantitative service delivery survey by the CNDC showed that over one third, for example, reported that they were not told of the nature of their illness and their medical conditions, and were too afraid of the staff to ask. Just under one third reported not being told by medical staff what the drugs, syrups, or injection they received were supposed to treat (CNDC 2009). Another survey found similar results. Conducted on 768 outpatients of six health centers in West Shoa Zone, Central Ethiopia, this cross-sectional, facility-based study assessed patient satisfaction with health care provider interactions, and found that only 34.1 percent implied that the consultations made a difference in understanding their illness and coping with it (Birhanu and others 2010).

Factors Affecting Performance Variables

Training

Inadequacies related to both pre-service as well as in-service training are some of the strongest predictors of health worker competence. Pre-service training refers to the education health workers receive prior to working in the labor market, and in-service training covers on-the-job training and continuing professional development.

Pre-service education

One likely factor undermining health worker competence is the lack of adequately qualified teachers at health training institutions. All medical and health science training institutions have a critical shortage of instructors. While there had been a steady increase in student intake for medical health science training, the availability of instructors has not kept pace with the scale-up of pre-service training. The numbers of medical doctors and those with other higher level qualifications as core teaching staff are diminishing (Berhan 2008). Some corroboration comes from assessment from three medical and health science pre-service training institutions (FMOH and TUTAPE 2008). The assessment showed gaps in the quality of the education system, especially in terms of instructors.

Medical and health science college institutions also lack sufficient and appropriate physical and technological resources. The review by the Higher Education Relevancy and Quality Assurance Agency (HERQA-027, 029, 030, 2008) reported problems related to classrooms, laboratories, and libraries both in the new and older colleges. Some examples: in one of the newly established universities, classrooms built for 30 students were holding 60; a laboratory built for 25 students in one of the oldest medical schools was used by more than 300; another university did not have enough equipment or properly maintain the equipment it had; and most libraries have problems related to space, ICTs, access, and up-to-date education materials.

Furthermore, teaching equipment and supplies in training hospitals are sometimes inadequate and insufficient—in the high-profile Accelerated Training of Health Officers program, for example. In one study, availability of clinical equipment and supplies was rated low by half the graduating students surveyed (Carter Center 2009). Medical equipment and supplies in practical training hospitals were inadequate for the large number of students being trained by the majority of course coordinators and hospital staff. Opportunities for in-service training for instructors were also inadequate (table 4.5).

Table 4.5: Graduating class of Accelerated Training of Health Officer students' rating on availability of teaching and training inputs (teaching hospitals), August 2009 (percent)

	Graduating students' rating		
	High	Average	Low
Classroom teaching			
Adequacy, number, comfort, and size of classrooms for theoretical teaching	20	44	36
Reference materials	17	48	35
Electronic learning materials (CD, computers)	6	21	73
Skill training			
Models, mannequins, in the demonstration room	6	28	66
Clinical equipment and supplies in the clinical set-up for students use	9	40	51
Skill-learning guides/tools, checklists	9	45	46

Source: Carter Center 2009, p. 24.
Note: The number of respondents among generic and postbasic health officer students was 747.

Health worker curricula and learning models may not reflect local priorities and contextual need. As in many other countries in SSA, Traditional bio-medically oriented and hospital-based medical schools do not produce doctors with the knowledge, skills, or commitment needed to address today's public health needs and often lack firm social mandates (WHO 2006; Chen and others 2004; Woollard 2006; Boelen 2002; Majumder and others 2004). An assessment by Neusey and others (2009) in Ethiopia found that the existing medical education model and curricula falls short of meeting the evolving health needs of individuals and communities. On the contrary, it produces "single disease warriors," technically skilled and competent practitioners with little understanding and knowledge of population and public and rural health, health systems, and the various determinants of health. The New Medical Education Initiative, which is to reform curricula so as to make then relevant to the local and rural context, is meant to solve this problem. There is also some concern that the current training curricula for Health extension workers does not address specific training needs with regards to maternal health care (box 4.1).

At a more macro level, there are some indications that management of quality assurance of training standards may not always be adequate. Anecdotal evidence suggests that FMOH does not have enough means for checking or controlling the quality of train-

Box 4.1: Dissatisfaction of HEWs with lack of specific training

HEWs mention that they lack training on antenatal care, postpartum care, giving injections (with the exception of injectable contraceptives), first aid (for example, minor suturing), and how to operate refrigerators. Further, the follow-up of tuberculosis patients is one of their responsibilities, but they are unable to provide this service because there is no functional referral system for this health issue between the health post and the health center (USAID, FMOH, 2008[a]).

Source: USAID, FMOH, 2008.
Note: a. http://www.esdproj.org/site/DocServer/HEW_Performance_Assessment__Report_Sept_08.pdf?docID=2781.

ing institutions. The Higher Education Quality Agency under the FMOE is responsible for accrediting them (box 4.2), leaving the FMOH with little role in influencing either the process or outcome of training. Certification and licensing of health professionals, too, is said not to be well organized and is not linked to continuing medical education. There is no mechanism to examine graduates before they start professional practice.

Box 4.2: Accreditation and certification of training institutes, curricula, and health professions

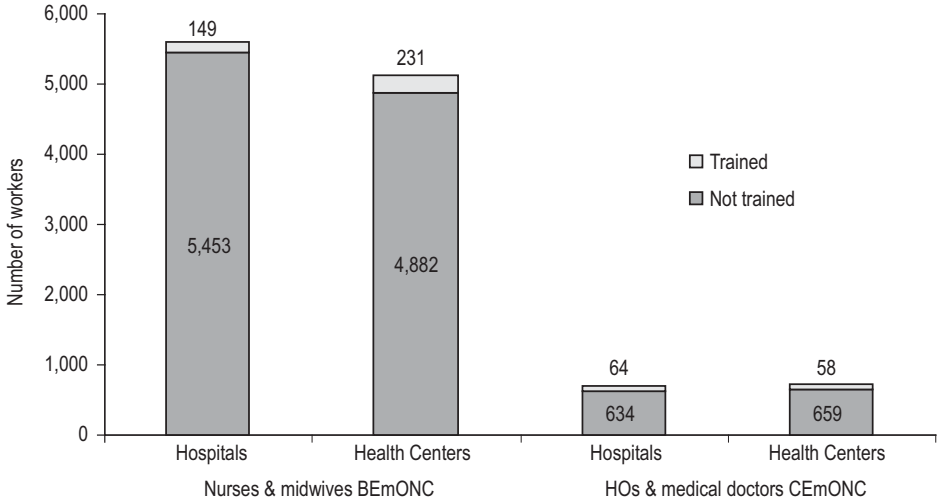
Accreditation and certification of training institutes, curriculum, and health professional fall under the FMOE. The ministry is also mandated to assist in developing higher education law and implement it. Medical and health science training institutions (for first degree and above training) are accountable to the FMOE. The major teaching hospitals are also under the universities. The FMOH and FMOE are making some effort to better coordinate accreditation and certification arrangements. A medical and health science training institution council was recently established to enhance coordination. It consists of representatives from medical and health science colleges, FMOH, and FMOE, and is co-chaired by the ministers of health and education.

Source: USAID, FMOH , 2008.

In-service education

In-service training often falls short and is rarely needs-based. It suffers from poor planning, coordination, and quality of its training programs (FMOH 2009). A recent study found that only 2.7 percent and 4.5 percent of nurses and midwives in hospitals and health centers, respectively, had received in-service training in providing basic emergency obstetric care, and only 9.1 percent and 8.8 percent of doctors and health officers in hospitals and health centers received in-service training in comprehensive emergency obstetric care services (figure 4.2).

Figure 4.2: Number of health workers provided with in-service training on EmONC, by type of facility



Source: FMOH 2009.

Management and Accountability

Inadequate performance management and accountability mechanisms may also impact performance but only very limited evidence exists. One study has linked key performance problems in Ethiopia to inadequate or nonexistent accountability mechanisms and enforcement, which are often attributed to the lack of reform to decentralize key management functions in Ethiopia to the facility level (Lindelow and others 2005).

Inadequate transfer of decision-making power to the facility level limits the effectiveness of the facility level manager to hold his or her staff accountable. Decision making pertaining to HRH such as policy and planning, management and administration, and educational development (box 4.3) was historically centralized. "Recent" implementation efforts to devolve key decision-making powers to the regions have created a new operating environment, where the federal level, in principle, continues to play a central role on policy and planning, as well as educational development but "does not impose" on the regions with regards to many functions on personnel. HRH-related decisions made regionally include recruiting (for established posts); deploying, transferring, promoting, and sanctioning staff; setting salaries; providing allowances and incentives; achieving recommended staff norms; and distributing block grants within the region. But few HRH management and administration functions have been devolved to the facility level. Hospitals cannot, for example, hire or fire health workers or use hospital-generated revenue to motivate staff. A recent health sector reform, which aims to establish hospital governing boards and private wings at public hospitals (see below discussion on dual practice for more information) under the federal government and some regions, may increase facilities' power to make decisions.

Box 4.3: Overview of HRH management functions

Policy and planning	Management and administration	Educational development
• Policies and policy manual preparation • Evidence-based planning • Assessments and use of evidence • Information management systems	• **Performance:** Job descriptions, supportive supervision, performance evaluations • **Personnel:** Job classification, recruitment, hiring, transfers and promotions, compensation, benefits, incentive plans, disciplinary and grievance procedures, policy manual writing, staff association interaction, regulatory compliance assurance (inclusive of private sector), accreditation • **Budget:** Management of the human resources budget according to function	• Provision to training related to staff requirements • Planning of continuing education to strengthen leadership and management • Liaison with educational establishments to ensure their courses meet HRH requirements • Procurement of short- or medium-term professionals

Source: World Bank.

There is some evidence that formal accountability arrangements are weak in both the public and private sectors, (including with health extension workers—see box 4.4) and as a consequence the system relies heavily on trust and self-regulation. The survey of 77 health facilities that had at least one doctor revealed supervision problems in three regions (Jack and others 2010). Doctors and nurses revealed that the degree of supervision is not always as high as it could be, and varies between facilities, regions, and cadres (table 4.6). A study in 2005 linked weak accountability arrangements and practices to the limited capacity of the FMOH, in particular at regional and district level, but officials also lack the incentives to hold providers and health workers accountable (Serneels and others 2005).

Table 4.6: Supervision of doctors and nurses (percent)

Facility conditions	All regions		Addis Ababa				Southern Nation, Nationalities, and People's Region		Tigray	
			Public		Private					
	Doctor	Nurse	Doctor	Nurse	Doctor	Nurse	Doctor	Nurse	Doctor	Nurse
Supervisor reprimands	31.1	40.3	34.7	39.5	36.0	49.0	34.2	38.8	12.8	38.9
Supervisor supportive	45.3	46.1	32.0	38.3	62.0	68.8	50.4	45.2	26.7	45.0

Source: Jack and others 2010.

Box 4.4: Supervision concerns of health extension workers

A study on the performance of health extension workers in Ethiopia in 2008 found limitations with regards to supervision. It argued that one of the main challenges affecting the performance of health extension workers is the absence of supportive supervision. Supervisory visits are often didactic and focused on fault finding instead of solutions. There is also lack of management support to provide supportive supervision, and infrequent supervisory visits for hard to reach areas, with inadequate funds for transport and per diem (USAID, FMOH, 2008)[a].

Source: USAID, FMOH, 2008.
Note: a. http://www.esdproj.org/site/DocServer/HEW_Performance_Assessment__Report_Sept_08.pdf?docID=2781.

A survey in 2009 of 78 health facilities in four regions did find some management and supervisory systems in place although there were variations across regions (CNDC 2009). The study also looked into facility management according to a range of indicators (table 4.7) across regions in terms of average days per week when facility representatives are available at their workplace, the availability of a facility management committee, as well as staff meetings and supervision from local administration, as indicated in table 4.7. The result shows variation among the regions.

Table 4.7: Facility management (health center) by region

	Region				
Type of services	Tigray N=6	Amhara N=22	Oromia N=27	Southern Nation, Nationalities, and People's Region N=23	Total N=78
Presence of in-charge at facility per week, days, mean	5.6	4.9	5.7	4.8	5.2
Facility has management committee (%)	100.0	90.9	92.6	100.0	94.9
Staff meetings per six months, mean	17.0	6.0	12.0	6.0	6.0
Supervised at least once a month by higher health offices/bureaus (%)	83.3	81.8	95.6	95.7	89.7
Supervised at least once a month by woreda/kebele administration (%)	100.0	31.8	48.2	39.1	44.9
Received community feedback on quality of service (%)	100.0	100.0	96.3	91.3	96.2
Mode of feedback used by community [a]					
Suggestion box	100.0	72.7	65.4	52.4	66.7
Staff	66.7	72.7	88.5	81.0	80.0
Facility committee	66.7	9.1	42.3	23.8	29.3
Woreda/kebele	83.3	90.9	57.7	76.2	70.7
Other	16.7	13.6	9.5	9.5	32.0

Source: CNDC 2009.

There is also some evidence that managers are not always adequately qualified. A WHO study found that only 31 percent of all managers were considered "qualified": 10 percent at woreda and hospital levels, 32 percent at zonal level, 88 percent at regional level, and 83 percent at federal level (WHO 2009). Almost three quarters of these (72 percent) were practicing clinicians including doctors, clinical officers, and nurses (AMREF and MSH 2009). Many of these managers express the need for additional training to improve their management skills (box 4.5).

Few managers are able to dedicate themselves full time to management functions. The proportion of Ethiopia's clinicians in management positions practicing medicine is 55 percent while 45 percent are not practicing. Two reasons are given for this duality of roles: first, a shortage of staff, especially in rural areas, resulting in management responsibilities added to already overwhelmed practitioners; second, few professionals opting

Box 4.5: Expression of need by facility level managers to improve their management skills.

A recent survey by MSH of facility managers found the following: Facility-level management respondents expressed needs for more knowledge to be able to effectively plan and manage in-service training (81 percent); additional training in general leadership and management skills, including leadership and advocacy (79 percent); more training on human resource development strategy, to better develop their organization's strategic HR plan, and to create strong retention programs (75 percent); more training to improve their capacity for using HR data systems (75 percent); additional skills related to personnel policy, including human resource planning, recruitment, hiring, discipline, and workplace safety programs (70 percent); and additional training to carry out performance management activities (70 percent)

Source: AMREF, MSH, 2009.

for management, because they regarded surgeon, specialist, or clinical nurse jobs as offering higher status and incomes (AMREF, MSH, 2009).

Adverse Working Environments

Working environment covers a range of issues, including the working hours and workload of staff, as well as the enabling environment for their work such as availability of adequate buildings, basic utilities, and equipment and supplies. High workloads globally are thought to impact performance by leading to rushed treatment and sometimes not seeing patients at all. Inadequate equipment available to health workers is sometimes linked to the inability of health workers to adequately address and treat specific cases and carry out their duties as trained for.

Workload

There is a general sense of high workload. A workload analysis per se, for Ethiopia, does not exist. However, in the study by Jack and others (2010) of 77 health facilities, health staff felt overworked, with variations by region, sector, and position—except for idle time, of which there was very little (table 4.8). The extent to which workload levels are linked to dual job holding requires further attention.

Table 4.8: Workload for doctors and nurses by region and sector (percent)

Facility conditions	All regions		Addis Ababa				Southern Nation, Nationalities, and People's Region		Tigray	
			Public		Private[a]					
	Doctor	Nurse	Doctor	Nurse	Doctor	Nurse	Doctor	Nurse	Doctor	Nurse
Often not time to do tasks	55.1	48.2	67.3	58.2	22.0	20.3	82.1	61.2	61.6	31.5
Usually time to do tasks	43.0	51.1	32.7	40.4	72.0	79.8	18.0	38.8	38.4	67.1
Idle time common	2.0	0.6	0.0	1.0	6.0	0.0	0.0	0.0	0.0	1.3

Source: Jack and others 2009.
Note: a. Includes for-profit and nonprofit NGO and missionary facilities.

Equipment and supplies

According to health administrators, availability of equipment and supplies is a major problem at the facility level and not necessarily worse in rural areas. Jack and others' interviews with administrators of 77 facilities that had at least one doctor revealed that facilities in the SNNPR and Tigray were not notably worse than public facilities in Addis Ababa, and that on some indicators (equipment to test for HIV and sufficient water supply) they were better than Addis Ababa (table 4.9).

Table 4.9: Facility size and conditions, 77 facilities

		Addis Ababa		Southern Nation, Nationalities, and People's Region	
	All regions	Public	Private[a]		Tigray
Facility size					
Number of sampled facilities (with at least one physician)	77	8	31	21[b]	17
Number of doctors	834	217	380	189	48
Doctor per facility	3.8 (4.9)	6.9 (10.6)	2.6 (2.4)	5.2 (4.8)	2.6 (2.2)
Number of inpatient beds	79.5 (91.7)	141.5 (112.2)	21.5 (40.1)	114.5 (63.5)	121.3 (105.6)
Number of inpatient beds per doctor	20.9	20.5	8.3	22.0	46.7
Number of outpatients	104.4 (93.3)	181.5 (86.9)	38.0 (43.0)	139.8 (77.0)	143.9 (106.8)
Number of outpatients per doctor	27.5	26.3	14.6	26.9	55.3
Hour travel to regional capital	—	—	—	6.0 (5.5)	5.3 (5.0)
Facility conditions (percent)					
Reliable electricity/phone	99.3	100.0	100.0	97.4	97.9
Functioning X-ray machine	91.3	77.0	81.6	85.2	83.3
Functioning laboratory	100.0	100.0	100.0	100.0	100.0
Functioning operating theater	62.1	61.8	42.6	92.6	97.9
Equipment to test HIV	83.6	66.4	86.8	92.6	100.0
Sufficient water supply	74.5	23.0	96.0	87.3	85.4
Sufficient medicine	79.1	88.5	72.9	88.4	50.0
Sufficient equipment	87.1	83.9	84.5	100.0	70.8

Source: Jack and others 2009.
Note: Statistics are calculated using frequency weights corresponding to the total number of doctors by region working in public hospitals; private hospitals; government health centers; and private, NGO, or missionary clinics.
a. Includes for-profit and nonprofit NGO and missionary facilities.
b. Includes three private facilities.

The same survey interviewed health workers (doctors and nurses) on facility conditions. Tigray, a rural region, generally showed the worst outcomes (table 4.10).

Problems also surfaced in a baseline national survey of capacity of hospitals, health centers, and clinics to deliver emergency obstetric and newborn care (FMOH 2008). The

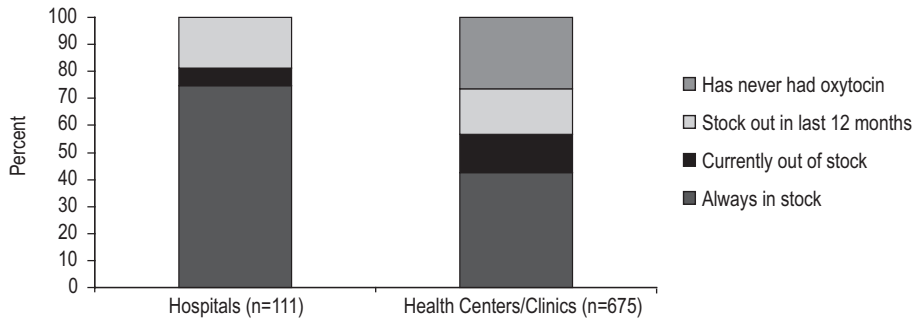
Table 4.10: Availability of supplies, 77 facilities (percent)

Facility conditions	All regions		Addis Ababa				Southern Nation, Nationalities, and People's Region		Tigray	
			Public		Private[a]					
	Doctor	Nurse	Doctor	Nurse	Doctor	Nurse	Doctor	Nurse	Doctor	Nurse
Soap	75.0	69.0	68.7	69.1	100.0	100.0	63.8	59.7	53.5	67.1
Water	75.0	75.2	82.5	79.9	98.0	100.0	59.0	61.8	44.2	77.2
Plastic gloves	88.7	85.7	84.3	84.8	100.0	100.0	92.2	84.3	68.6	82.8
Facial mask	58.7	43.0	57.8	51.8	88.9	92.5	49.1	32.1	16.2	23.5
Sterile syringes	93.7	91.8	91.1	92.1	100.0	100.0	94.7	92.1	84.4	87.2
Medicines	73.9	70.9	61.3	76.1	97.8	91.3	79.3	73.0	42.2	50.8

Source: Jack and others 2009.
Note: a. Includes for-profit and nonprofit NGO and missionary facilities.

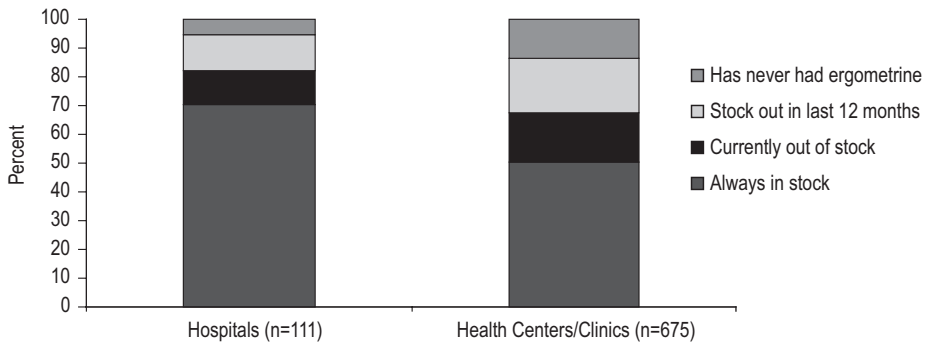
survey reviewed the availability of oxytocin and ergometrine—emergency drugs that should always be stocked—as a tracer for the overall situation of essential drugs and supplies (figures 4.3 and 4.4).

Figure 4.3: Availability of oxytocin at hospitals and health centers/clinics



Source: FMOH 2008, p. 118.

Figure 4.4: Availability of ergometrine at hospitals and health centers/clinics



Source: FMOH 2008, p. 118.

The same study found basic and emergency neonatal equipment in short supply in maternity wards of hospitals and health centers (table 4.11). Radiant heaters, incubators, phototherapy equipment, apnea monitors, mucus extractors, ventilator bags, face masks, laryngoscopes, and endotracheal tubes (in both hospitals and health centers) were particular issues.

Table 4.11: Facilities with basic and emergency neonatal equipment in the maternity area, by type of facility (percent)

Supplies and equipment	Hospitals (n=112)	Health centers/clinics (n=670)	Total (n=782)
Needed for newborn			
Fetal stethoscope	90	90	90
Rectal thermometer for newborn	35	20	22
Low reading thermometer (32° or 35°C)	38	36	36
IV fluid (neonatal giving) set/umbilical catheter	36	17	19
Baby weighing scale	93	89	90
Neonatal resuscitating table	76	35	41
Incubator	31	3	7
Radiant warmer	38	4	9
Icterometer	11	2	3
Fluorescent tubes for phototherapy to treat jaundice	12	2	4
Apnea monitor	10	1	2
Paladay/small cup for breast milk expression	47	17	21
Towels or cloth for newborn	59	20	25
Neonatal resuscitation pack			
Mucus extractor	81	47	52
Infant face masks (sizes 0, 1, 2)	73	32	38
Ventilatory bag	76	34	40
Suction catheter 10, 12 Ch	67	17	25
Infant laryngoscope with spare bulb and batteries	30	3	7
Endotracheal tubes 3.5, 3.0	30	1	6
Disposable uncuffed tracheal tubes (sizes 2.0 to 3.5)	31	2	6
Suction apparatus: Foot- or electrically operated	75	16	24
Mucus trap for suction	67	18	25

Source: FMOH 2008, p. 122.

Coping Mechanisms

So called "coping mechanisms" are thought to affect availability/absenteeism, competence, and responsiveness. They are also often a symptom of performance variables. Copying mechanisms discussed below include dual practice on the part of health workers (holding multiple jobs to cope with low salaries or poor working conditions) and skill substitution on the part of management and health workers (to cope with the loss of health workers and available skill sets).

Dual practice

Dual practice is widely accepted and common among health workers. The cohort study showed that the majority of doctors and nurses—students and employed—agree with the contention that "doctors and nurses in the public sector have to work on the side in order to earn enough to support their families" (Serra, Serneels, and Lindelow 2010). The higher rate after three years' employment shows the impact of the "real world" on attitudes (figure 4.5).

Box 4.6: Pilot to set up "private wings" in hospitals to encourage dual practice

The government of Ethiopia has issued rules and regulations that facilitate the setting up of private wings to government health institutions where public sector professionals can work once they are off duty to earn additional income. The scheme of setting up private wings to government health facilities is under pilot implementation in three hospitals in Addis Ababa—namely St. Paul's, ALERT, and Princess Zewditu's—as well as in health institutions in Bishoftu and Adama. Though not as lucrative as working for private health institutions, this is an opportunity for the employees to work during their spare time and make money besides their public sector salaries. It is hoped that the scheme will improve motivation, and reduce illegal, and sometimes unregulated, dual practice.

Source: World Bank.

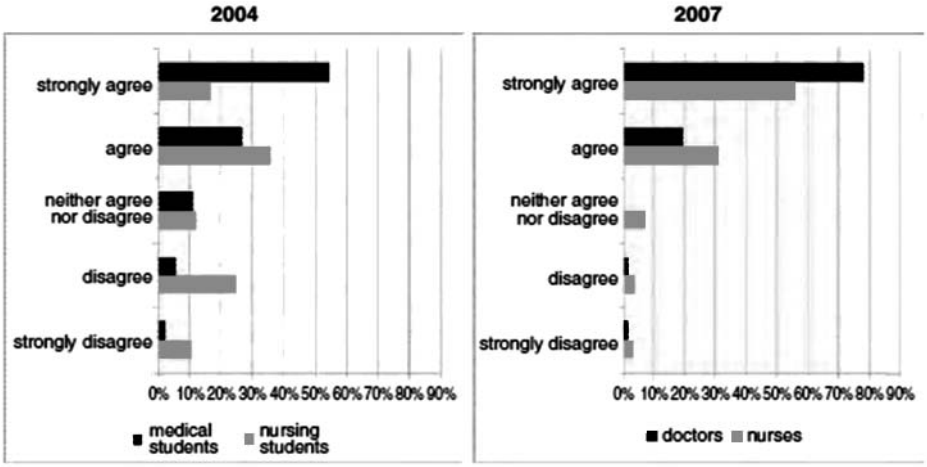
Dual practice in Ethiopia is more common among doctors than nurses and is illegal (if carried out during office hours). There are some recent attempts to make dual practice legal (box 4.6). In a representative cohort study carried out between 2004–07, 21 percent of doctors and 5 percent of nurses had secondary jobs in health (Serra, Serneels, and Lindelow 2010). Unofficial reports suggest this figure in reality is much higher (surveys often do not capture the real extent of dual practice). The vast majority (78 percent) carry out this secondary activity in private for profit clinics in urban areas while being full-time employees in a public sector job (table 4.12).

Table 4.12: Secondary jobs in the health sector, 2007

	Doctors	Nurses	Total
Job in a public hospital	0	1	1
Job in a private facility	17	6	23
Job in a private college	2	1	3
Average days per week in secondary job	3.5	4	3.6
Average hours per day in primary job	8	9.9	8.8
Average hours per day in secondary job	8	9	8
Total net salary in primary job (average)	1,971	870	1,632
Total net salary in secondary job (average)	1,205	507	990

Source: Serra, Serneels, and Lindelow 2010, p. 22.

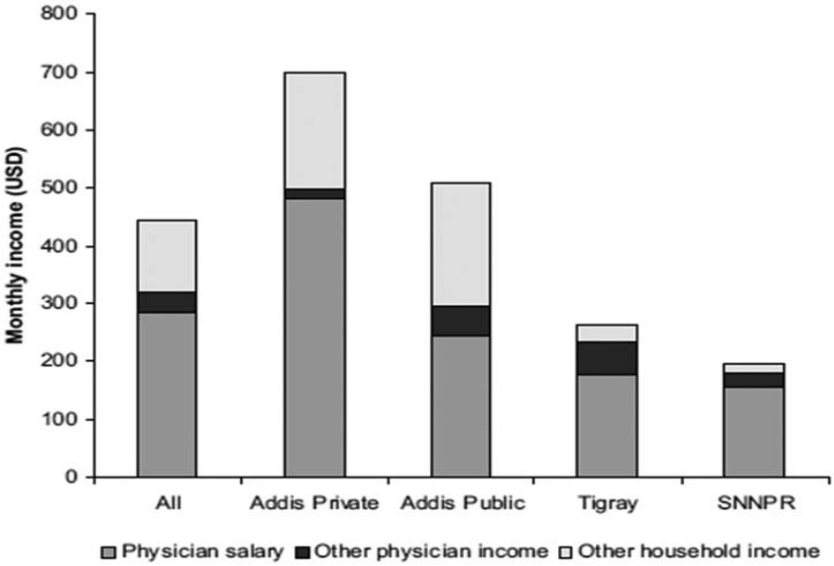
Figure 4.5: Attitudes of students and health workers toward "working on the side"



Source: Serra, Serneels, and Lindelow 2010.

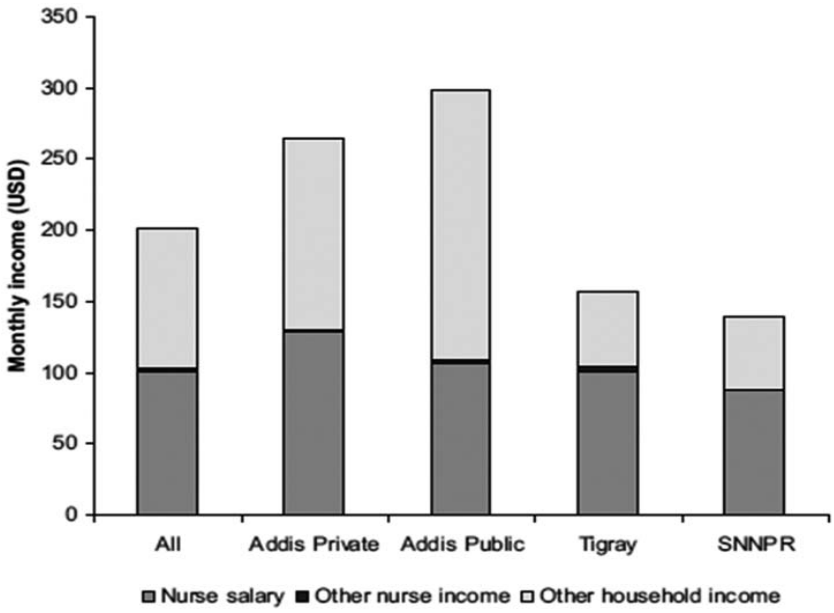
Health workers significantly top up their official salaries through dual practice (through accumulation of "other household income") (Jack and others 2010). While household incomes of private doctors in Addis Ababa trump those of households of doctors in the public sector and the outer regions (figure 4.6), nurses who work in the public sector in Addis Ababa have higher household incomes than nurses in the private sector in Addis Ababa (despite their own lower salaries) (figure 4.7). The opportunities to earn extra income outside of their primary job seem acutely attenuated for nurses.

Figure 4.6: Sources of physicians' household income



Source: Jack and others 2010.

Figure 4.7: Sources of nurses' household income



Source: Jack and others 2010.

Skill substitution

One "mechanism" from the employer side for coping with shortages of particular cadres is skill substitution, that is, untrained lower level cadres taking on tasks of higher level cadres who are absent from the health facility.

A study (see table 4.12 for results) has been conducted to make comparison between what the different cadres of health care professionals are trained to do as far as obstetric and newborn complications are concerned, and what they actually are doing in the facilities where they work. The study used "defined signal functions" of emergency obstetric and newborn care (EmONC) to assess health worker tasks and evaluate appropriateness in relation to inclusion of these tasks in their job descriptions. The study found guidance to be unclear for some of the signal functions, for instance, whether general practitioners and health officers can perform caesarean section.

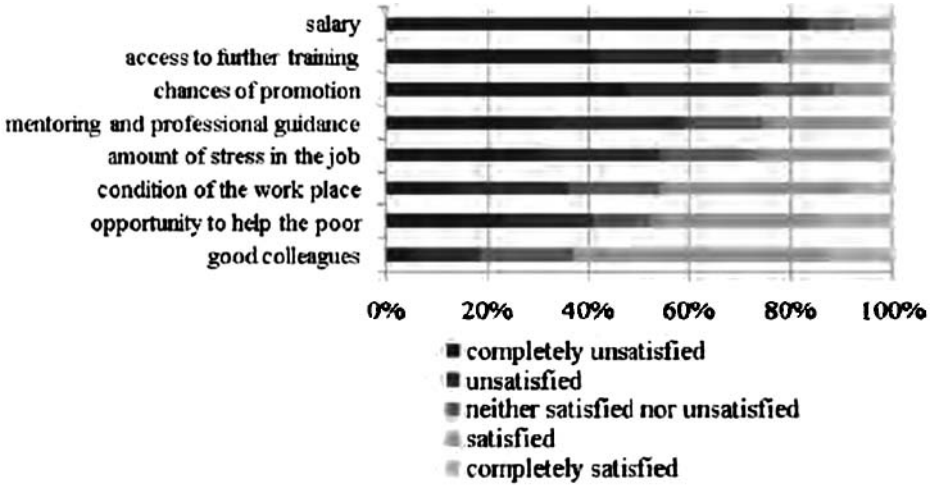
The study found a wide extent of skill substitution in hospitals and health centers. Table 4.13 shows the many signal functions of staff related to EmONC, indicating that skill substitution is taking place. Hospitals also reported use of health assistants to perform high-level signal functions (exceptions being removal of retained products and caesarean delivery). Although health assistants are being upgraded to the equivalent of a clinical (diploma) nurse, they are not qualified to accomplish most of the signal functions.

Table 4.13: Hospitals with health workers who provide EmONC signal functions, by health worker cadre (percent)

		Parenteral drugs			Procedures						
	Facilities cadre present	Antibiotics	Oxytocics	Anti-convulsants	Manual removal of placenta	Removal of retained products		Assisted vaginal delivery	Neonatal resuscitation	Blood transfusion	Caesarean delivery
						MVA	D&C or E&C				
Hospitals (n=112)											
Health worker cadre											
Obstetrician/gynecologist	58	33	33	34	58	55	56	55	48	36	58
Pediatrician	30	16	3	12	—	—	—	—	20	7	—
Medical doctor	88	49	50	50	80	69	72	71	66	40	25
General surgeon	57	23	14	21	16	15	16	18	22	21	32
Health officer	64	38	35	36	45	35	29	33	43	13	9
Midwife, B.Sc.	33	30	30	29	29	17	6	29	30	23	0
Midwife, diploma	90	81	81	72	67	42	12	62	80	53	3
Junior midwife	27	23	21	19	14	—	1	10	21	14	0
Nurse, B.Sc.	75	64	59	56	38	18	7	26	50	37	1
Nurse, diploma	99	88	81	72	50	20	9	29	74	58	1
Health assistant	71	45	34	29	9	—	0	5	27	19	0
Anesthesiologist/nurse anesthetist	79	32	23	34	—	—	—	—	—	—	—
Health centers/clinics (n=685)											
Health worker cadre											
Obstetrician/gynecologist	1	0	0	0	0	0	0	1	0	0	0
Pediatrician	0	0	0	0	—	—	—	—	0	0	—
Medical doctor	8	4	3	3	4	2	2	4	3	0	0
General surgeon	0	0	0	0	0	0	0	0	0	0	0
Health officer	62	54	50	39	55	27	17	28	37	1	1
Midwife, B.Sc.	3	3	3	2	3	1	0	2	2	0	0
Midwife, diploma	54	50	49	31	50	19	6	23	39	1	1
Junior midwife	14	12	11	6	11	—	1	4	9	1	1
Nurse, B.Sc.	41	37	34	24	35	8	5	14	24	1	0
Nurse, diploma	98	92	81	48	78	19	6	24	57	1	1
Health assistant	46	33	26	12	18	—	0	3	16	0	0
Anesthesiologist/nurse anesthetist	1	1	1	1	—	—	—	—	—	—	—

Source: Serra, Serneels, and Lindelow 2010.
Note: D&C = xx E&C = xx MVA = manual vacuum aspiration.

Figure 4.8: Satisfaction of nurses and doctors with job characteristics



Source: Serra, Serneels, and Lindelow 2010.

Health Worker Satisfaction and Motivation

There is a general sense of dissatisfaction among health workers that could have implications on performance. This applies to the general work characteristics in Ethiopia, including salary, access to further training and promotion, as well as to physical conditions at the workplace, especially in rural areas where more than 20 percent of the respondents were completely unsatisfied with conditions (figure 4.8). Lack of mentoring and professional guidance constitutes an additional source of dissatisfaction for about 60 percent of health workers. About 40 percent of the health workers are also not satisfied with the opportunity to help the poor in their current job (Serra, Serneels, and Lindelow 2010). Whereas such dissatisfaction may have implications on rural entry and retention and outmigration (as discussed above), it may also negatively affect the motivation of health workers to adequately perform. More research is required to determine the extent to which such dissatisfaction negatively translates into performance.

Notes

1. This will not be discussed in this report for lack of data.
2. http://www.esdproj.org/site/DocServer/HEW_Performance_Assessment__Report_Sept_08.pdf?docID=2781.

PART 2
Human Resources for Health and Access to Care

CHAPTER 5

Impact of HRH Problems on Use of Key Services

The inadequate availability, distribution, and performance of health providers may restrict clients, particularly poorer ones, from accessing the care that they need. It is important to distinguish between the availability of health workers and the use of the services they offer: even if workers are present in areas inhabited primarily by the poor, there are many reasons why poor people might not use them. Services may be too expensive to use. Providers may be more prone to serve the rich over the poor. And poor people might fear contemptuous treatment by service providers belonging to a higher social stratum or different gender.[1] Future research is required to determine the extent to which the picture on use is correlated with the availability of HRH per se.

This chapter reviews the evidence on the *use* of specific health services (and the provision of such services across socioeconomic quintiles—see box 5.1), particularly related to antenatal care, assisted deliveries, postnatal care, emergency care, and access to care by a health extension worker. The provision and use of such health services are linked to maternal and neonatal mortality indicators, and often associated, at least in part, with the number of available and skilled health care providers.

Box 5.1: Defining wealth categories in the absence of wealth indicators in the 2005 DHS

The 2005 Ethiopian DHS did not have questions on income and so wealth indicators could not be directly obtained. The wealth categories were consequently defined using assets owned by respondents that were believed to show economic status. Some assets specific to regions (for example, bicycles) were dropped to avoid bias. By combining the different assets and constructing a single measure, the wealth quintiles were derived using the methodology introduced by Filmer and Pritchett (2000). Dave Gwatkin and Alex Ergo, who analyzed the Ethiopian DHS, indicated this method is a proxy measure in the absence of income data and that it requires careful manipulation of the asset data. Therefore, the coding and valuation of assets in the DHS were carefully examined and the data reorganized and recoded in such a way that the index obtained is fairly applicable to all respondents.

Source: World Bank.
Note: A more recent DHS has not been published yet.

The chapter draws on available data from household surveys that include information about the type of health providers that are visited by different economic groups of people for different types of problems. It presents the findings from an analysis of 2005 DHS[2] data, the latest currently available for Ethiopia. It contrasts this data with the find-

ings of a recent 2009 household survey (L10K Project/JSI), fielded during the period December 2010 and January 2009, covering more than 6,277 women from 204 kebeles in the regions of Amahara, Oromuiya, SNNP, and Tigray. This is complemented by information drawn from a household survey of the National Health Accounts Report published in 2010 by the Federal Ministry of Health and Abt (FMOH/Abt Associates 2010).

Provision of Antenatal Care

In Ethiopia in 2005, more than 70 percent of the women did not see anyone for antenatal care (DHS data analysis). Data from 2009 indicate that this may have improved only marginally and still remains highly problematic. The household survey found that in 2009 half of the women (54 percent) in the four regions received ANC for their most recent birth in the year preceding the survey; but only 20 percent had at least four visits.

The 2009 household survey shows that within this average, there is significant variation in the receipt of ANC by regions, Tigray having the highest coverage at 84 percent, followed by SNNP (62 percent), Oromiya (55 percent), and Amhara (40 percent). The highest ANC coverage in Tigray is partly due to the inclusion of urban areas in the Tigray survey. The numbers of antenatal care visits are important for the health and outcome of pregnancies. However, in this study only 20 percent of the women in the four regions received the recommended four ANC visits during pregnancy. Likewise, Tigray women appeared more likely than others to have received at least four ANC visits. Furthermore, box 5.2 shows that antenatal care visits did not always reflected basic services required.

Box 5.2: Services provided during ANC, 2009

The 2009 household survey found that among those women who received ANC, 72 percent and 50 percent of them reported that they had their weight and height measured, respectively. Blood pressure measurement was performed for most pregnant women (74 percent). Only 19 and 29 percent of the women gave urine and blood samples, respectively. Antimalarial drug and iron tablets were prescribed to 9 and 19 percent of the pregnant women, respectively. Of note, pregnant women from Tigray appeared to have better access to the key contents of ANC as compared to their counterparts in the other regions.

Source: 2009 DHS.

The 2005 DHS found that the few women who did see someone for antenatal care were seen by a doctor, nurse, or midwife (that is, a health professional). The figures in table 5.1 show that most of the women who sought antenatal care in the course of their latest pregnancy were seen by a health professional.[3] Very few women reported to have received antenatal care from either a trained or an untrained traditional birth attendant (TBA) or from a community health agent.

The 2009 household survey found that Health centers and health posts were reported to be the major sources for the ANC, as reported by 52 percent and 32 percent of the women from the four regions, respectively. Only about 4 percent of the women reported government hospitals as a place where they received ANC, 3 percent from private facili-

Table 5.1: Provision of antenatal care by type of health worker and by socioeconomic quintile (percent), 2005

	Wealth Quintiles					
Type of health worker	Low	2nd	3rd	4th	High	Pop. Avg
Health professional	12.7 (1.4)	18.6 (1.8)	25.2 (1.7)	30.6 (2.2)	58.1 (2.6)	27.7 (1.3)
Community health agent	0.5 (0.2)	0.2 (0.1)	0.4 (0.2)	0.4 (0.2)	0.7 (0.3)	0.4 (0.1)
Trained traditional birth attendant	0.2 (0.1)	0.5 (0.2)	0.5 (0.2)	0.1 (0.1)	0.2 (0.1)	0.3 (0.1)
Untrained traditional birth attendant	0.3 (0.2)	0.1 (0.1)	0.0 0.0	0.1 (0.1)	0.3 (0.2)	0.1 (0.1)
No one	86.4 (1.5)	80.5 (1.8)	74.1 (1.7)	68.9 (2.2)	41.0 (2.6)	71.6 (1.3)

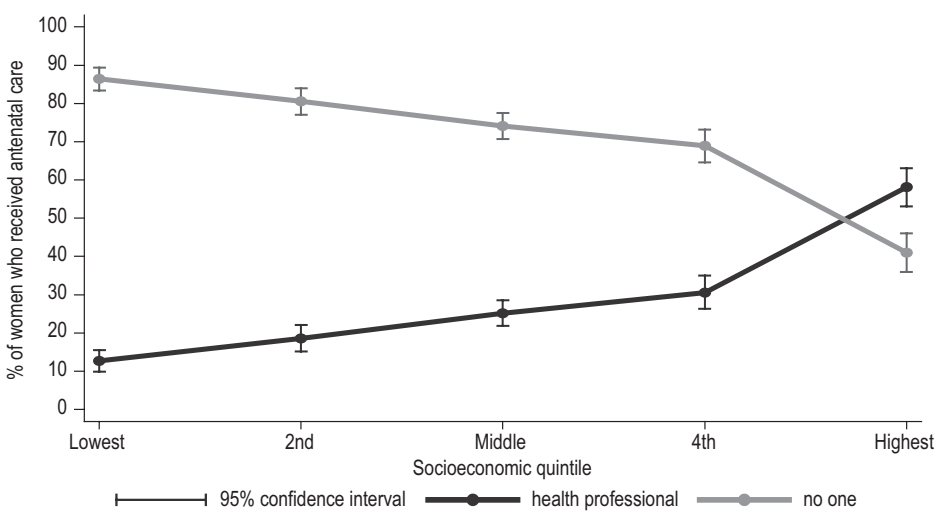
Source: 2005 DHS.
Note: The table presents a breakdown of the responses to the question "did you see anyone for antenatal care for this pregnancy?" by type of health worker and by socioeconomic quintile. Standard errors are presented between brackets next to the point estimates. Socioeconomic categories were defined in terms of asset quintiles. These quintiles were derived using the same methodology as adopted by Gwatkin and other (2000).

ties. Places for the ANC compared well across the four regions. This supports the contention that ANC, when it does occur, is carried out by a professional.

Analysis of the 2005 DHS shows that the provision of antenatal care by "health professionals" in 2005, when it does occur, is highly inequitable, and displays a relatively steep pro-rich gradient (figure 5.1). The difference between the proportions in the two extreme quintiles exceeds 45 percentage points. The largest difference between adjacent quintiles is found between the two top quintiles.

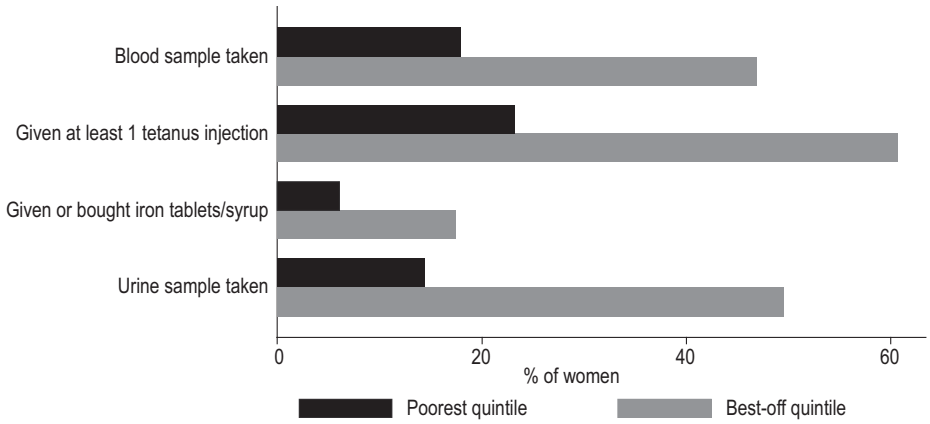
The likelihood of performing specific antenatal care services varied considerably across socioeconomic quintiles, with women in the poorest quintiles clearly disadvantaged compared to women in the highest quintiles. Figure 5.2 compares the coverage of four critical antenatal care procedures in the two extreme socioeconomic quintiles. The

Figure 5.1: Socioeconomic differences in the provision of antenatal care, 2005



Source: 2005 DHS.

Figure 5.2: Performance of standard antenatal procedures, 2005



Source: 2005 DHS.

figure shows that, for each of the four procedures, women in the poorest quintile are clearly disadvantaged as compared to women in the best-off quintile. The existence of a poor-rich coverage gap is no surprise given that women in the lowest quintile are less likely to seek antenatal care than women in the top quintile.

Delivery Attendance

In 2005, the large majority of women in Ethiopia were assisted with their last birth by a relative or friend, not a health worker. The last column in the table below indicates that more than two thirds of the women were assisted by a relative or friend, not by a health worker. One out of five women received assistance from an untrained traditional birth attendant. Health professionals and trained birth attendants attended only 7.0 percent and 6.5 percent of the deliveries, respectively (table 5.2).

Table 5.2: Delivery attendance (for last birth) by type of health worker and by socioeconomic quintile (percent), 2005

	Wealth Quintiles					
Type of health worker	Low	2nd	3rd	4th	High	Pop. Avg.[a]
Health professional	0.8 (0.3)	1.5 (0.4)	1.9 (0.5)	5.1 (1.1)	30.9 (2.6)	7.0 (0.7)
Community health agent	0.2 (0.1)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.2 (0.1)	0.1 (0.0)
Trained traditional birth attendant	4.8 (0.7)	3.7 (0.7)	8.2 (1.2)	6.4 (1.0)	10.2 (1.3)	6.5 (0.6)
Untrained traditional birth attendant	28.9 (2.9)	22.6 (2.2)	18.8 (1.7)	19.7 (1.9)	12.2 (1.5)	20.8 (1.4)
Relative/friend	70.5 (2.5)	75.4 (2.2)	76.5 (1.7)	73.5 (1.8)	50.7 (2.6)	70.2 (1.3)
Other	0.3 (0.2)	0.3 (0.2)	0.3 (0.2)	0.2 (0.1)	0.0 (0.0)	0.2 (0.1)
No one	7.6 (1.4)	7.7 (1.4)	4.8 (0.8)	5.1 (0.9)	4.4 (0.8)	6.0 (0.6)

Source: 2005 DHS.
Note: a. the figures in this column do not add up to 100 percent as a woman may have been assisted by more than one type of health worker
The figures above are broken down by type of health worker and by socioeconomic quintile. Standard errors are shown between brackets.

Evidence from the 2009 household survey found that not much had changed since 2005, and that the vast majority of the deliveries (91 percent) still take place at home and without professional care (table 5.3). Professionally assisted delivery is very low in all the four regions surveyed in 2009, at 8 percent—24 percent in Tigray, 9 percent in Oromiya and SNNP, and as low as 4 percent in Amhara. The HEWs reported to have attended only 4 percent of the deliveries in the four regions. Trained traditional birth attendants assisted 8 percent of the deliveries, the untrained TBAs 12 percent of deliveries, and 63 percent reported to have been assisted by families/friends/neighbors. Of note, 5 percent of the women in the four regions reported self-assisted delivery; this was as high as 10 percent in Oromiya.

Table 5.3: Percentage distribution of women with children aged 0–11 months according to place of delivery and assistance during delivery, 2009

	Amhara n= 600	Oromiya n= 600	SNNP n =600	Tigray n= 648	Four regions (weighted) N = 2,448
Home delivery	95.3	90.8	91.0	75.6	90.8
Institutional delivery	4.7	9.2	9.0	24.4	9.2
Assistance during delivery					
Health professional	3.7	9.2	8.8	24.0	8.7
Health extension workers	3.5	2.4	4.0	6.2	3.6
Trained traditional birth attendant	9.2	6.2	6.8	11.9	8.2
Untrained traditional birth attendant	17.7	6.0	13.3	11	11.7
Families/friends/neighbors	64.0	66.7	62.2	55.7	63.3
No one	1.9	9.5	4.9	11	4.5

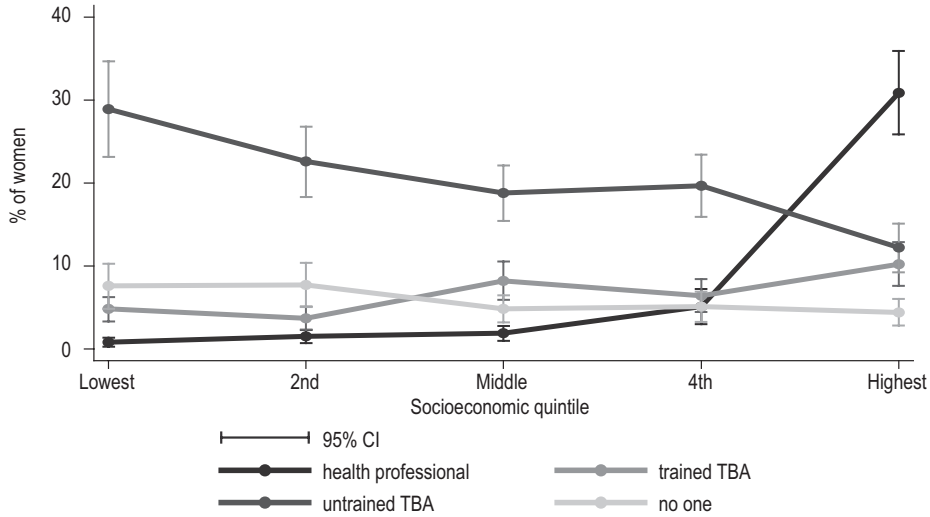
Source: L10K project.
Note: L10K project areas, Amhara, Oromiya, SNNP, and Tigray, December 2008–January 2009.

Analysis of the 2005 DHS data found that when they do provide assistance, "health professionals" provided assistance mostly to women in the top quintile (figure 5.3). There is little reason to assume this has changed. The 2005 data found that less than 1 percent of the women in the bottom quintile obtained assistance from a health professional. Even though the likelihood for a woman to be assisted by an untrained TBA appears to be inversely related to socioeconomic position, this likelihood remains surprisingly high even among women in the top quintile. More than one in eight women in this quintile calls upon the services of an untrained TBA.

Postnatal Care

In 2009, postnatal care was virtually nonexistent in the four biggest regions in Ethiopia, with less than 1 percent of the mothers reporting that they had received the care within 2 days after delivery from a health worker and 2 percent within 2–45 days (table 5.4). The vast majority (97 percent) did not receive postnatal care from a health worker within 45 days after delivery. The contribution of the HEWs to the provision of postnatal care can be considered virtually absent. Only 1 percent of the mothers with children 0–11 months reported receiving postnatal care from HEWs within 2 days after delivery and 4 percent with 2–45 days (L10K Project).

Figure 5.3: Socioeconomic differences in delivery attendance, 2005



Source: 2005 DHS.

Table 5.4: Percentage distribution of women with children aged 0–11 months according to receipt and timing of postnatal care from health worker and health extension worker, 2009

	Amhara n= 600	Oromiya n= 600	SNNP n =600	Tigray n= 648	Four regions (weighted) N = 2,448
Timing of first postnatal checkup by a					
Health worker					
<2 days	0.2	1.0	0.3	2.4	0.8
2–45 days	1.5	2.3	1.8	0.8	2.4
No check up	98.3	96.7	97.9	96.8	96.8
Timing of first postnatal checkup by a					
HEW					
<2 days	0.7	0.5	1.5	3.9	0.8
2–45 days	4.8	1.7	3.2	0.9	3.9
No check up	94.5	97.8	95.3	95.2	95.3

Source: L10K project.
Note: L10K project areas, Amhara, Oromiya, SNNP and Tigray, December 2008–January 2009.

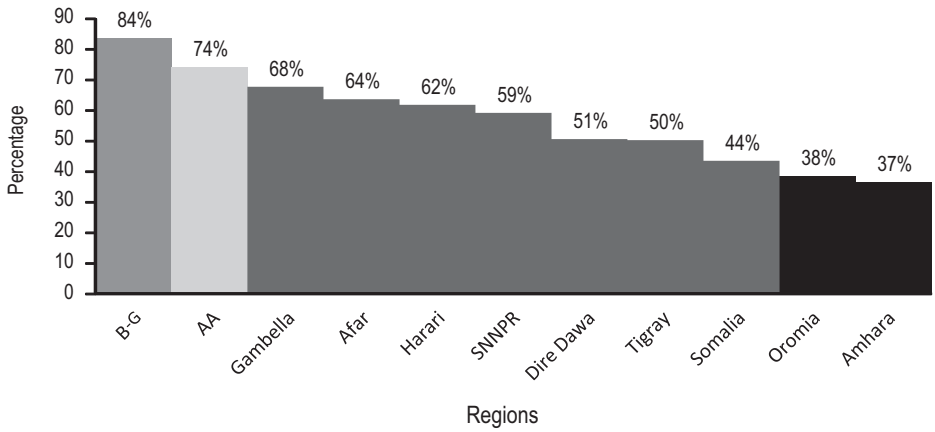
Geographic Variations in Health-Seeking Behavior (Curative Services)

Inequitable access to health services is also evident by rural/urban division. A 2010 survey by Abt found that residents in more urban regions use significantly more curative care services than rural residents. In Benishangul Gumuz, 84 percent of sick or injured people visited a health provider, while only 37 percent of sick people in Amhara did (figure 5.4). Sick people in Amhara and Oromia (and perhaps Somali) were much less

likely than others to obtain care. This finding is consistent with the FMOH's estimated outpatient department visits based on the routine health information system (FMOH/Abt Associates 2010).

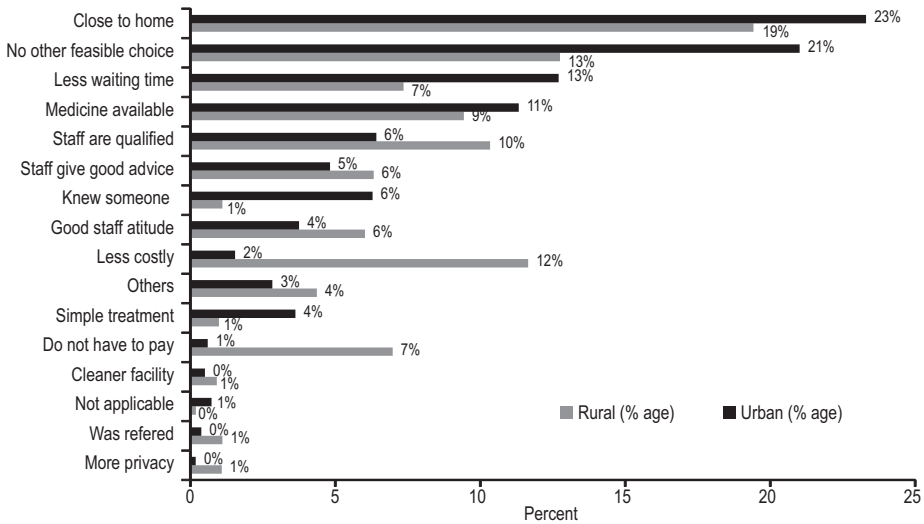
The health seeking behavior of populations in both urban and rural regions is greatly shaped by the availability and quality of health service providers (figure 5.5). The availability of a provider *close to home* is the primary reason for both rural and urban populations to seek medical care with a particular provider in their region.

Figure 5.4: Percentage of people who reported sick and visited a health facility to get treatment, 2010



Source: FMOH/Abt Associates 2010.

Figure 5.5: Reasons for choice of provider by urban and rural areas



Source: FMOH/Abt Associates 2010.

Visit by a Community-Based Health Agent/Distributor

In 2005, on average, community-based health agents/distributors reached only 6.8 percent of the women. This proportion shows little variation across socioeconomic quintiles. None of the differences between quintile-specific proportions is statistically significant (table 5.5).

Table 5.5: Women visited by community-based health agent/distributor in last 12 months who talked about family planning, 2005 (percent)

	Socioeconomic Quintiles					
	Low	2nd	3rd	4th	High	Pop. Avg.
Visited by community-based health agent/distributor	6.4 (0.8)	5.2 (0.7)	7.1 (0.8)	8.0 (1.0)	7.0 (0.6)	6.8 (0.4)

Source: FMOH/Abt Associates 2010.
Note: Table represents socioeconomic breakdown of the responses to the following question: "In the last 12 months, were you visited by a community-based health agent/distributor who talked to you about family planning?"

The household survey in 2009 revealed that the accessibility to, and services provided by, health extension workers had improved. About 36 percent of the women reported being contacted by the HEWs who talked to them about their health and that of their children in the 6 months prior to the survey.

Among those women who reported contact with HEWs in the last 6 months, the majority (59 percent) reported having received a promotional message on pit latrine construction, 54 percent on personal hygiene, and 52 percent on latrine use. The receipt of messages concerning safe water use was reported by 20 percent of the women and 19 percent reported being informed about immunization. Information on family planning was received by 17 percent of the women. A tenth said they were informed about child nutrition (L10K project).

The 2009 survey also found that HEWs rarely addressed health messages to women concerning pregnancy care, newborn care, and treatment practices for sick children, among others. As indicated above, the HEWs reported to have attended only about 4 percent of the deliveries that happened last year in the four regions.

Notes

1. The data presented in this chapter thus does not demonstrate a correlation between low availability of HRH and low use of services. It is only suggested.
2. For more on the DHS, see www.measuredhs.com.
3. This category is relatively broad. Based on the DHS final report relating to the 2005 survey, it includes doctors, nurses, and midwives. Unfortunately, no further breakdown of this category is available.

PART 3
From Evidence to Solutions

CHAPTER 6

Reflecting on Policy Implications

The chapters in this report compile evidence related to the Ethiopia health labor market to provide baseline information to help the government address remaining HRH challenges. Rather than focusing on making policy recommendations, the aim of the report was to produce a source reference to benefit and fuel discussions related to HRH (including those related to policy making) in Ethiopia. It uses new and existing evidence to depict and explain the HRH situation in Ethiopia (chapters 1, 2, 3 4), and discusses the implications that the HRH situation has, at least in part, on use of health services, particularly the critical services linked to maternal and neonatal health and thus MDG 5 (chapter 5).

This chapter reflects on some of the cross cutting determinants of HRH outcomes, and discusses some of the possible policy options that may be considered to influence HRH outcomes. The focus is on broad policy *options* over specific *recommendations* taking into account that the design of specific and targeted interventions and policies to achieve specific outcomes is determined by various factors as much fuelled by the need for additional evidence, as it is by the political and fiscal environment surrounding HRH.

Serious consideration of policy development would benefit from additional analyses with a focus beyond the issues discussed in this report, including health labor market *demand* (that is, the willingness and ability of employers to hire health workers, which is dependent on available funding) and, closely related, the fiscal environment (that is, the funding for HRH available at various levels of the health systems), as well as the political economy and the special interests of stakeholders involved in HRH (box 6.1).

Box 6.1: Key areas of suggested future research

- Private labor market and education system for HRH
- Pre-service education system capacity
- Labor market demand for HRH at all levels of the system
- Analysis of stock, distribution and performance of midwives and health officers
- Feasibility of equipping health extension workers with maternal health related skills
- Extent of absenteeism, dual practice, and performance of doctors and nurses
- Health worker competence, particularly medical doctors and midwives
- Productivity of health cadres
- Management capacity at all levels of the health system
- Fiscal space and budget for HRH
- Political stakeholder analysis
- Further research on, and determinants of, access (that is, the extent to which current patterns of use of services is correlated with health worker availability)

Source: World Bank.

Influencing HRH Outcomes

In general, HRH outcomes in Ethiopia can be influenced by interventions in the following areas: (i) pre-service education capacity; (ii) HRH management and accountability structures; and (iii) monetary and nonmonetary compensation. Policies and interventions in each of these areas can influence and improve stock, distribution, and performance.

Increasing Stock

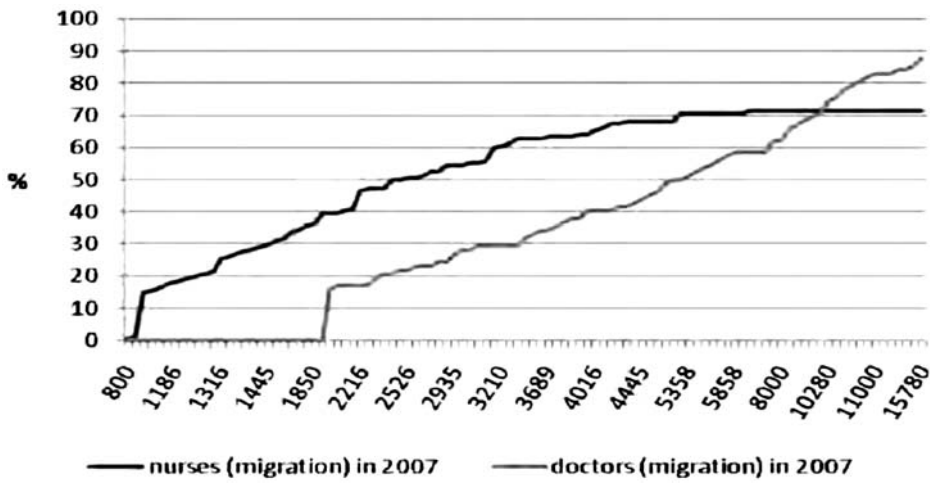
Chapter 1 has shown that the number of health workers particularly of physicians and midwives (although evidence on the latter cadre was sparse) is largely insufficient to reach both national and international benchmarks. Nurses and some mid- and lower-level cadres on the other hand seem to be growing adequately and are expected to reach specific national and international benchmarks by 2015 (according to some studies). This is related to the fact that there has been a steady output of nurses and increase of specific mid- and lower-level cadres due to the scaling up of training programs and physical training infrastructure. The production of physicians, however, although expected to increase in Ethiopia, is not on scale with one of Africa's largest populations, and further constrained by outmigration, 3–4 years into practice. Whereas production limitations are largely attributed to inadequate capacity of pre-service training institutions, outmigration is believed to be in part a function of the general training environment, particularly for medical doctors. This training in essence produces medical workers for the international rather than national labor market. There is also dissatisfaction with existing salary levels (which are low when compared to those in the developed world) and few local opportunities for further education and career development.

Policy interventions at the pre-service education level have already been largely implemented. Recent efforts seem to have focused on scaling up production particularly of mid- and lower-level cadres such as paramedics, health officers, and health extension workers. A focus on scaling up production of such pro-poor cadres is commendable given the fact that they are less competitive in the international labor market, thus migrate less, and are cheaper and hence more plentiful to train (the health extension workers and health officer cadres in Ethiopia are notable examples of a step in the right direction). But higher level cadres are also important, particularly doctors and midwives. Recent efforts to scale up the number of medical schools and increase the intake of medical students are impressive, although are likely further constrained by the lack of adequate technical and organizational capacity. In light of capacity constraints, further expansion of intake of medical doctors (as well as offering further education opportunities) may need to focus on alternative, innovative approaches to scaling up production of medical doctors, such as introducing ICT and e-health solutions, and/or addressing teaching shortages by designing health science faculties offering multiple subdiscipline courses and cross subsidization with other faculties. Finally, any intervention to scale up production of medical doctors should ensure curricula are designed for the Ethiopian local context, equipping medical doctors with the specializations and practices that are directly relevant to the national, labor market. This will help curb subsequent outmigration of medical doctors.

Policies that focus on increasing health worker remuneration may need to focus on increases in *nonmonetary* compensation to curb outmigration. A focus on monetary compensation as a tool to prevent many doctors and nurses from migrating abroad, would mean their salaries would have to be raised impossibly high. The contingent valuation by Serra, Serneels, and Lindelow (2010), which determines the hypothetical salary increase required to keep health workers from migrating abroad, found that only 30 percent of nurses and doctors would be willing to stay in the country at the current salary level (figure 6.1). The same study found that keeping 70 percent of nurses in Ethiopia would require a salary of Br 5,358 a month or more, or close to seven times the average salary of an urban, public sector nurse (of about Br 800). Stopping 80 percent of doctors from migrating abroad would require a salary of more than Br 10,500 a month, against the average public sector, urban doctor's salary of about Br 1,700—more than a fivefold salary increase (Serra, Serneels, and Lindelow 2010). Therefore, instead of raising salaries, some of the other push factors of outmigration may need to be focused on, primarily nonmonetary compensation in the form of career development and access to further training. The biggest one may be to offer local opportunities for post-specialization, which is often attributed to significantly reducing outmigration, such as in Ghana, for example.

Interventions to increase HRH management capacity to adequately plan production or policies to curb outmigration may also be required to increase HRH stock. Such efforts may in part focus on improving the planning capacity at the FMOH. The Directorate of Human Resource Management (HRM) at the FMOH is responsible for HRH planning (among other functions), and intervention would have to focus on further strengthening the working relationship between the FMOE and the FMOH, and building planning

Figure 6.1: Reservation wage to prevent doctors and nurses from migrating abroad



Source: Serra, Serneels, and Lindelow 2010.

capacity at all levels in the HRM directorate, including planning to improve further education possibilities for health workers and career development and promotion mechanisms (both are singled out, in addition to salary concerns, to cause outmigration). Furthermore, HRH planning on the whole will require improving the current information system to obtain regular and accurate information on the stock and distribution of health workers, as well as information on established posts at the various levels of the health system (which currently does not exist). Frequent well-designed surveys to capture such information (in addition to studies such as this one) may be preferential over costly and often unsuccessful efforts to institutionalize such data collection.

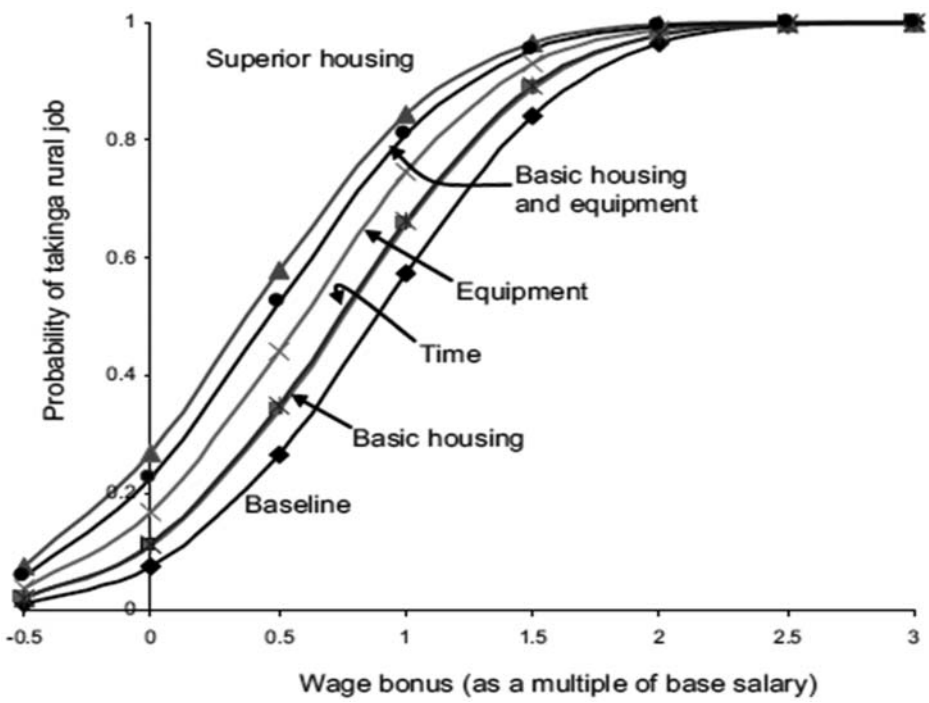
Improving Geographical Distribution

Chapter 2 revealed that the distribution of health workers, particularly that of medical doctors and specialists is largely urban biased. Although more mid- and lower-level cadres today are present in rural areas due to concrete efforts of the government to focus and deploy such cadres to rural areas, and higher levels of altruistic behavior that motivates such cadres to "provide care where needed," medical doctors are particularly under-represented in rural areas. This was shown in part to be linked to historically limited (but increasing) funding and infrastructure channeled to rural areas, and the inability of the government to "purposefully" deploy medical workers to rural areas (through the lottery). This said however, the mal-distribution is largely an effect of limited graduate entry into the rural labor market (due to graduate perceptions of better promotion opportunities, and access to education in urban areas), and significant levels of HRH transfers from rural to urban labor markets (primarily due to dissatisfaction of doctors with monetary remuneration—which in the urban labor market can be increased by means of dual practice or joining the private sector). In addition, the urban preference of many graduates and existing health workers may be further shaped by the still predominantly urban-centered training institutions, methodologies, and strategies that produce health workers more comfortable practicing in urban locations over rural locations.

Policy interventions at the pre-service education level hold significant potential to improve the rural urban distribution. In great part, the government is on the right track in improving overall distribution of health workers by recent efforts to focus on producing alternative cadres such as health extension workers and health officers, which are rurally selected and trained, in part, specifically for the rural labor market. To influence medical doctors to take up rural as opposed to urban posts, reform in medical education may want to focus on rural pipeline policies, which combine several features to create a sustainable health workforce with a number of interventions aimed at addressing existing imbalances (the health extension worker program has shown them to be successful). Policies using a combination of the following elements may want to be considered: admission policies giving preference or allotting a specific number of slots to applicants from rural regions; creation of rural regional medical and nursing schools (or satellite training centers of existing schools); development of curricula with strong emphasis on family and community medicine; compulsory rural internships; financial aid and scholarships for rural students; and mentoring by experienced rural doctors for new health workers in rural areas. Again, a thorough analysis of the available budget and fiscal space for HRH, as well as a stakeholder analysis, would be a requirement for any such policy options.

Policy Interventions related to increasing rural compensation (monetary or nonmonetary) may also be considered, although adequate investments and support to fund such policies would be a prerequisite. Such policies could focus on ensuring that (i) *health science student graduates* enter into rural over urban employment (by offering incentives including adequate career development and further education opportunities in rural areas); (ii) *health workers already practicing in rural labor markets* do not leave rural for urban centers (by increasing rural monetary compensation, including exploring possibilities to legalize dual practice or additional rural income opportunities); and (iii) incentives are developed to move *health workers (particularly doctors) employed in the urban centers* to rural areas. With regards to point (iii), a discrete choice experiment by Jack and others (2010) found that both financial and nonfinancial attributes would be required to shift health workers from urban to rural areas. It found that for doctors, while keeping other attributes constant, doubling pay increased the probability of them accepting a rural job from 7 percent to 57 percent. Providing basic housing does not affect the impact of wages much, probably because most doctors already have at least basic housing. Superior housing, however, increases the probability of doctors accepting a rural job, when wages are doubled from 27 percent to 84 percent (figure 6.2). A similar analysis was conducted for nurses (see Jack and others, 2010 for details).

Figure 6.2: Example: Probability of doctors willing to accept a rural job, as a function of the rural wage bonus (horizontal axis), with alternative in-kind attribute incentives



Source: Jack and others 2010.
Note: Probability is a function of the rural wage bonus (horizontal axis) and alternative nonfinancial attributes.

Interventions related to improving HRH management capacity and mechanisms to deploy health workers may be worth considering, but evidence of their effectiveness is sparse. In Ethiopia, the lottery system, which was studied in detail by Jack and others (2010), shows that the system is prone to be bypassed particularly by higher level cadres. Elsewhere in SSA, government interventions to move health workers from urban to rural areas through compulsory placement policy (also known as bonding)—such as creating a period of obligatory rural services for graduating health workers (as in Ghana)—has been shown to temporarily reduce short-term shortages; however, they have had little to no impact on long-term rural retention. Anecdotal evidence from other countries has often shown that these are also difficult to enforce (Lemiere and others, 2009). On the whole, while it would be possible to tighten the system to ensure that bonding rules are clearer and the lottery system thus more transparent (this is currently already going on), decision makers may also wish to consider whether such a system is required at all.

Improving Performance

Chapter 4 found that to obtain a more rounded picture on the different components of performance (including availability, knowledge and competence of HRH, responsiveness) more studies and evidence is required (particularly related to more health cadres). The picture based on the existing evidence was shown to be as follows: There are indeed indications that absenteeism is prevalent (although not as significant as in some other countries) among health workers, particularly doctors and nurses. Very worrisome, however, is the competence of maternal care, reflected in significant knowledge weaknesses of nurses and health officers in this area. Competence related to emergency surgery seems to be a concern for doctors. Furthermore, the mixed findings on patient satisfaction with provider responsiveness, particular communication skills, are also of concern.

Chapter 4 has also provided evidence on some of the factors that explain or point towards further potential weaknesses with regards to health worker availability, competence, and responsiveness. The observed competency problems may in part be linked to existing technical, physical, and organizational capacity limitations of current pre-service education environments. This is compounded by curricula, which may be inadequately focused on addressing the most important public health concerns, particularly for the rural poor. Furthermore, competence may also be negatively affected through observed limitations of in-service training, which seems to be largely inadequate and only offered to a small percentage of the health workforce. Problems with competence, but also responsiveness, may be linked to inadequate facility level management capacity to hold health workers accountable (decision-making authority on HRH sits at the regional level and managers are not always appropriately trained in management). Evidence on adverse working environments, marked by a high workload and inadequate equipment and supplies, particularly related to maternal health care, may further undermine health worker responsiveness and competence. Health workers coping with existing realities, such as inadequately perceived baseline salaries and inadequate staff, leads to dual practice and practices of skill substitution, respectively. Dual practice is often a primary explanation for absenteeism/availability, and skill substitution (untrained staff carrying out tasks of absent higher level staff) may be detrimental to quality.

Policy interventions at the pre-service education level to improve performance may consider focusing on capacity building of pre-service training institutions, as well as once

again ensuring that pre-service training curricula are geared toward local contexts and training needs (and focus heavily on maternal health interventions). With regards to capacity building, the evidence in this report suggests that innovative interventions and programs may be required to address capacity constraints related to laboratory equipment and libraries. Solutions for gaps in teachers may be coupled with distance learning and online learning options, and teacher training efforts could be stepped up (particularly on maternal care issues). Achieving accreditation status may also become an aim for decision makers. Reform could also address the fact that current curricula place too much emphasis on theory rather than practice, and ensure that curricula are geared towards local capacity and disease contexts (again, particularly maternal care issues). For health extension workers, key skills related to maternal health may have to be included in their curricula.

In addition to policy interventions at the pre-service education level, *policies to improve in-service training*, to improve access to such training and the relevance and effectiveness of in service training, may be equally important. Interventions to improve access to in-service training for all health workers, perhaps based around performance indicators and merit structures, may be something to be considered. In any case, efforts to make further training opportunities more transparent should be considered. Furthermore, intervention may want to focus on making in-service training more integrated (rather than a focus on specific programs), creating more flexibility in the type of cadre trained, and introducing applied teaching methods linked to local contextual factors, such as on-the-job training with observation on performance, peer review, and periodic feedback. Interventions could also develop a proactive approach to training based on district needs rather than availability of funding or donor preference. A focus on in-service training related to maternal care particularly for nurses and health officers, and of basic emergency surgery for doctors, may be of particular importance.

Policy interventions related to increasing compensation: Dual practice (and hence absenteeism) as well as health worker motivation (with potential impacts on competence and performance) was found to be primarily motivated by dissatisfaction with existing health worker compensation. Policies to increase overall compensation for health workers may not be feasible within a restricted fiscal environment (analyses of this should inform such a policy). The monthly baseline base salary (excluding various allowances) already nearly doubled in Ethiopia between 2001 and 2007. However, despite official standardization of salaries across regions, the regions in practice show marked differences in financial incentives for the same categories of HRH assigned to similar jobs. Unless such variations are truly standardized, they may continue to demotivate those at the lower end (in addition to creating instability and increasing health workforce movement among regions, leaving gaps in HRH that result in skill substitution and other problems).

Variation in eligible HRH categories for financial incentives should also be addressed. Again, these categories are not evenly applied across regions. Current efforts to develop "legal" additional income opportunities, such as the development of private wings in hospitals for health workers to earn additional income outside of regular hours, may already be a step in the right direction. Besides salaries, policies and interventions may also want to focus on nonmonetary compensation, which was found to affect health worker motivation. Policies that provide quality and needs-based compensation in the

form of access to further training, career development opportunities, and mentoring and professional guidance may be key in motivating health workers to better perform.

Interventions related to improving HRH management capacity and accountability structures perhaps may be the most important ones if performance is to be improved. Interventions to consider may include granting more direct decision-making rights related to sanctions and hiring and firing of nonperformers to the facility level. In addition, the use of league table approaches between districts and regions (a comparative ranking approach tested in Ghana) may be considered, including use of monitoring data and improved communication between different stakeholder groups.

Furthermore, interventions may focus on achieving a clear and well-communicated vision of a health facility. This can be achieved by selecting management staff carefully and offering them secure employment; training of staff (including managers ability to measure and track stock outs); teamwork; reduction of staff differences and open communication as well as access for all staff to top management; and ensuring that management remains engaged in operational issues. Socialization of staff with supervision and mentoring by colleagues are further intervention strategies.

Interventions are required to ensure managers are able to identify needs of, and provide their facility with, sufficient and adequate equipment and supplies, particularly basic and emergency neonatal equipment in the maternity area. Broader and perhaps more complex initiatives may be considered, such as the introduction of performance-based financing mechanisms. These have shown some promising results in countries like Rwanda (on supplies, management practice, absenteeism, motivation, and so forth) and may increase accountability and monitoring of facility and health worker performance alike (pending required determinants are in place). Prior assessments of some of the underlying conditions required for such payment reform would be critical.

Appendixes

Appendix 1: Proposed Major Categories, Subcategories, Definition, Comparison with ISCO, and Proposed Changes

Table A.1.1: Categories, subcategories, definitions and comparisons with ISCO

Category	Subcategory	National definition	ISCO code	Remark
Principal specialists	Internist	After being GP and practicing for some time three years of special training on Internal Medicine	2212	
	Surgeon	After being GP and practicing for some time four years of special training on General Surgery	2212	
	Pediatrician	After being GP and practicing for some time three years of special training on Pediatrics	2212	
	Gynecologist	After being GP and practicing for some time four years of special training on Gyn-Obs	2212	
Other specialists	Ophthalmologist	After being GP and practicing for some time four years of special training on Ophthalmology	2212	
	Radiologist	After being GP and practicing for some time three years of special training on Radiology	2212	
	Pathologist	After being GP and practicing for some time four years of special training on Pathology	2212	
	Orthopedist	After being GP and practicing for some time four years of special training on orthopedics	2212	
	ENT Specialist	After being GP and practicing for some time four years of special training on ENT	2212	
	Psychiatrist	After being GP and practicing for some time three years of special training on ENT	2212	
	Anesthesiologist	After being GP and practicing for some time three years of special training on Anesthesia	2212	
	Emergency medicine	After being GP and practicing for some time three years of special training on Anesthesia	2212	New Category
	Family Physician	After being GP and practicing for some time 2-3 years training on Family Medicine	2212	New Category
IESO	IESO	After being HO and Practicing for some time three years training on ESS	2212	New Category
General practitioner	GP	At least 6 years of university, including one year of internship	2211	
Health officer	HO	4 years of clinical Training and internship	2211	
Nursing and midwifery professionals				
Professional nurse	B.Sc Nurses	Three years training at university level with an equivalent to university first degree (post-secondary school) or upgrade from Diploma level	2221	
Specialized nurse	Specialized Nurses	Three years training at university level with an equivalent to university first degree (post-secondary school) or upgrade from Diploma level	2221	
Level IV nurses	Comprehensive nurses	Three years training at college after competing secondary school	3221	

(Table continues on next page)

Table A.1.1 (continued)

Category	Subcategory	National definition	ISCO code	Remark
Senior midwife				
	B.Sc Midwives	Three years training at university level with an equivalent to university first degree (post-secondary school) or upgrade from Diploma level	2222	
	Diploma midwives	Three years training at college after completing secondary school	3222	
Anesthesia professionals				
	Anesthetist	Three years training at university level with an equivalent to university first degree (post-secondary school) or upgrade from Diploma level		
Dental professional				
	DDM/DDS	At least 6 years of university, including one year of internship	2211	
	Dental Professional	Three years training at university level with an equivalent to university first degree (post-secondary school) or upgrade from Diploma level	3214	
Diagnostic				
	Laboratory Technologist	Three years training at university level with an equivalent to university first degree (post-secondary school) or upgrade from Diploma level	3212	
	Laboratory Technician	Three years training at college after completing secondary school	3212	
	Radiographer	Three years training at university level with an equivalent to university first degree (post-secondary school) or upgrade from Diploma level	3211	
	X ray Technician	Three years training at college after completing secondary school	3211	
Pharmacist	Pharmacist	Four to Five years training at university level with an equivalent to university first degree (post-secondary school) or upgrade from Diploma level	2262	
Pharmacy technician		Three years training at college after completing secondary school	3213	
Allied health professional clinical	Physiotherapy	Three years training at university level with an equivalent to university first degree (post-secondary school) or upgrade from Diploma level	2264	
	Biomedical Technician	Three years training at college after completing secondary school	3211	
Senior public health professionals and managers				
	Hospital managers (M.Sc)	One year training after completing First degree in Health Science or other social science	1342	
	Public Health Specialist	1-2 year training in public health after completing First degree in Health Science or other social science	1342	
	Epidemiologist	1-2 year training in Epidemiology after completing First degree in Health Science or other social science	1342	
	Monitoring and Evaluation Expert	1-2 year training in M & E after completing First degree in Health Science or other social science	1342	
	Nutritionist	1-2 year training in Nutrition after completing First degree in Health Science or other social science	1342	

(Table continues on next page)

Table A.1.1 (concluded)

Category	Subcategory	National definition	ISCO code	Remark
Allied public health professionals				
	Dietician	Three years training at college after completing secondary school		
	Health information technician	Three years training at college after completing secondary school	3252	
	Occupational health	Three years training at university level with an equivalent to university first degree (post-secondary school) or upgrade from Diploma level	3257	
HEW				
	Health extension worker	One year training after completing secondary education	3253	

Source: Draft HRD Strategy.

Appendix 2: List of Public Universities/Colleges with Medical Faculty and Annual Intake over the Past Five Years

Table A.2.1: Public universities/colleges with medical faculty and annual intake

No	Universities	2009/10	2008/9	2008/7	2007/6	2005/6	2004/5	Total
1	Adama	150	110					260
2	Bahir Dar	106	108	72				286
3	Addis Ababa	250	380	209	111	101	86	1,137
4	Hawassa	125	258	110	80	55	37	665
5	Haromaya	188	108	66				362
6	Jimma	207	218	147	118	151	83	924
7	Gonder	156	221	177	122	82	65	823
8	Mekele	146	252	150	27	81	65	721
9	Arbaminch	62	51					113
10	St. Paul M/M school	127	42	33				202
	Total	1,517	1,748	964	458	470	336	5,493

Source: Draft HRD Strategy.

Appendix 3: List of Public Universities/Colleges with Nursing Schools and Annual Intake over the Past Three Years

Table A.3.1: List of public universities/colleges with nursing schools

No	Universities	2009/10	2008/9	2008/7	Total
1	Medewelabu	108	31	42	181
2	Jijiga	180	49	53	282
3	Debire biirhan	27	37	41	105
4	Welayta	80	36	86	202
5	Welega	126	24	51	201
6	Debre markos	51	45		96
7	Addis Ababa	48	57	57	162
8	Hawassa	66	65	84	215
9	Haromaya	150	90	68	308
10	Jimma	95	69	118	282
11	Gonder	88	87	80	255
12	Arbaminch	80	40	47	167
13	Ambo	52			52
14	Mizan	76			76
	Total	1,227	630	727	2,584

Source: Draft HRD Strategy.

Appendix 4: List of Public Universities/Colleges with Health Officer Training and Their Annual Intake

Table A.4.1: Public universities/colleges with health officer training

No	Universities	2009/10	2008/9	2008/7	Total
1	Medewelabu	160	42		202
2	Jijiga		61	90	151
3	Debire biirhan	107	56	80	243
4	Welayta	80	41	121	242
5	Welega	131	27	48	206
6	Debre markos	51	46		97
7	Dilla	120			120
8	Hawassa	68	65	84	217
9	Haromaya	281	188	124	593
10	Jimma	167	115	129	411
11	Gonder	96	94	112	302
12	Arbaminch	75	53	67	195
13	Ambo	79			79
	Total	1,415	788	855	3,058

Source: Draft HRD Strategy.

Appendix 5: List of Public Universities/Colleges with Midwifery Training and Their Annual Intake

Table A.5.1: Public universities/colleges with midwifery training

No	Universities	2009/10	2008/9	2008/7	Total
1	Welega	25			25
2	Addis Ababa	60	55	39	154
3	Dilla	39			39
4	Hawassa	46	37	45	128
5	Haromaya	103	36	24	163
6	Gonder	60	58	44	162
	Total	333	186	152	

Source: Draft HRD Strategy.

Appendix 6: List of Universities with Their Annual Intake for Other HRH Categories

Table A.6.1: Universities, annual intake for other HRH categories

A. Anesthesia

No	Universities	2009/10	2008/9	2008/7	Total
1	Addis Ababa	45	41	41	127
2	Jimma	32	28	26	86
3	Dilla	20			20
4	Gonder	30	26	27	83
	Total	127	95	94	316

B. Environmental Health

No	Universities	2009/10	2008/9	2008/7	Total
1	Medewelabu			38	38
2	Hawassa	69	62	87	218
3	Jimma	80	67		147
4	Haromaya	5	10	60	75
5	Gonder	69	58	46	173
	Total	223	197	231	651

C. Pharmacy

No	Universities	2009/10	2008/9	2008/7	2007/6	Total
1	Welega	22	26	25		73
2	Addis Ababa	86	58	74	72	290
3	Haromaya	52	72	48		172
4	Jemma	89	79	60		228
5	Gonder	89	74	53	101	317
6	Mekele	60	150	45	30	285
7	Ambo	53				53
	Total	451	459	305	203	1,418

D. Medical Laboratory

No	Universities	2009/10	2008/9	2008/7	Total
1	Welega	10	22		32
2	Addis Ababa	67	22	57	146
3	Hawassa	69	67	83	219
4	Haromaya	13	32	74	119
5	Jimma	95	70	101	266
6	Gonder	82	56	74	212
7	Arba minch	30	39	52	121
	Total	366	308	441	1,115

(Table continues on next page)

Table A.6.1 (continued)

E. Dental Medicine

No	Universities	2009/10	2008/9	2008/7	2007/6	2006/5	Total
1	Addis Ababa	44	40	50			134
2	Jimma	76	55	31	30	37	229
	Total	120	95	81	30	37	363

F. Radiography

No	Universities	2009/10	2008/9	2008/7	Total
1	Addis Ababa	63	32	53	148
	Total	63	32	53	148

Source: Draft HRD Strategy.

Appendix 7: Detailed HRH Projections 2009–20, Ethiopia

Table A.7.1: HRH projections 2009–20

Professional category	2009	2015	2020
Internist	470	738	917
Pediatrician	264	413	513
Obstetrician	366	574	714
Surgeon	522	820	1,019
Orthopedics	265	414	514
Ophthalmologist	196	306	380
Dermatologist	39	61	76
Psychiatrist	264	413	513
Radiologist	238	372	461
ENT specialist	127	198	246
Anesthesiologist	114	178	222
Clinical pathologist	109	171	212
Forensic pathologist	33	51	64
Dentist	490	1,259	1,496
Oncologist	67	108	134
General practitioner	4,562	13,238	14,384
Health officer	2,454	8,964	9,346
IESO	418	1,916	2,169
Anesthesia professional	981	2,810	3,271
Professional nurse	3,110	7,874	8,548
Comprehensive nurse	15,257	38,912	42,174
Midwife	3,290	8,915	9,551
Pharmacist	678	1,886	2,200
Pharmacy technician	3,585	9,420	10,049
Laboratory technologist	992	2,419	2,851
Laboratory technician	5,926	15,330	16,403
Radiographer	1,071	2,617	3,083
Psychiatric nurse	357	899	1,057
Ophthalmic nurse	327	854	1,001
Physiotherapy professional	309	474	584
Dental professional	332	933	1,089
Environmental health worker	246	790	911
Health education professional	246	790	911
Biomedical technician	310	888	1,032
Clinical psychologist	64	98	121
Social worker	209	733	841
Occupational health professional	246	790	911
Radio pharmacist	51	79	98
Dieticians	120	185	229
Health information technician	2,868	10,346	10,672
Health extension worker	27,220	44,861	50,756
Total	**78,771**	**175,620**	**193,264**

Source: Draft HRD Strategy.

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