This publication was written by Slavea Chankova and Sara Sulzbach and was reviewed by Elijah Sinyinza. It draws from several original reports developed by HSSP in collaboration with the Ministry of Health. Contributors to the reports include Anna Chirwa, Lastina Lwatula, Hilary Mwale, and Mwiche Ngulube-Horne.

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**Health Services and Systems Program (HSSP)** is a USAID bilateral program providing support to the health sector at the central, provincial, and district levels to strengthen systems and to expand coverage and improve the quality of health services throughout all provinces in Zambia. HSSP was initiated in 2004 with a budget of US$42 million. The project’s technical staff has expertise in HIV/AIDS, reproductive health, child health, malaria, health financing, drugs and logistics, strategic information, and research and evaluation. Tasked with strengthening the public health system and improving service delivery in key priority areas, HSSP provides technical assistance in sector planning, human resources, health financing, drug management and logistics, and the Health Management Information System (HMIS). Priority areas for service delivery include HIV/AIDS, reproductive health, safe motherhood, and child health. HSSP is led by Abt Associates in partnership with JHPIEGO, Boston University Center for International Health and Development, Save the Children, Social Sector Development Strategies, and International Science and Technology Institute.
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<tr>
<td>AIDS</td>
<td>Acquired Immunodeficiency Syndrome</td>
</tr>
<tr>
<td>ANC</td>
<td>Antenatal Care</td>
</tr>
<tr>
<td>ART</td>
<td>Antiretroviral Therapy</td>
</tr>
<tr>
<td>ARV</td>
<td>Antiretroviral</td>
</tr>
<tr>
<td>CBO</td>
<td>Community Based Organization</td>
</tr>
<tr>
<td>CBOH</td>
<td>Central Board of Health</td>
</tr>
<tr>
<td>CTC</td>
<td>Confidential Testing and Counseling</td>
</tr>
<tr>
<td>FBO</td>
<td>Faith Based Organization</td>
</tr>
<tr>
<td>GRZ</td>
<td>Government of the Republic of Zambia</td>
</tr>
<tr>
<td>HIPC</td>
<td>Highly-Indebted Poor Country</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>HR</td>
<td>Human Resources</td>
</tr>
<tr>
<td>HRH</td>
<td>Human Resources for Health</td>
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<td>HRTF</td>
<td>Human Resources Task Force</td>
</tr>
<tr>
<td>HSSP</td>
<td>Health Services and Systems Program</td>
</tr>
<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>MOF</td>
<td>Ministry of Finance</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>MOHRIS</td>
<td>Ministry of Health Human Resources Information System</td>
</tr>
<tr>
<td>NGO</td>
<td>Nongovernmental Organization</td>
</tr>
<tr>
<td>NHSP</td>
<td>National Health Strategic Plan</td>
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<tr>
<td>NITCS</td>
<td>National In-Service Training Coordinating System</td>
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<tr>
<td>PEPFAR</td>
<td>President’s Emergency Plan for AIDS Relief</td>
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<td>PHR+</td>
<td>Partners for Health Reform Plus</td>
</tr>
<tr>
<td>PMECP</td>
<td>Payroll Management and Establishment Control Program</td>
</tr>
<tr>
<td>PMTCT</td>
<td>Prevention of Mother-to-Child Transmission</td>
</tr>
<tr>
<td>PRSP</td>
<td>Poverty Reduction Strategy Paper</td>
</tr>
<tr>
<td>RZMOH</td>
<td>Republic of Zambia Ministry of Health</td>
</tr>
<tr>
<td>STI</td>
<td>Sexually Transmitted Infection</td>
</tr>
<tr>
<td>SWAp</td>
<td>Sector-Wide Approach</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>UNAIDS</td>
<td>United Nations AIDS Organization</td>
</tr>
<tr>
<td>VCT</td>
<td>Voluntary Counseling and Testing</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>WISN</td>
<td>Workload Indicators of Staffing Need</td>
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1. INTRODUCTION

This is the first in a series of HSSP Occasional Papers highlighting the health system strengthening work of the project in Zambia. The focus of this paper is on human resources for health (HRH). The paper presents an overview of the current HRH situation in Zambia, provides comparisons with other countries in the region, and summarizes the work accomplished under the human resources component of HSSP in the project’s first year of operation, namely:

- Identifying and analyzing priority HRH issues in Zambia;
- Developing solutions and presenting them to stakeholders; and
- Assisting the Ministry of Health (MOH) and Government of the Republic of Zambia (GRZ) in setting the HRH agenda.

The remainder of this paper is organized as follows: Section 2 provides a summary of basic demographic and health indicators in Zambia; Section 3 describes the organization and reforms of the health sector; Section 4 discusses the HRH challenges facing Zambia; Section 5 describes the work completed in 2004–2005 by HSSP under the HRH component of the project; Section 6 summarizes key issues in the HRH Strategic Plan 2006–2010; and Section 7 offers concluding remarks.
2. **DEMOGRAPHIC AND HEALTH INDICATORS IN ZAMBIA**

Most of the basic demographic and health indicators in Zambia are comparable to those for sub-Saharan Africa (see Table 1). A notable exception is the much higher HIV prevalence rate, which likely contributes to Zambia’s markedly lower life expectancy.

**TABLE 1. DEMOGRAPHIC AND HEALTH INDICATORS FOR ZAMBIA AND SUB-SAHARAN AFRICA**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Zambia</th>
<th>sub-Saharan Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>12 million</td>
<td>-</td>
</tr>
<tr>
<td>Population growth rate</td>
<td>3.2%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Total fertility rate</td>
<td>5.7</td>
<td>5.1</td>
</tr>
<tr>
<td>Life expectancy at birth (in years)</td>
<td>37</td>
<td>46</td>
</tr>
<tr>
<td>Infant mortality rate (per 1,000 live births)</td>
<td>95</td>
<td>103</td>
</tr>
<tr>
<td>Under-five mortality rate (per 1,000 live births)</td>
<td>168</td>
<td>167</td>
</tr>
<tr>
<td>Maternal mortality ratio (per 100,000 live births)</td>
<td>729</td>
<td>940</td>
</tr>
<tr>
<td>HIV/AIDS prevalence rate</td>
<td>15.6%</td>
<td>7.3%</td>
</tr>
</tbody>
</table>


2.1 **THE HIV/AIDS EPIDEMIC IN ZAMBIA**

“Zambia’s most critical developmental and humanitarian crisis today is HIV/AIDS”

(UNAIDS, 2004b).

Zambia has been significantly affected by the HIV/AIDS epidemic. As shown in Figure 1, Zambia has one of the highest prevalence rates in sub-Saharan Africa: adult prevalence is 15.6 percent and it is estimated that about 1 million Zambians are living with HIV/AIDS. About 200,000 of persons infected with HIV are in urgent need of antiretroviral therapy (ART), but as of December 2005, only 51,764 (approximately 25%) were receiving ART (UNAIDS, 2005; RZMOH, 2004). With the onset of the HIV/AIDS epidemic, average life expectancy has decreased dramatically to 37 years and is now among the lowest in Africa (WHO, 2003).
FIGURE 1. HIV/AIDS ADULT (15–49) PREVALENCE RATE IN SUB-SAHARAN AFRICA, 2003

Source: UNAIDS 2004b
3. OVERVIEW OF THE ZAMBIAN HEALTH SECTOR

3.1 HEALTH SECTOR REFORMS

In the 1980s, health sector reforms led to the creation of semiautonomous hospital management boards for all major hospitals. In the early 1990s, new legislation mandated the formation of District Health Boards in all districts to oversee health services at the district level. The National Health Service Act of 1995 called for a significant change in the role and structure of the Ministry of Health and established an autonomous health service delivery system. In response, the Central Board of Health (CBOH) was created to “monitor, integrate, and coordinate the programs of the Health Management Boards.” As a result, the MOH was no longer directly involved in health service delivery, with its role limited to policymaking and regulation of the health sector (Bossert et al., 2000).

Reforms in the early 1990s were implemented under the framework of the Sector Wide Approach (SWAp), which called for resources from government and other stakeholders to be pooled and coordinated to ensure efficient resource utilization. In 1993, an increase in disease burden and diminishing resources led the government to introduce cost sharing through user fees, with exemptions for children under five and adults over 65, and for certain priority services such as maternal and family planning services, immunizations, and chronic diseases, including HIV/AIDS (PRSP, 2002).

In June 2005, the government announced a policy of free provision of ART in public health facilities, which may add to the demands on the health workforce in the country. Most recently, in early 2006, user fees were abolished at rural public health facilities. Another major change is the dissolution of the CBOH, whose functions have since reverted to the MOH.

Zambia has been one of the countries affected by the Highly-Indebted Poor Country (HIPC) requirements on government budget limits. A freeze on appointments in the public sector, including the healthcare sector, took effect in 2003 in compliance with HIPC requirements.

3.2 ORGANIZATION OF HEALTH SECTOR

Of the 1,327 healthcare facilities in Zambia, 85 percent are government-run facilities, while 9 percent are private sector facilities and 6 percent are religious affiliated (mission) facilities. The three levels of public health facilities are hospitals, health centers, and health posts; the hospitals are divided into primary (district), secondary (provincial), and tertiary (central) facilities.

Geographic access to healthcare varies greatly between urban and rural areas: 99 percent of urban households reside within five kilometers of a health facility, compared to 50 percent of rural households (PRSP, 2002).
4. HUMAN RESOURCES FOR HEALTH CHALLENGES IN ZAMBIA

The Zambian health system is currently facing several challenges with regard to human resources. The HRH Strategic Plan for 2006–2010 identified the following four issues as major problems:

- Inadequate number of public sector health workers (less than half the required number);
- High levels of emigration, or “brain drain,” to other African countries and beyond;
- Increased attrition of health workers due to deaths and resignations; and
- Imbalance in the urban/rural distribution of health workers.

Other factors affecting Zambia’s human resource situation include poor working conditions and occupational safety hazards in public health facilities, stigma associated with treating HIV/AIDS patients, and the direct impact of the virus on HIV-positive health workers.

The problems identified in Zambia mirror those across sub–Saharan Africa. The High-Level Forum on the Health Millennium Development Goals (MDGs) held in Abuja in 2004 highlighted the following human resource challenges for African countries:

- Insufficient training opportunities: two-thirds of countries in sub–Saharan Africa have only one medical school, and 11 countries have none;
- Deteriorating health of the medical workforce as a result of the HIV/AIDS epidemic: between 20 to 40 percent of health workers in sub–Saharan Africa are HIV-positive;
- Severe rural/urban imbalance in the distribution of health workers: health workers are heavily concentrated in major urban areas, whereas the majority of the population resides in rural areas; and
- Brain drain of health professionals to more developed countries

(High-Level Forum on the Health MDGs, 2004).

4.1 SHORTAGE OF HEALTH WORKERS

The Zambian National AIDS/STI/TB Implementation Plan 2004/2005 estimates that HIV/AIDS-related morbidity accounts for up to 70 percent of hospital admissions. With about 25 percent of those in need currently receiving ART (RZMOH, 2006) and in view of the recently announced policy calling for universal access to such therapy, Zambia is facing a severe shortage of health personnel to respond to the HIV/AIDS crisis. For example, the projected shortage of doctors required to meet the 2008 Global Fund targets for ART, voluntary counseling and testing (VCT), and prevention of mother-to-child
transmission (PMTCT) (while maintaining the current level for other healthcare services) is 32 percent. At the same time, the shortage for nurses is 11 percent and for laboratory technicians it is more than 65 percent (PHRPlus, 2005a).

In 2004, Zambia produced only 49 doctors, 540 nurses, 20 pharmacists, and 38 laboratory technicians—all far below the graduation rates required to maintain current staffing levels (PHRPlus, 2005a). In addition, expanding the provision of comprehensive HIV/AIDS services will require additional health workers at all levels of care.

Though a challenge for the entire country, the shortage of healthcare personnel is particularly acute in rural areas, where more than half of health centers employ only one qualified staff member and many function without any trained health workers (HRH Strategic Plan, December 2005).

As noted, the shortage of health workers is not specific to Zambia; many sub-Saharan African countries face the same problem. While the number of trained health personnel has historically been inadequate, the HIV/AIDS pandemic has exacerbated the HR shortfall in recent years. Table 2 compares the number of physicians and nurses per 100,000 population to the WHO-recommended ratio in selected countries in sub-Saharan Africa. Although three countries (South Africa, Namibia, and Botswana) surpass the recommended ratio, most other countries in the region, including Zambia, fall short of the WHO recommendation. The shortage is particularly pronounced for physicians, of which Zambia has only one-third the recommended number.

**TABLE 2. PHYSICIANS AND NURSES PER 100,000 POPULATION IN SUB-SAHARAN AFRICA, 2004**

<table>
<thead>
<tr>
<th>Country</th>
<th>Physicians</th>
<th>Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa</td>
<td>69</td>
<td>388</td>
</tr>
<tr>
<td>Namibia</td>
<td>30</td>
<td>168</td>
</tr>
<tr>
<td>Botswana</td>
<td>29</td>
<td>241</td>
</tr>
<tr>
<td>WHO-recommended ratio</td>
<td>20</td>
<td>143</td>
</tr>
<tr>
<td>Kenya</td>
<td>13</td>
<td>90</td>
</tr>
<tr>
<td>Côte d’Ivoire</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>DR Congo</td>
<td>7</td>
<td>44</td>
</tr>
<tr>
<td>Zambia</td>
<td>7</td>
<td>113</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>6</td>
<td>54</td>
</tr>
<tr>
<td>Uganda</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Mozambique</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>Tanzania</td>
<td>2</td>
<td>37</td>
</tr>
<tr>
<td>Malawi</td>
<td>1</td>
<td>26</td>
</tr>
</tbody>
</table>


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1 Global Fund targets for 2008: 85,000 patients receiving ART; 55,000 receiving PMTCT, and 1.7 million receiving CTC.
4.2 ATTRITION OF HEALTH WORKERS

The last few years have witnessed a deterioration of Zambia’s HRH situation. A substantial number of health workers have left and continue to leave the country to take better-paid health positions abroad or simply exit from the medical profession for more lucrative positions. In addition, the HIV/AIDS crisis has had a direct impact on health workers, as many of them have become infected with the virus.

Attrition rates among health personnel have been increasing in recent years, particularly among doctors and nurses. In fact, the number of doctors in Zambia declined by 56 percent between 1999 and 2002 (PHRPlus, 2005a). Table 3 presents attrition rates for key categories of health workers. The most frequently cited reasons for the high attrition rates are death - most often attributed to HIV/AIDS - and emigration. According to estimates from the HRH Strategic Plan, the attrition rate for doctors and nurses from pre-service training programs was 30 percent in 2004.

**TABLE 3. ATTRITION RATES FOR HEALTH PERSONNEL IN PUBLIC HEALTH SECTOR IN ZAMBIA, 2003**

<table>
<thead>
<tr>
<th>Annual Attrition Rate (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
</tr>
<tr>
<td>Nurses</td>
</tr>
<tr>
<td>Pharmacists</td>
</tr>
<tr>
<td>Laboratory technicians</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>


Evidence from many other African countries indicates that death rates among health personnel have increased dramatically with the onset of the HIV/AIDS epidemic (Tawfik and Kinoti, 2003). A study of hospitals in Kenya, for example, showed that mortality is the primary reason for health personnel attrition and that HIV/AIDS is the leading cause of death, with 45 percent of deaths attributed to the virus or related illnesses (Cheluget et al., 2003).

The magnitude of the problem is demonstrated by a World Bank study that estimates that a country with a stable 15 percent HIV prevalence rate, for example, can expect 2 to 3 percent of its healthcare providers to die from AIDS annually\(^3\) (World Bank, 1999).

Besides HIV/AIDS, another leading reason for the high attrition rates among health professionals in Zambia is emigration. For example, the estimated number of doctors trained in Zambia and practicing in the United States and Canada in 2002–2003 was equal to 11 percent of those working in Zambia (Hagopian et al., 2004).\(^4\) The United Kingdom has recruited a significant number of trained nurses (Nursing and Midwifery Council of the UK, 2005), and similar trends are seen in the migration of Zambian health personnel to other popular destinations such as Australia, Botswana, and South Africa.

---

2 The HRH Strategic Plan cites the following attrition rates (from the 2001 HRH Draft Plan): 4.2 percent for doctors, 7.8 percent for registered nurses, and 6.1 percent for enrolled nurses.

3 Assuming a constant rate of HIV infection given a 10-year or five-year median time from infection.

4 The number is 6 percent for Zimbabwe, 24 percent for Uganda, 17 percent for Ethiopia, and 3 percent for Kenya.
(Dussault, 2004). Table 4 compares attrition rates for doctors and nurses in Zambia to the rates for Côte d’Ivoire and Ethiopia.

**TABLE 4. ATTRITION RATES FOR DOCTORS AND NURSES IN PUBLIC HEALTH SECTOR, SELECTED COUNTRIES IN SUB-SAHARAN AFRICA (PERCENT PER YEAR)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Doctors</th>
<th>Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Côte d’Ivoire</td>
<td>9.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>9.6</td>
<td>3.2</td>
</tr>
<tr>
<td>Zambia</td>
<td>9.8</td>
<td>5.3</td>
</tr>
</tbody>
</table>

Sources: PHRPlus 2005 (a–c).

Clearly, the problem of high attrition rates among health professionals is not unique to Zambia:

- It is estimated that about 840 out of 1,200 doctors trained in Zimbabwe during the 1990s left the country (USAID, 2003).

- Between 1986 and 1995, 61 percent of doctors who graduated from one medical school in Ghana left the country, nearly all of them destined for the United Kingdom or United States (Dolvo and Nyonator, 1999).

- Ghana recorded a loss of 328 nurses from the Council of Nurses and Midwives register in 1999, which is equivalent to the country’s annual output of registered nurses (Ghana MOH, 2000).

- The Government of Kenya advertised 100 doctor vacancies in 2001 but received only eight applications (USAID, 2003).

- In 2003, about half of the available nursing posts in Malawi were unfilled (Liese and Dussault, 2003).

A World Bank report on the state of the health workforce in Africa asserts,

> "The causes and extent of emigration vary from one country to another, but lack of job opportunities, low wages, and a poor working environment are the most commonly cited causes."

(World Bank, 2004)

Given that the factors contributing to the high rates of attrition likely reflect country context, there is clearly a need to investigate the reasons cited by health workers for leaving their positions (or the reasons for staying when coworkers leave). Such an investigation is essential for informing policies targeted at improving retention of health workers, particularly in rural or underserved areas. Lessons learned from Zambia can provide a starting point for the assessment and planning of HRH retention schemes in other countries in sub-Saharan Africa.
5. HSSP EFFORTS IN HRH PLANNING, MANAGEMENT, AND TRAINING IN ZAMBIA

This section summarizes the contributions of HSSP in addressing the human resource crisis in Zambia during the project’s first year of operation. The summary draws on a set of reports produced by the MOH with technical and financial support from HSSP in 2004–2005 and addresses four major initiatives:

1. Identification and prioritization of HRH issues in Zambia;

2. Responding to the problems identified by the situation analysis of the HRH crisis and other research, and proposing solutions to stakeholders;

3. Assisting the MOH with the development of HRH planning tools; and

4. Garnering support from stakeholders and organizing the effort to reform HRH management and training across the entire health sector.

5.1 IDENTIFICATION AND PRIORITIZATION OF HRH PROBLEMS

It is crucial that health policymakers are able to make informed decisions about policies and reforms based on relevant evidence. Accordingly, one of the first projects that HSSP initiated was to assist the MOH with the preparation of a paper entitled “Synopsis of the current staffing crisis and outline proposals for action” (RZMOH, 2004a). The paper, finalized in November 2004, provided a situation analysis of the HRH staffing crisis in Zambia and included an action plan with corrective strategies. The findings presented in the document promptly reached the Cabinet Office and led to the Presidential Directive to immediately develop a human resources plan for the health sector. The MOH cooperated with HSSP and other stakeholders, donor organizations, and external technical assistance organizations in developing the Human Resources for Health Strategic Plan 2006–2010, which was later incorporated into the National Health Strategic Plan (NHSP) for the same period. The remainder of this paper summarizes the research and cooperation among HSSP, MOH, and other stakeholders in shaping the Human Resources for Health Strategic Plan 2006–2010.

5.1.1 SITUATION ANALYSIS: ASSESSMENT OF THE SCOPE AND SCALE OF THE HRH CRISIS

The situation analysis examined the extent of HRH problems in Zambia and drew on research produced by other stakeholders as well as on data from the MOH Human Resources Information System (MOHRIS) in order to quantify the shortage of health personnel and to explore the attrition and distribution of health workers. The analysis focused on four objectives for improving the nation’s health,
as identified by the 2001-2005 NHSP, and suggested the need for an overhaul of the HRH system if set targets are to be met. Findings related to the four objectives follow:

1. **Strategic Plan Objective: Improved access to care, particularly by underserved communities.**
The situation analysis points out that, while availability of facilities, equipment, and drugs has improved in recent years, the number of health workers has remained static. As a result, many health centers are staffed by unqualified contracted daily employees or no one at all, even if fully equipped.

2. **Strategic Plan Objective: Intensify measures against malaria.**
Malaria is a leading cause of illness and death in Zambia. The 2001-2005 NHSP objectives are aligned with the global Roll Back Malaria initiative, which aims to halve the incidence of the disease by 2010. Target populations for prevention are pregnant women and children under age five. Enhanced prevention efforts are required to meet the national objectives. For example, one target requires 60 percent of pregnant women to have access to intermittent presumptive treatment (IPT), which can be distributed during antenatal care (ANC) consultations—a target that requires a large number of health workers to implement.

3. **Strategic Plan Objective: Strengthen capacity to scale up action at all levels against HIV/AIDS.**
As discussed earlier, the plans to expand ART and VCT services according to targets set by the Global Fund and the President’s Emergency Plan for AIDS Relief (PEPFAR) would require a substantial increase in the number of qualified doctors, nurses, and counselors. The situation analysis cites studies quantifying the HR requirements for scaling up HIV/AIDS services to highlight the fact that the projected number of health staff available in the future would be severely inadequate without a change in HRH policy.

4. **Strategic Plan Objective: Strengthen utilization of reproductive health services and strengthen child health services.**
The 2001-2005 NHSP targets related to the fourth objective mirror the MDGs related to infant, child, and maternal mortality. The situation analysis notes, for example, that less than half of deliveries take place in health facilities while postnatal attendance within two days of delivery (the period when fatal complications are most likely to occur) is only 12 percent. Moreover, the number of registered midwives has fallen in recent years. Even though the obstacles to increasing access to and demand for maternal and child healthcare services are numerous, measures to overcome other barriers to access (e.g. cultural, financial) will not lead to improved maternal and child health unless qualified health workers staff health facilities.

Although data limitations hinder the quantification of current and projected health worker shortages, the situation analysis provides evidence on the scale of the problem. The WHO-recommended doctor-to-population ratio for developing countries is one doctor per 5,000 population; however, Zambia counts an average of one doctor per 15,000 population. The scenario worsens with the exclusion of Lusaka and Copperbelt provinces, resulting in a ratio of one doctor per 36,712 population. The report points out that clinical officers outnumber medical doctors in all provinces except Lusaka and Copperbelt. Even when including clinical officers, the professional medical staff available is still inadequate, at 1:11,909 population.

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5 The three MDGs (set for 2015) are (1) to reduce by three-quarters the maternal mortality ratio; (2) to reduce by two-thirds the infant mortality rate; and (3) to reduce by two-thirds the under-five mortality rate.
6 While it is recognized that Lusaka and the Copperbelt have a higher number of health professionals as a consequence of their location near specialized and teaching facilities, the proportion of total health staff in the two provinces is still too high for their population, indicating regional inequalities in health personnel distribution.
The number of filled positions is significantly lower than the projected staffing norm for all staff categories, according to MOH calculations. The estimated shortage is 49 percent for doctors, 49 percent for nurses, and 56 percent for clinical officers.

5.1.2 ATTRITION OF HEALTH PERSONNEL: MAJOR REASONS AND POTENTIAL SOLUTIONS

The situation analysis used survey data from the MOHRIS to assess the major reasons for health staff attrition. As seen in Table 5, death is the main factor contributing to the high attrition rates of health personnel in Zambia, with AIDS the leading cause of death. Emigration to industrialized countries is another concern. The situation analysis reported that the number of Zambian nurses recruited by the United Kingdom in 2002–2003 is 25 percent of Zambia’s nursing graduates for the same year.

TABLE 5. REASONS FOR HEALTH STAFF ATTRITION IN ZAMBIA, 2003–2004

<table>
<thead>
<tr>
<th>Reason for Leaving Post</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>38</td>
</tr>
<tr>
<td>Resignation</td>
<td>32</td>
</tr>
<tr>
<td>Dismissal</td>
<td>12</td>
</tr>
<tr>
<td>Retirement</td>
<td>10</td>
</tr>
<tr>
<td>Contract expired/transferred</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: RZMOH 2004a, based on data from MOH Human Resources Information System.

While the shortage of nurses in public health facilities is evident, the situation analysis noted that the total number of nurse graduates in 2004 was more than twice the number of those lost through attrition. Whether new nurse graduates remain unemployed or choose private or foreign employers is unknown. A better understanding of the issue would help inform training projections for nurses in Zambia. Accordingly, the situation analysis recommends the conduct of a study “to establish the facts” at first opportunity.

Verification of the data on attrition summarized in Table 5 is important for guiding policy action: if resignations account for a third of all posts vacated, investigation into the reasons cited by health staff for resigning is necessary to inform staff retention programs and policies. The need for more disaggregated data on staff attrition is essential in the event that reasons for attrition may differ between urban centers and remote rural areas (therefore requiring different approaches for retaining staff).

In response to the findings of the situation analysis, the MOH’s HR Task Force initiated research on the main factors influencing health workers’ decisions to remain at their posts and undertook a review of best practices in staff retention in Zambia and other countries. HSSP assisted the MOH by conducting a literature review of currently available evidence on retention schemes for health workers and documenting donor and local government initiatives to attract and retain staff in remote health centers in Zambia (RZMOH, 2005e).

Increasing the number of nurse graduates is one of the strategies identified by the MOH for addressing the critical shortage of nurses. Yet, an increase in nurse graduates in turn requires the availability of a

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7 A note of caution: this calculated surplus of nurse graduates might result from inaccuracies in the data available to the MOH.
sufficient number of qualified nurse tutors. However, retaining trained nurse tutors, particularly in rural areas, is a major challenge for Zambia’s health sector. HSSP assisted the MOH with researching the “push and pull” motivational factors for medical specialists and nurse tutors in the public health sector. The most frequently cited disincentives among nurse tutors included poor salaries, lack of appropriate housing, poor educational facilities for their children, and poor work environment (due to inadequate drugs, equipment, and transportation (RZMOH, 2005f)).

5.1.3 EDUCATION AND DEVELOPMENT OF STAFF

The HRH situation analysis highlights the need to ensure that training of health professionals “reflects the realities of the Zambian health system.” For example, it recommends that undergraduate training of doctors include primary health services training rather than focusing primarily on hospital-based care. The lack of a comprehensive national in-service training strategy and the tendency of off-site training to take staff away from their posts for long periods are cited as two of the main problems with postgraduate education. The report suggests possible alternatives to off-site training, such as distance learning, team development, mentoring, action learning, and on-site tutoring. Deficiency in HRH management capacity is cited as another problem that needs to be addressed by a national training strategy.

In response to these findings, national training guidelines for health professionals and a national in-service training coordination strategy were developed in 2005 (described in greater detail in Section 5.4).

5.1.4 MANAGEMENT OF HRH

The situation analysis recommends the development of a comprehensive HR database as an “urgent priority.” The database would provide up-to-date reliable information on the number of staff in MOH facilities (by category and level of the health system) as well as information on staff workload, absence from work due to sickness, attrition, and other indicators. Ideally, the database should be integrated with both the HMIS and payroll records.

5.2 PLAN TO ADDRESS CRISIS

The situation analysis provides a recommended plan of action, with a proposed timeline for each intervention over the course of the first year of implementation. Many of the recommended actions were subsequently incorporated into the national HRH Strategic Plan. The plan proposed in the situation analysis is structured around four sets of actions:

1. Creating a strong structure to manage the HRH crisis;

2. Undertaking short-term actions for immediate response to the crisis;

3. Strengthening systems to improve HRH management capacity; and

4. Initiating long-term actions to remedy deep-seated HR problems.

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8 Tutors are instructors for medical students or health workers.
To ensure a stronger institutional structure for managing the crisis, the situation analysis recommends replacing the Human Resource Task Force (HRTF)—a steering committee that includes senior MOH staff and members of the donor community— with a High-Level Human Resource Crisis Group (High-Level Group) chaired by a Permanent Secretary and including members from the Cabinet Office, MOH, Ministry of Finance (MOF), and Civil Service Commission; a provincial and district Health Director; representatives of the National AIDS Council; and cooperating partners. The High-Level Group is expected to:

- Lead the preparation of action plans for addressing the crisis, backed by a strategic assessment of the crisis and a review of other countries’ initiatives;
- Estimate the costs associated with the action plans and identify funding sources;
- Garner support from stakeholders, including other sectors;
- Set targets and allocate responsibilities for the implementation of each action plan; and
- Monitor progress of plan implementation, taking corrective action as needed.

The role suggested for the HRTF is to become the “executive arm” of the High-Level Group. As an interministerial body, the High-Level Group would presumably ensure that HRH issues receive political priority.

The situation analysis recommends two short-term action items to address staff absenteeism, one of the main aspects of the crisis:

- Maintaining staff morale and ability to work by providing ART to HIV-positive staff and enforcing a policy of providing all staff exposed to occupational HIV risk with post-exposure ARV treatment; and
- Ensuring that staff are permitted only essential absences from work by limiting attendance at workshops to topics of immediate relevance, freezing extended study leave, and freezing unpaid leave and long-term leave.

Four actions are suggested to improve HRH management capacity:

- Reaching agreement with the Cabinet Office on baseline staffing norms that set the maximum number of health workers who can be employed across the Health Service for the following year. The number of health workers should be equal to the number in post immediately before the hiring freeze.
- Introducing a Payroll Management and Establishment Control Program (PMECP), a system that would improve transparency on the number of staff on payroll, budget projections, and control over staffing costs. This recommendation was taken into account, and a PMECP-based payroll system was later introduced in district hospitals.

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9 The HRTF provides strategic direction for resolving the HR crisis in Zambia’s health sector. The group works through several Technical Working Groups that address issues within the HRH sector.
10 Establishment refers to the number of positions required to be filled in a facility. For example, a district hospital may have established positions for five doctors (but not all of them might be filled).
• Removing the freeze on appointments (assuming that the first two steps are implemented, leading to better control of staffing expenses, which in turn would make it easier to negotiate elimination of the hiring freeze).

• Creating a comprehensive HR database. External technical assistance will be required to develop and install the system, as well as support from cooperating partners. The new system is envisioned as a substantial improvement over the existing Human Resource Information System. It will integrate staff workload and HR and financial data and function in close to real-time mode.

To address deeper problems with availability and distribution of staff, the situation analysis proposes the following long-term strategies:

• Stabilizing and then reducing attrition;

• Requesting assistance from the International Organization on Migration to encourage Zambian health professionals working in other countries to return home;

• Improving availability of staff in rural areas through better incentive schemes;

• Reviewing and updating staff education and development programs to ensure that staff qualifications respond to the needs of the population and are current for priority health problems;

• Introducing HR performance management systems, recognizing that the existing civil service performance review system is not used systematically and could be improved by modifications such as allocating target outputs to health workers and linking workers’ performance and remuneration; and

• Developing a revised HR Strategic Plan to complement the new National Health Sector Strategic Plan.

An action plan attached to the situation analysis outlines specific activities to address each of the HRH problem areas.

5.2.1 ASSESSMENT OF TRAINING CAPACITY TO MEET THE CHALLENGE OF HIV/AIDS

Both the acute shortage of trained health workers and use of untrained staff in some government health facilities have been noted as major factors constraining the delivery of ART to lower levels of care. In response, HSSP has facilitated a rapid assessment (RZMOH, 2005d) focusing on the capacity of pre-service training institutions to produce graduates with the skills necessary to deliver a minimum package of HIV/AIDS services (including ART, confidential testing and counseling [CTC], and PMTCT). The purpose of the rapid assessment was “to collect information that could be used to begin planning for the introduction of ART, CTC, and PMTCT content into pre-service education, to orient opinion leaders and decision makers about the need for strengthening the curricula, and gain a better understanding of advocacy and policy issues.”

HSSP conducted the assessment in 25 schools and college and 56 clinical training sites offering pre-service training in nursing, midwifery, clinical biomedical sciences, and clinical medical sciences. A total of
153 respondents were interviewed, including faculty, tutors, clinical instructors, and staff members. The assessment covered:

- The roles and responsibilities of the healthcare staff providing HIV/AIDS-related services;
- Where and how staff receive education on ART, CTC, and PMTCT; and
- The conditions under which teaching takes place, particularly as related to ART, CTC, and PMTCT.

The main findings of the rapid assessment suggest that:

- The length of service for trained tutors at the studied facilities averaged three to five years, highlighting the retention of teaching staff as one of the top priorities for HRH policy.
- Due to the shortage of tutors, clinical instructors must often teach medical theory, potentially undermining the standard of health education.
- The level of education of faculty, tutors, and clinical instructors in ART, CTC, and PMTCT is inadequate, and the majority of respondents do not feel confident teaching the material.
- Some types of teaching equipment and materials in health education institutions are in short supply, particularly reference books and audio-visual materials on ART, CTC, and PMTCT.
- The availability of HIV/AIDS protective supplies (such as drugs, surgical gloves, and other protective apparel) is adequate.
- The main teaching methods used were teacher-centered and did not encourage development of critical thinking skills. However, problem-based learning (an interactive and student-centered method of teaching) was piloted in five of the schools assessed.
- While ART, CTC, and PMTCT appeared in units in several courses, the curriculum needs to single out these subjects and support instruction with clearly specified time requirements for relevant clinical training.11
- The environment in clinical training sites was “not conducive for acquisition of required skills” (including inadequate training and availability of staff for ART, CTC, and PMTCT services, insufficient space to accommodate students, and inadequate opportunities for students to gain practical experience).
- Student supervision and evaluation could be improved. The inadequate number and high turnover of teaching staff hindered mentorship/coaching.

The rapid assessment noted that financing for teaching materials could be allocated without much difficulty if materials were assigned high priority. Identified funding sources were GRZ grants and extended basket funding, fees paid by students, and schools’ local income-generating activities. In terms of training, the gap between what students were taught in an academic setting and what they were

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11 The assessment recommends “no less than 2 weeks.”
exposed to during clinical practice indicates the need to revamp the pre-service training curriculum for HIV/AIDS-related services.¹²

Findings from the rapid assessment provided valuable input for the Reference Guide for Training Health Professionals in Provision of ART, PMTCT, and CTC that was produced later by the MOH with assistance from HSSP (discussed in greater detail in Section 5.4.3).

5.3 HRH PLANNING

In response to the identified need for better planning and staffing of public health facilities, HSSP assisted the MOH with producing step-by-step guidelines for assessing and planning human resource requirements for ART, CTC, and PMTCT delivery sites (RZMOH, 2005b).¹³ The guidelines are based on the Workload Indicators of Staffing Need (WISN) method to set out the activities needed for calculating HR requirements for ART, CTC, and PMTCT. The WISN method in turn is based on studies published by other stakeholders (e.g. PHRplus and the Quality Assurance Project).

The guidelines spell out each step in the analysis for identifying staff shortages on a site-by-site basis and prioritizing among sites with staff shortages (for allocating new graduates entering the public health sector, for example). They include an illustrative calculation of key staff requirements for reaching specified patient targets for ART, CTC, and PMTCT in all provinces and districts in Zambia. The guidelines were used to calculate HRH needs as input in the HIV/AIDS Global Fund Round-Four Proposal, as well as for reviewing the new MOH staffing norms. The approach has been piloted in a selected number of districts and hospitals in all nine provinces of Zambia, which are using it to calculate staff shortages at district and facility levels. HSSP plans a follow-up evaluation on use of the guidelines in the districts in 2006. The revised guidelines, including home-based care, will be introduced at that time.

5.4 HRH MANAGEMENT AND TRAINING

5.4.1 NATIONAL IN-SERVICE TRAINING COORDINATION SYSTEM: IMPLEMENTATION PLAN

While several organizations are involved in training health workers in Zambia, lack of coordination has undermined training effectiveness. Pre-service training institutions decide on enrollment quotas without coordinating with the MOH about the required number and competencies of new health professionals. Health workers have been trained with a variety of “non-standardized training materials and methods introduced by cooperating partners without any peer review” (RZMOH, 2005c). The steps taken to standardize national training curricula in important technical areas such as PMTCT, management of opportunistic infections, ART, and CTC are likely to be generalized to other technical areas as well. HSSP provided the lead in developing these guidelines, with the involvement of several stakeholders.

With support from HSSP, the MOH hosted a two-day workshop that focused on coordinating HRH in-service training in Zambia. Government and non-government stakeholders involved in health workers training participated in the workshop. The goal was to solicit support for establishing a national in-service training coordinating system (NITCS). Workshop participants reviewed examples of such systems from within and outside the region (South Africa, Indonesia, and Nepal) and appointed a

¹² Most notably, there was often a lack of training in ART adherence support in clinical practice sites.
¹³ The document is currently revised to include home-based care as well.
Technical Working Group charged with designing an in-service training coordination system for Zambia. Annex A describes the proposed structure of the system.

The Technical Working Group subsequently held a five-day workshop to develop a five-year implementation plan for the coordination system. The plan specifies four main objectives for the NITCS:

1. To strengthen the management and coordination of in-service training at all levels of healthcare delivery;
2. To design training programs that conform to established technical standards;
3. To facilitate the implementation of competency-based training programs; and
4. To monitor and evaluate the implementation of training activities in terms of effectiveness and relevance.

The plan outlines the structure, coordination roles, and responsibilities at each level of the healthcare system and includes a log frame costing of the system for the central and provincial levels for 2005 through 2009. Orientation of provincial and tertiary hospitals’ HR managers to the NITCS was one approach for advocating for and disseminating the new guidelines. Orientation in eight of Zambia’s nine provinces was completed as of end-2005, with more than 200 HR managers attending the orientation sessions.

5.4.2 NATIONAL TRAINING GUIDELINES FOR HEALTH PROFESSIONALS

To support implementation of the NITCS five-year strategy plan, HSSP provided financial and technical assistance to the MOH and the Technical Working Group for the development of the official National Health Sector Training Guidelines, which complement the Public Service Training Policy. As the MOH Permanent Secretary stated in the introductory section of the guidelines, in the process of developing the guidelines:

“Contributions from diverse stakeholders were considered and synthesized through discussions, meetings and reviews. This significantly enriched the content of the guidelines and it is intended to build strong partnerships and consensus amongst key stakeholders involved in the training and development of human resources for the health sector in Zambia.”

The guidelines cover both pre-service and in-service training of health professionals and address the following objectives:

- To ensure that training is relevant, systematic, coordinated, monitored, and evaluated in order to meet the needs of the health sector and respond to emerging challenges such as HIV/AIDS;
- To develop and sustain the appropriate knowledge, skills, attitudes, and competencies of health workers;

\[14\] Orientation in eight of Zambia’s nine provinces was completed as of end-2005, with more than 200 HR managers attending the orientation sessions.
• To develop training entry qualification criteria;

• To ensure gender equality in all training programs; and

• To ensure that all training programs are competency-based and use accredited training materials.

The guidelines spell out the roles and responsibilities for implementing each of the specified tasks across all organizations and institutions involved in pre-service and in-service training.

5.4.3 REFERENCE GUIDE FOR TRAINING HEALTH PROFESSIONALS IN PROVISION OF ART, PMTCT, AND CTC

HSSP also led the development of a reference guide for use by training and health institutions in healthcare workers’ competences for ART, PMTCT, and CTC services (RZMOH, 2005a). The guide is intended to help national authorities, the academic community, and professional societies with planning for curricula updates and with training healthcare workers in the competencies required for providing HIV/AIDS-related services. The guide lists the core competencies for entry-level nurse-midwives, clinical officers, medical licentiates, medical officers, pharmacists, and laboratory technologists. Competencies are divided into six broad categories:

• Foundations of HIV/AIDS care;

• Foundations of clinical care;

• Psychosocial support;

• Interpersonal and communications skills;

• Professionalism; and

• System-based practice.

The process of developing the guidelines brought together a wide range of stakeholders, including the MOH, medical and nursing schools, teaching hospitals, professional associations, nongovernmental organizations (NGOs), and research institutions.
6. HUMAN RESOURCES FOR HEALTH STRATEGIC PLAN 2006–2010

At the end of 2005, the MOH, in consultation with key stakeholders, developed and published a five-year strategic plan for the HRH sector. The plan is meant “to provide a framework to guide and direct interventions, investments, and decision making in the planning, management and development of human resources for health.” The strategies set out by the plan are designed to contribute to several other national policies and frameworks, including the Fifth National Development Plan, National Health Strategic Plan 2006–2010, Public Sector Reform Program, Sector Wide Approach, and others.

The plan includes both immediate actions and longer-term processes for achieving four key objectives:

- A coordinated approach to planning across the sector;
- An increase in the number of trained and equitably distributed staff;
- Improved productivity and performance of health workers; and
- Strengthened human resource planning and management and development of systems at all levels.

The plan describes the fundamental causes of the HRH crisis, suggested solutions, potential impediments to solutions, and options for overcoming impediments. While it is a five-year plan, it proposes a set of “quick wins” for the first year to effect an immediate impact on the HRH crisis. The main focus areas of the solutions to the HR crisis included in the plan are:

- Improving conditions of the service and workplace environment to make jobs more attractive to health professionals; and
- Improving HR management and practices to ensure more effective and efficient staff utilization.

The plan further suggests that Zambia sign a memorandum of understanding with each country that receives migrant Zambian health workers in order to mitigate the impact of “brain drain.” The retention strategies outlined in the five-year strategic plan are informed by analysis of the information available on existing staff retention schemes, such as the Zambian Health Workers Retention Scheme and individual district retention initiatives. The implementation framework focuses on leadership, resources, and monitoring and evaluation, with a cost estimate for the plan included in an annex.
7. CONCLUSIONS

The key factors driving the HRH crisis in Zambia are similar to those faced by other countries in sub-Saharan Africa and result in a severe shortage of trained health workers. The efforts of HSSP in prioritizing HRH issues, planning interventions for both the short and longer term, and acting on the most urgent priorities (while simultaneously garnering support from major stakeholders in the health sector) can provide an example for other countries in the region. The summary of interventions related to the HRH crisis in Zambia illustrates that some issues can be addressed in the very short term (such as inadequate and poorly coordinated training of health workers, particularly in HIV/AIDS-related services) while other issues, such as high rates of attrition among health workers due to resignations or brain drain, require a long-term strategy.
ANNEX A: PROPOSED STRUCTURE OF THE NATIONAL IN-SERVICE COORDINATION SYSTEM

The Training Unit, housed in the Human Resources and Administration Directorate of the MOH would be responsible for:

- Prioritizing and coordinating training at different levels of healthcare delivery;
- Formulating training guidelines for the health sector in line with the public service training policy (including guidance on allowable periods of absence from job posts for training purposes);
- Projecting personnel requirements by cadre of health staff;

• Determining core competencies for graduates of all pre-service training institutions;

• Writing annual national training plans (with inputs from provincial health offices and other stakeholders);

• Mobilizing funding from donors/development partners to support well-defined, priority in-service training needs;

• Establishing standards for the design, development, and implementation of training;

• Designing and implementing periodic staff performance and quality improvement activities at the central level;

• Monitoring and evaluating the quality of training carried out at training institutions and maintaining a training information database; and

• Monitoring/evaluating the effectiveness of the training program.

The Training Unit will work closely with the Directorates of Health and Planning/Policy, pre-service training institutions, cooperating partners, existing national training teams, and the private sector (NGOs, FBOs, and CBOs).

The provincial health offices will:

• Coordinate and provide oversight for training activities in the districts;

• Establish a provincial human resource development committee (HRDC);

• Work with the MOH to identify training needs in the province/districts;

• Work with district HRDCs to develop a costed annual training plan based on national priorities;

• Work with the MOH to mobilize resources for training activities in the province;

• Train district health trainers and healthcare providers at hospital levels; and

• Maintain a training information monitoring system (TIMS) in the provincial office, report to the MOH, and use the system as a supervisory tool for district training activities.

At the district level, the district health management teams will:

• Establish a district human resource development committee (HRDC);

• Work with the Provincial Health Office to identify training needs in the district;

• Conduct standardized training activities for a variety of healthcare workers in line with district and national health priorities; and

• Provide support to trainees to apply newly learned knowledge and skills to their jobs.
ANNEX B: REFERENCES


Nursing and Midwifery Council of the UK (http://www.nmc-uk.org).


