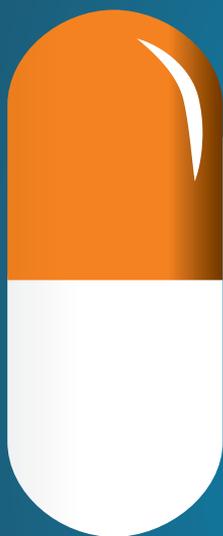# Increasing technical efficiency in health spending in Africa

Human resources for health in Ethiopia

CABRI

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Acronyms and abbreviations

BPR   business process reengineering
HEP   Health Extension Programme
HEW   health extension worker
HRH   human resources for health
HSDP   Health Sector Development Programme
NCD   non-communicable disease
VfM   value for money
WHO   World Health Organisation

Acknowledgements

1. Introduction

Ethiopia has seen high economic growth over the last decade, but remains a poor country with a high burden of disease. It has made considerable health gains in recent years, mainly by having health policies that focus on extending primary healthcare, using health extension workers. It has made good use of existing resources, but has a low health expenditure (of around US$21 per capita, and totalling 4 per cent of GDP). It has a federal system with devolved healthcare financing, whereby block grants are allocated to sectors at regional and *woreda* (district) level. The challenge now, with the epidemiological transition (and a sense that the 'low-hanging fruits' have already been gathered in relation to public health), is how Ethiopia, still poor, continues to invest in health improvements?
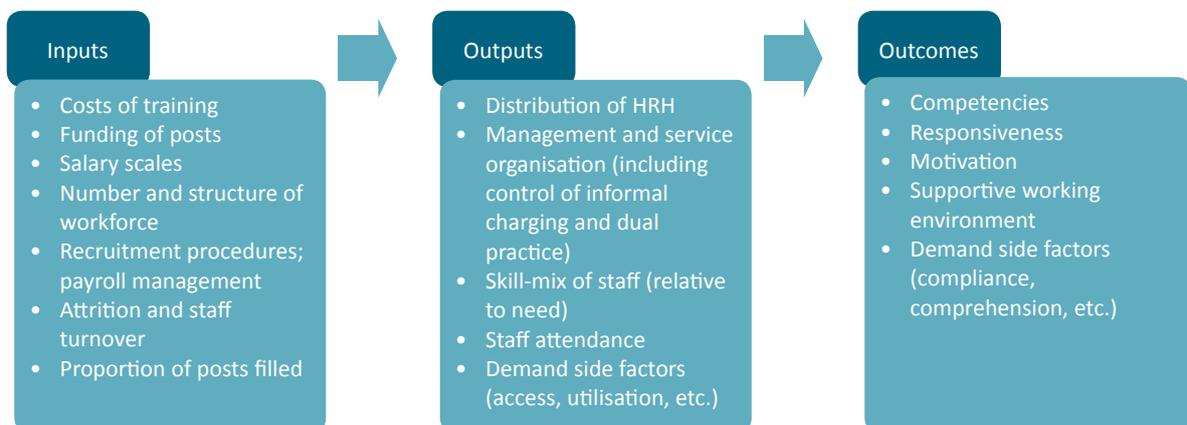
Human resources for health (HRH) are a critical pillar within any health system – the health staff combine inputs to provide the services, thus affecting how all other resources are used, and they make frontline (and back-office) decisions that are important determinants of service quality, effectiveness and equity. HRH is usually the most resource-intensive element within the health system – commonly absorbing 50–70 per cent of public expenditure on health, although the proportions are very varied by individual countries and across regions. As they are commonly part of the public administration, reforms to HRH are also part of a complex political economy in most countries.

Assessing value for money (VfM) in relation to HRH is correspondingly complex; across the value chain, many factors influence the conversion of inputs into outputs and outcomes (see Figure 1). A more detailed description of the HRH value chain can be found in Annex 1.

The World Health Report 2010 identifies HRH inefficiencies as being amongst the ten leading causes of health system inefficiencies. This case study, therefore, looks into the detail of Ethiopia's HRH situation with a focus on VfM.

Figure 1: The HRH value chain and its main immediate determinants

Inputs
- Costs of training
- Funding of posts
- Salary scales
- Number and structure of workforce
- Recruitment procedures; payroll management
- Attrition and staff turnover
- Proportion of posts filled

Outputs
- Distribution of HRH
- Management and service organisation (including control of informal charging and dual practice)
- Skill-mix of staff (relative to need)
- Staff attendance
- Demand side factors (access, utilisation, etc.)

Outcomes
- Competencies
- Responsiveness
- Motivation
- Supportive working environment
- Demand side factors (compliance, comprehension, etc.)

2. Background

2.1 The health system in Ethiopia[1]

Since 2004, Ethiopia's health sector has been driven by public sector-wide reform, in the application of a concept known as business process reengineering (BPR). BPR represents a fundamental rethinking and restructuring of the system to establish customer-focused institutions and rapid scale-up of health services and to enhance the quality of care. The sector has tried a variety of approaches, including benchmarking best practices, designing new processes and revising organisational structures.[2] BPR also introduced a three-tiered system of health care delivery, where level one is a *woreda* health system comprised of a primary hospital (to cover 60 000–100 000 people), health centres (1 per 15 000–25 000 population) and satellite health posts (1 per 3 000–5 000 population), connected to each other by a referral system. The primary hospital, health centre and health posts form a primary healthcare unit. Level two is a general hospital covering a population of 1–1.5 million. Level three is a specialised hospital covering a population of 3.5–5 million. At all levels (federal, regional and *woreda*), decision-making processes and responsibilities are shared, although the federal ministry of health and regional health bureaus focus more on policy matters and technical support, while *woreda* health offices manage and co-ordinate the operation of a district health system under their jurisdiction.

In order to organise community and health workers effectively, a 'health development army' is formed in every settlement/major social network. The term describes a group of committed, enthusiastic people who are able to use community networks to achieve a particular task or objective (Health Sector Development Programme, HSDP, V). The smallest unit comprises one leader to five households; at the next level, five such groups are organised into a health development team (covering about 25 households per village). Relatedly, Ethiopia's

flagship Health Extension Programme (HEP) is a community-based strategy to deliver health promotion, disease prevention and selected curative health services, and is built upon the principles of primary healthcare. Sixteen health packages – in the areas of promotion of hygiene and environmental sanitation, prevention and control of major communicable diseases, family health services, and health education and communication – are provided free of charge. The HEP is run by salaried health extension workers (HEWs), who are selected from within communities and are given a year-long training prior to starting work. The HEP has been a crucial driver of many of Ethiopia's gains in health status, as it increases access to primary healthcare and aims to create smoother referral links.

2.2 Health status

Ethiopia's population is currently estimated at 99 million and has a very young demographic structure; 44 per cent of Ethiopians are under the age of 15 years (WHO, 2016). Ethiopia's health problems are largely caused by preventable, communicable diseases and illnesses related to malnutrition (HSDP IV/V). In recent years, drastic improvements in health outcomes have been achieved (e.g. between 1990 and 2010, there was a reduction in under-5 mortality of 5 per cent every year, which was quicker than the average for sub-Saharan Africa), but morbidity and mortality levels are still high and the general health status of the population is poor. Life expectancy in 2005 was 54 years (53.4 for males and 55.4 for females), but more recently has reached around 64 years. Indicators related to maternal and child health reflect the challenges faced by the health system. The annual performance report shows that in 2013, antenatal coverage (at least one visit) increased from 89.1 per cent to 97.4 per cent, but the number of deliveries attended by skilled health personnel is still very low at 23.1 per cent. Around 77.7 per cent of children are fully immunised, – but this lies below the target of 87 per cent, and Gambella records an immunisation rate of only 26.4 per cent.

2.3 Economic and fiscal situation

Over the past ten years, the Ethiopian macroeconomic environment has improved substantially. Nominal GDP has risen tenfold, reaching ETB1 038 billion (US$ 52 billion) in 2013/14. Real growth has averaged 10.5 per cent over the past

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1   Much of the information in this section is derived from Witter, Sato & Murray (2014).

2   Specifically, eight core process and five support processes have been identified. The core processes are: healthcare delivery; public health emergency management; research and technology transfer; pharmaceutical supply; resource mobilisation and health insurance; health and health-related services and product regulation; health infrastructure expansion and rehabilitation; and policy, planning, monitoring and evaluation. The support processes are: human resources development /management; procurement, finance and general service; programme-based audit; public relations; and legal services.

decade, outpacing the average for sub-Saharan Africa of 5.5 per cent. Inflation has been a challenge, averaging in the double digits, and reaching a high of 45 per cent in 2007/08. However, recent policies have brought inflation down to single figures, reaching 6.2 per cent in 2013/14.

Strong economic growth has been coupled with a focus on pro-poor spending by the government. This led to a significant rise in real per capita income from ETB3 000 in 2004/05 to nearly ETB7 000 in 2013/14, and, as a result, a fall in the national poverty rate from 60.5 per cent in 2005 to 30.7 per cent in 2011 (World Bank's World Development Indicators, in IMF 2013: 4). However, Ethiopia remains one of the poorest countries in Africa.

After implementation of the Multilateral Debt Relief Initiative in 2005/06, public debt has been reduced significantly to less than 40 per cent of GDP, and stood at 35 per cent in 2013/14. The latest IMF debt sustainability analysis states that Ethiopia 'remains at a low risk of external debt distress' (IMF 2013: 16).

2

3.   Human resources in health in Ethiopia

3.1 Availability of staff

Availability of staff – both those who directly deliver services to the community, and health managers and support staff – is relatively poor. For many years, the number of health workers was extremely limited, with an estimated 100–200 medical doctors and 25–30 midwives deployed annually. Retention is also a major issue, with up to one-quarter of doctors (as measured over the first 50 years of medical education in Ethiopia) leaving the profession or the country. Although data on HRH are patchy and may be unreliable, in 2010 approximately 34 382 HEWs staffed 12 000 rural health posts, and an additional 3 401 HEWs were deployed at urban centres. The number of doctors is estimated to be 1 544, while 2 002 midwives and 3 871 health officers are available. This implies a physician-to-population ratio of 1:42 706 – the World Health Organisation (WHO) minimum standard is 1:10 000. An estimated 27 000 midwives would be required to reach the WHO standard of one midwife per 100 annual deliveries (based on an estimated 2.7 million annual deliveries). The number of nurses (at 1:5 000) meets international standards. Other critical deficiencies in HRH include shortages of anaesthesia professionals (both anaesthesiologists and nurse anaesthetists), providers of comprehensive emergency obstetric care, and professionals trained in maintaining medical equipment.

In the light of these major challenges, HSDP IV outlines goals to be achieved by 2015, including:

- an improvement in the health workforce ratio from 0.7 per 1 000 population to 1.7 per 1 000;
- an improvement in the physician to population ratio from 1:37 996 to 1:5 500; and
- an increase in the number of trained and deployed midwives from 2 002 to 8 635.

Ministry of health documents cite a multitude of initiatives over recent years, including increasing the intake capacity of 11 existing universities and 13 new universities and hospital medical colleges under a new medical education initiative. As a result, 11 291 medical students were being trained in 24 medical schools in 2013. However, it will take time for such initiatives to feed through into the facility level. The government has practised a flooding strategy – training a lot of staff and hoping by that means to end up with filled public positions.

There is, however, a substantial brain drain, especially of doctors (in the range of 15-30 per cent), and around 20 per cent for nurses. Cohort studies in Ethiopia show a relatively low initial desire to migrate, which grows over time. Health workers with higher income and urban backgrounds are more likely to migrate, suggesting that poverty is not the main driver. Instead, the opportunity to pursue higher income and escape local instability may be the primary drivers.

Most health centres are staffed by health officers and, rarely, by nurses. Moreover, according to one study (Lindelow 2008), poor regulatory capacity provides ample room for private moonlighting during public working hours, as well as self-referrals by public workers to their private practices. The study found that after three years out of college, close to 20 per cent of doctors worked exclusively in the private sector and a further 18 per cent had a secondary job in a private clinic. Opportunities for dual practice for nurses also existed, though at a lower rate. The prime motivation was to increase income. Qualitative discussions indicated that absenteeism and non-approved private employment were seldom punished.

Ethiopia's health workforce is dominated by females at the lower levels (e.g. all health extension workers are female as are around 70 per cent of nurses). However, at the higher level, only 11 per cent of doctors are female (Soucat, Scheffler & Gebreyesus 2013), which may constrain access and acceptability.

In Ethiopia, employment by doctors in the private for-profit sector expanded from 1 per cent in 1996 to 17 per cent in 2006, and in the not-for-profit sector from 8 per cent to 23 per cent over the same period (Ensor et al. in Soucat et al. 2013), with more experienced doctors more likely to migrate from the public to the private sector. This is one of the factors biasing staff in favour of urban placements.

3.2 Distribution of staff by region

Public healthcare workers, especially physicians, are unequally distributed throughout the country (figures for the private sector are lacking but are likely to be even more focused in urban areas). Typically, urban areas are typically staffed, and certain regions consistently have a chronic shortage of workers. In particular, Afar suffers from a shortage of all types of health worker, while Oromia has very few doctors per person and Tigray has very few midwives given its population (see Table 1).

Table 1: Population ratio per healthcare worker, by type and region				
	Doctor	Health officer	Midwife	Nurse
Tigray	45 109	16 245	273 306	1 729
Afar	100 419	51 941	-	8 142
Amhara	96 314	27 729	61 588	3 586
Oromia	107 602	30 225	43 515	3 309
Somali	62 266	44 808	19 490	3 381
B Gumuz	61 088	17 454	19 182	1 622
SNNPR	74 161	22 922	35 629	4 188
Gambella	26 634	6 925	49 462	1 121
Harari	4 715	5 658	7 921	641
Addis	18 102	20 967	18 563	1 534
Dire Dawa	5 594	14 200	10 858	1 017
National	56 013	25 709	39 758	3 012

Source: Health Systems 20/20 Project (2012)

3.3 Spend on HRH

Public (including external donor) expenditure on HRH comprises a small proportion at the federal level, which is dominated by capital expenditure, but a high proportion of recurrent expenditure at regional (71 per cent) and *woreda* (77 per cent) levels.

Staff within the public sector are paid on a salaried basis, with very limited performance management, and there is evidence that pay levels are low, especially in comparison to what is required to motivate doctors and more specialised staff to work in remote areas. Studies have documented the differentials in pay between the private and public sectors and between urban and rural areas for doctors and nurses, for example (see Jack in Soucat et al. 2013). This is a familiar constraint in low-income countries.

3.4 Main VfM concerns

Major challenges noted in HSDP III include the following: the absence of standardised and continual professional development programmes; limited capacity for human resource management at all levels; insufficient literacy skills on the part of HEWs in some poorer regions; inappropriate recruitment of HEWs; insufficient skills mix; low training capacity and output of major HRH categories; maldistribution of health staff in the country; ineffective staffing that is not related to workload; poor HRH management; lack of organised information systems; inadequate regulatory framework to support human resource development; and the absence of a monitoring and evaluation framework for HRH development (Federal Ministry of Health 2005).

Planned initiatives to achieve these in HSDP IV include: training and development with a focus on certain key health professionals; integrated refresher training for HEWs; targeted staff retention mechanisms; and continuous training programmes.

For many facilities, routine external supervision (defined as at least one supervisory visit from national, regional, zonal or district level to the facilities during the six months preceding the assessment) is a rarity, with only 12 per cent of hospitals and health centres having received one. Referral hospitals are more likely to receive routine external supervision.

4. Conclusions

This case study highlights that HRH are at the heart of generating VfM in a health system, but that analysis is complex and fraught with data gaps (in most health systems), as well as the need for considered interpretation. Nevertheless, the task cannot be avoided. Decisions on HRH have major cost implications, reaching beyond the health sector and into the future (e.g. pension liabilities), and a continuous dialogue needs to be maintained between the finance and health ministries on areas for improvement. In this process, staff are not passive – they make choices for themselves reflecting opportunities and costs that influence overall system performance, so it is important to engage with health staff as part of any reform design and implementation process.

The case study illustrates how many options can exist for improving the VfM of HRH, and this is likely to be true in most typical sub-Saharan African contexts. The key is the assessment of feasibility of different adjustments and their potential returns, and continuous assessment and learning about intended and unintended costs, processes and effects, taking your stakeholder group along with you as you move.

5. Discussion questions

Discussion question 1: Given this background information, which aspects of VfM in relation to HRH would you highlight as most critical to address?

Discussion question 2: How might these be tackled?

Discussion question 3: How can the ministries of finance and health work in partnership to identify and address the causes of low VfM in relation to HRH?

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6. Discussion

The case study illustrates the complexity of HRH analysis – the many dimension and interactions that have to be considered. Prioritising action, negotiating it with interest groups, costing, implementing and monitoring are not simple exercises.

In this case, shortages of key staff and poor distribution (low staffing in hard-to-reach areas) could be highlighted as two of the main constraints to be tackled. Even allowing for the task shifting to community-level agents, especially in terms of the work of the HEWs, there is a need for more doctors, midwives and other skilled cadres. Strategies to address these could include improving pay for staff who are in short supply (low pay can be a cause of inefficiency – staff leaving or drawing a salary while not coming to work represent huge costs and lost health gains for the service). Incentive packages to recruit and retain staff in underserved areas (not just financial but also providing support for housing and transport, for example) could also be a cost-effective option.

Such interventions have major implications for health budgets – and potentially also for public wage bills and staffing costs in other sectors too – so, clearly, early discussions and joint planning of current and future budget implications and the affordability of reforms would be needed between the ministries of health and finance. Improving the equity of distribution of staffing would be ineffective if it were not accompanied by appropriate infrastructure, equipment, drug supply, public education and so on in remote areas.

Enhancing HRH management, performance standards and assessment, and continuing professional development for staff, and linking these with incentives such as pay increases, promotion, housing and transport could also be important avenues for ensuring an effective, supported and responsive health workforce. This might appear to be recommending investment in order to save – but it is a common reality that a well-proportioned and supported health workforce can be more cost-effective than a large, underpaid and underperforming one (McCoy et al. 2008).

Longer-term strategies to improve the efficiency of use of staff and health outcomes could include adjusting the essential services package to take account of epidemiological changes; in particular, as Ethiopia transitions to middle-income status, it will face a rise in non-communicable diseases (NCDs). These are best addressed through the primary care system, and adding NCDs to the training of the HEWs and other primary care workers will be a priority in controlling the rise of NCDs, which have potentially high cost implications for households and society. A stronger gatekeeping function could also be introduced to ensure that utilisation is focused at the primary level, where appropriate. Given that drugs are also a major cost component – not just to the health system but also to users – refresher training in and support of rational drug use for staff and users may provide high societal returns.

Regulatory functions could also be a key area for investment, affecting both the public and private sectors. Strengthening the regulatory organisation and accreditation processes for providers could be effective if professional standards and norms are clear and are enforced.

Health insurance is being piloted in Ethiopia and could, again in the medium to longer term, provide a more active purchasing system that generates more routine information on the performance of providers and staff, which is currently lacking in the system. This could become an important tool for monitoring and improving incrementally on the overall cost-effectiveness of HRH.

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Annex 1: Human resources for health value chain

Inputs

Training costs and salaries, combined with the structure of the workforce, are the main factors influencing input costs, but assessing the extent to which they are at the right level is more complicated. Salaries, for example, need to attract the right kind of staff, which demands an understanding of the number of trained staff available in the job market, other job opportunities for people with their profile in the given labour market, the possibilities of migrating (if skills are transferable), the option of working in other sectors within the health market, and the features of the posts on offer (their attractiveness in terms of a range of characteristics *vis-à-vis* the preferences of candidates). Processes of recruitment and management not only influence these features (e.g. desirability of posts) but also constitute costs, which can be managed well or poorly. Budget constraints often dictate outcomes that may be far from the optimal or planned ones.

Indicators to track these input costs typically include cost per trained cadre (of different kinds), the relative proportions of different staff types and grades, staff costs in relation to total health service expenditure, numbers of staff relative to the population, attrition levels by cadre, and the proportion of different posts filled. Comparisons can be made between different health system units or over time. However, access to comparative information is often limited, and interpretation is difficult. For example, comparisons of salaries across areas may reveal large differences (for the same cadre) (Witter et al. 2016), but these may relate to legitimate differences of supply and demand. To take them as a sign of poor VfM in the higher-paying area could be a strategic error. There are also few international norms; for example, attrition levels vary very largely between different cadres and locations, there are few international benchmarks on what is an acceptable or normal level of attrition, and, while low attrition is usually desirable, it could also be a sign of poorly performing staff remaining in their posts.

Outputs

The outputs – services provided by staff – show similar complexity, being influenced not only by HRH characteristics (such as skills mix and distribution) but also by how the health system is organised, and how much demand there is (whether people can and do use services of different types). When diagnosing apparent inefficiency (e.g. low patient visits per staff), it is commonly the demand-side barriers that are to blame (e.g. low perceived need for formal health services) or wider organisational factors (e.g. healthcare being unaffordable or people being unable to reach services easily). Staff per outpatient visit or per inpatient bed day (or midwives per live birth) are commonly used as efficiency indicators, but addressing any apparent inefficiency requires a broader assessment that deals with the wider contextual (organisation and community) factors. Similarly, indicators like absenteeism (which requires specific measurement techniques, since it is not available from routine data) are assumed to have a sliding scale (more absenteeism is worse than less) but in contexts of underfunded salaries, a controlled level of dual practice has been observed to be one of the strategies for retaining a public health workforce (Van Leberghe et al. 2002). As with all HRH indicators, interpretation has to be cautious.

Outcomes

Health outcomes are influenced directly by the outputs (services delivered) of staff and their competence and motivation, as well as organisational factors (such as having the necessary tools and systems to be effective) and community factors (such as compliance with medical advice). Routine information sources tend to be poor for assessing aspects such as competence. While there are tools for conducting such assessments, including comparing what staff know and what they do, they are relatively intensive and (as always) should be interpreted with care. It is rarely possible to tie health outcomes directly to HRH indicators, as many other factors influence them. However, understanding and acting on the causes of poor quality, inappropriate or disrespectful care is critical to achieving health goals.

Some of the factors highlighted as common causes of inefficiency in relation to HRH (WHO 2010) are 'ghost workers' (people on the payroll but not working), high rates of staff absenteeism (often linked to dual practice in the private or informal sector), having the wrong mix of staffing (e.g. too few nurses per doctor), failing to ensure that tasks are handled by the lowest level that is competent to do so effectively (task-shifting), overstaffing (in some areas, e.g. high staff to workload ratios), and informal charging of patients by staff.