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Zambia Health Sector Public Expenditure Review

*Accounting for Resources to Improve
Effective Service Coverage*



THE WORLD BANK

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*Accounting for Resources to Improve
Effective Service Coverage*

*Oscar F. Picazo
Feng Zhao*



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Washington, D.C.

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Acronyms and Abbreviations

Capex	Capital Expenditures
CBO	Community Based Organization
CBOH	Central Board of Health
CSO	Census and Statistics Office
CHAZ	Churches Health Association of Zambia
DHB	District Health Board
DHE	Donor Health Expenditure
DHMT	District Health Management Team
DHS	Demographic and Health Survey
GDP	Gross Domestic Product
GF	Global Fund
GHE	Government Health Expenditure
GRZ	Government of the Republic of Zambia
HE	Health Expenditure
HR	Human Resources
IGF	Internally Generated Fund
IMR	Infant Mortality Rate
LGA	Local Government Authority
MBB	Marginal Budgeting for Bottleneck Model
MDG	Millennium Development Goals
MMR	Maternal Mortality Ratio
MOFNP	Ministry of Finance and National Planning
MOH	Ministry of Health
MTEF	Medium Term Expenditure Framework
NGO	Nongovernmental Organization
NHA	National Health Accounts
ORE	Other Recurrent Expenditures
ORT	Oral Rehydration Therapy
PER	Public Expenditure Review
PET	Public Expenditure Tracking
PHO	Provincial Health Office
QSDS	Quality of Service Delivery Survey
RHC	Rural Health Center
SWAp	Sectorwide Approach
TB	Tuberculosis
THE	Total Health Expenditure
U5	Under Five (Children)
UHC	Urban Health Center
UNZA	University of Zambia
WB	World Bank
ZCCM	Zambia Consolidated Copper Mines
ZK	Kwacha (Zambian currency)

Currency Equivalents

Currency Unit = Zambian kwacha
US\$1.00 = 4,353 as of April 26, 2007

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Executive Summary

Key Findings

The longitudinal analysis of health expenditures using National Health Accounts (NHA) revealed a number of observations, some already known but provided in this report with statistical backing:

- **Donors:** Donor financing has rapidly risen, much of it is increasingly off-budget, and an increasing proportion of the expenditures is being devoted to administration rather than service provision. Donors' inability to fund human resource costs has led to "so much money chasing so few workers." Moreover, research activities are crowding out training expenditures. Finally, the re-emergence of vertical financing, which is often not fungible, means that the priorities of global vertical disease sponsors often supersede national priorities and needs.
- **Government of the Republic of Zambia (GRZ):** Government contribution to overall health financing is slackening while its discretionary financing is increasing as basket funds and GRZ-managed projects have grown. The "administrative-intensity" of GRZ health expenditures has also increased, probably due to the costly separation of MOH and CBOH. Finally, there has been a dramatic increase in district allocations.
- **Households:** Household health spending is larger than expected, used mainly in the private for-profit sector and inordinately for traditional healers. However, households' role in the financing of mission facilities and GRZ primary services is small due to low or non-existent fees at these levels.
- **Cost analysis:** MOH facilities have higher proportion of labor expenditures, lower proportion of drug expenditures, and lower proportion of capital expenditures relative to their for-profit counterparts.
- **Per capita total health spending:** Zambia has higher per capita total health expenditure (THE) than its neighbors (Malawi, Tanzania, Mozambique) and its per capita health spending is closer to the middle-income Southern African countries. Yet, its health indicators are not any better and sometimes even worse than African IDA countries. One could hypothesize that Zambia's NHA, having evolved longer, are able to capture much more comprehensively national health spending better than its neighbors, and this may "statistically increase" health spending.

The public expenditure tracking (PET) component of the Quality of Service Delivery Survey (QSDS) showed the following:

- **Inter-sectoral allocation:** Despite several efforts to estimate the resource requirements of providing a basic package of care, little success has been achieved in dramatically increasing GRZ allocation to health. The Ministry of Finance and National Planning (MOFNP) and the Ministry of Health (MOH) do not yet have a common understanding of what the sector needs, nor on what proportion of the budget or of GDP the sector should get.

- Allocation within MOH: Resource allocation within the sector is informed by several sometimes-contradictory principles. Careful resource planning to inform resource requests is not universally undertaken by District Health Management Teams (DHMTs). While allocation to the districts is equity-enhancing, allocation to hospitals follows principles of historical budgeting that tend to perpetuate installed capacity, even if much of that existing capacity was heavily influenced by mining rather than public-health concerns. The curative/facility-based orientation is reinforced by hospitals tending to attract vertical resources far more than health centers. Only 28 of the 3,000-or-so needed health posts exist, and therefore even the district health budget is still largely oriented to higher levels of care within the district.
- Geographic allocation: The above allocation rules manifest themselves clearly in the highly inequitable provincial receipt of resources, where the poorest, most remote, and least urbanized provinces receive the lowest per capita MOH releases.
- Fund releases from MOH: In contrast to previous years, the cash budgeting system worked well in FY05, resulting in timely release of funds. Releases exceeded budgeted allocations in all districts and provinces included in the PET/QSDS. The key implication here is the National Government's fiscal discipline; loss of such discipline translates into budgetary squeeze that harms social-sector ministries.
- Fund releases from DHMTs and possible "local capture" of resources: More than a third of the DHMTs themselves admitted delays in releasing district grants to facilities, although this is difficult to understand given that most of them received these resources from MOH on time. In addition to the problem of delay, a fifth of the health facilities received resources less than their intended allocations. The imprest system, upon which 87 percent of health facilities depend, is also prone to delays in releasing resources to health facilities. One can surmise of the possibility of "local capture" or control of resources by influential members of the DHMTs—a phenomenon that has been observed in other countries (such as Uganda)—but establishing and quantifying the magnitude of this problem would require additional analysis of the data.
- Indebtedness of health facilities: A quarter of the health facilities are indebted (mostly for utilities and transport fuel), and often rely on the DHMT for the relief of these debts. The persistence of debts is a problem.
- Impact of fee abolition: How health facilities will find alternative sources of income to replace these resources is a critical issue, especially Urban Health Centers (UHCs) that are highly reliant on fees. Because these revenues are used mainly as worker incentives, fee abolition could reduce staff morale, unless some other incentives could take their place.

The quality of service delivery component of the PET/QSDS depicted the following picture of the health delivery system:

- Infrastructure, utilities and equipment: Most of the physical infrastructure is old, although staff are keeping them in good condition. Serious deficits exist in varying degrees across health facilities in utilities, communications, transport, and medical equipment. High rates of nonfunctional non-medical equipment were observed, especially for transport and communications, but medical equipment appear to have lower rates of downtime. Large demand exists for medical instruments, especially in rural health clinics.

- **Human resources:** High staff vacancies (33.5 percent) especially of clinical workers (41.4 percent) are crippling facility operations. Facilities are increasingly relying on expatriate staff (especially hospitals) and volunteer staff (especially health centers). Lack of staff is exacerbated by high rates of absenteeism (21 percent self-reported) and tardiness (43 percent self-reported), reducing the amount full-time equivalent (FTE) workers. As a result, patient queues and waiting times are long (average: 65 minutes). More seriously, the length of time being spent on patient care is being compromised. Workers are also resorting to various coping mechanisms (both inside and outside the facilities where they work) to augment their incomes. Heavy official workloads and income-augmenting activities take their toll on workers' time, and possibly well-being, contributing to high rates (44 percent of staff) of dissatisfaction among staff.
- **Human-resource and salary management:** Salaries are highly compressed, reducing their effectiveness in providing incentives. The plethora of cash and non-cash benefits that government has provided to ease the incentive problem has become unwieldy; it also makes it ever more difficult to forecast the fiscal implications. The incentive effect of salaries is further dampened by a number of salary management problems that afflict a not-insignificant number of staff: delay in the receipt of salaries (22 percent of staff); non-receipt of the full amount of salaries (about 15 percent of staff); unauthorized salary deductions (15.5 percent of staff); and staff payment of "expediter's fee" to obtain salaries (10 percent of staff).
- **Drugs and other consumables:** The upward trend in drug financing that made drugs relatively more available in health facilities in recent years was reversed in 2006, as the drug budget was slashed by 15 percent. More than a third of the district surveyed experienced delays in the receipt of drug kits. There is statistical evidence of drug diversion. Essential and life saving drugs continue to be widely unavailable. About 55 percent of hospitals and 46 percent of rural health centers reported expired drugs. Inappropriate drugs were less of a problem, although they were still found in 14 percent of facilities.
- **Facility management:** A functional and regular system of facility supervision exists, but the accuracy of patient registers remains an issue. Only two-thirds of health facilities have accurate registers.
- **Patient perceptions:** Despite the supply deficits in health facilities, they receive moderate patient rating of overall quality: 85 percent. A closer scrutiny of this rating reveals that although health facilities and staff receive 89–95 percent approval rating on "hospitality aspects" of care (friendliness, provision of information), their patient ratings on "technical" aspects of care (explaining what the procedure or drug was for) was only 40–42 percent.

The Marginal Budgeting for Bottlenecks (MBB) modeling exercise revealed the following:

- Zambia is not likely to meet its MDGs, if current trends persist. Child health indicators are stagnating, and maternal mortality ratio is tending to increase.
- The bottleneck analysis showed that although service availability is reasonable, a series of bottlenecks exist in the service delivery chain that severely limit service accessibility, initial utilization of the services, timeliness and continuity of services, and finally effective (high quality) coverage. This pattern is true in all three types of service packages considered (community-based, population-based outreach, and facility-based services).

- The MBB model developed and costed out five discrete “steps” or options for scaling up service coverage, and arrest further deterioration in Zambia’s MDG indicators, especially on maternal and child health. The “steps” indicate the optimal sequential nature of the proposed options, focusing first on the “big-wins” in terms of reducing under-five child and maternal mortality.
- Note also that the MBB resource forecasts do away with budgeting using installed capacity (which is what MOH currently and traditionally does), and instead focuses on what needs to be done in terms of services to be funded.
- The five steps, if implemented successfully, would cost US\$4.36 per capita per annum under Phase I, and US\$9.07 per capita per annum under Phase II. For these investments, (a) child mortality is expected to decline by 24 percent for Phase I and 46 percent for Phase II; (b) maternal mortality is expected to fall by 5 percent for Phase I and 16 percent for Phase II.

Key Recommendations

Given the nature of this review, it would not be possible to provide specific recommendations for each of the host of issues that were identified. Rather, this section only highlights the major thrusts of the recommendations.

Obtain National Commitment to Increase Fungible (Flexible) Financing

First of all, there must be recognition at the highest levels of Government that the health sector is in a state of crisis—the increasing flows of external assistance notwithstanding—and that the crisis must be dealt with in a coordinated manner. This requires closer dialogue between MOFNP and MOH that should result in stronger agreement on the level of spending that the sector needs over the medium term. MOFNP must recognize, first of all, that most of the donor financing are non-fungible, and therefore it cannot abdicate its duty of increasing the allocation to health. (The percentage share of Government health expenditure to total health expenditure has fallen from 7.7 percent in 1997 to 4.7 percent in 2004). Allowing non-fungible donor financing to increase while fungible government financing shrinks only results in further distortions in factor use (lack of funding for health workers, increasing administrative intensity, increasing off-budget financing—all classic symptoms of the imbalance between donor and domestic financing that were documented in this public expenditure review (PER)). The willingness of a few donors to convert their assistance from projects and basket funds to budget support, therefore, must be embraced by MOH as well (which has been hesitant so far), because this means that there will be more fungible financing available to the sector. Yet, having more fungible financing also raises the challenge to the MOH to produce credible, financeable programs that MOFNP and the budget-supporting donors can fund.

Formulate an Overall Wage Strategy

Because of its urgency, this should be top priority. The Strategic Plan for Human Resources for Health (2006–11) has been approved, but the recurrent cost implications of it remain unfunded. The human resource crisis cannot be solved by incremental approaches, which is what the government and donors have done so far (through top-ups, implicit incentives, and a

widening array of cash and in-kind benefits), and which have not yielded lasting solutions, given that the vacancies persist and staff turnover is increasing. Such a strategy must be informed by the ongoing HRH productivity study, as well as medium-term fiscal sustainability (forecasts of GDP growth and fiscal revenues).

Improve Payroll Management

Although salary management issues only involved 10–15 percent of surveyed health workers, these disgruntled civil servants could easily reduce overall morale. In any case, any form of “salary pinching” and delay cannot be allowed. Cash payments to workers should be eliminated as soon as feasible, and replaced with automatic bank deposits. If it does not yet exist, an administrative order against payment and receipt of expeditor’s fees should be formulated and enforced.

Enforce Rules on Absenteeism and Tardiness, and Provide Better Incentives for These Two Problems to be Reduced

These twin problems have been ignored as the government has focused almost solely on filling up posts, rather than managing those who are already in post. A renewed campaign for being on time and fulfilling eight hours of official work is needed. The supervision teams, which visit facilities regularly and seem to do their work well, should be empowered to call to task staff who are out or late. As absenteeism and tardiness are intimately related to dual practice and other income-augmenting staff activities, a clear policy guideline to co-opt such coping behavior should be developed. Instead of off-site training, on-the-job skills acquisition should be pursued. Soft incentives (recognition, small-cash awards) should be provided for staff who register perfect or near-perfect attendance.

Enhance Accountability and Financial Management Capacity at the District Level

The PER showed that while there were no major hitches in the flow of funds from the central to district levels, the flows from DHMTs to health facilities were quite problematic. These could be due either to deliberate withholding of resources by influential DHMT members (in a form of “local capture” of resources), or bureaucratic delays due to weak fiscal management systems. (Drug diversion could also be a manifestation of undue influence by local elites, if the problem does not arise from sheer misrouting or other logistical errors, which are hard to believe). “Local capture” is an accountability issue which can be solved creatively by increasing client power, using such proven methods as publishing in national and local media the resources transferred to each district; posting the resources received at the doors of facilities, DHMT offices, or other visible areas; empowering local groups to be more vigilant; using community radios to report on the status of the fiscal transfers to districts and provinces; and using community report cards that provide active voice to local citizens. The financial-capacity issues need to be explored further to understand exactly the organizational constraints being faced.

Fortify the District Health Financing Grants

Although it is the equity-enhancing instrument of overall health financing, the district grant was emasculated in 2006 with large reduction in nonwage expenditures (down from 2005 by

13 percent) and drug expenditures (down by 34 percent). The reductions occurred even as Zambia abolished user fees for primary services that clinics and other lower-level facilities highly rely on. This reversal needs to be redressed, and future allocations should take account of the following:

- **Unfunded and underfunded public health programs:** The PET/QSDS revealed that many districts continue not to have adequate allocations for child health, maternal health, malaria, water and sanitation, and HIV/AIDS programs. A few districts do not undertake proper resource planning at all. Despite these, health facility in-charges tend to be overly optimistic about their actual capacity to deliver services.
- **Foregone fee revenues and expected increase in demand:** Health facilities need to be paid the amount of fees they used to generate (average of ZK4.4 million for Rural Health Centers [RHCs] and ZK47.9 million for UHCs) as these were spent for a variety of purposes to improve health services. More importantly, health centers and district hospitals need to brace for the expected increase in patients occasioned by the fee abolition, requiring additional resources.
- **Drugs:** The reduction of district drug allocations in 2006 needs to be reversed. Ideally, allocations should be based on per capita standards.
- **Large RHC demand for medical instruments and lab supplies:** The PET/QSDS showed a high incidence of medical consumables and instruments, for example, microscopes, audioscopes, ob-gyne instruments, gowns and protective clothing, malaria smear, and urine test strips.

Provide a Special Focus of Intervention to Address the Appalling Situation of Maternal and Child Health

The overall recommendation of this PER is to support more fungible financing through increased MOFNP allocation to the sector, and increased budget support program by donors. This would deal with system-wide constraints, such as the addressing the human resource crisis, correcting the imbalances in geographic allocation, and improving financing to districts. However, the child and maternal mortality indicators are such that they require focused interventions. The MBB simulation model specified a five-step approach (“options”) that GRZ could choose from, based on the additional resources that it could muster.

Elevate Hospital Investments and Financing to the Policy Agenda

The relegation of hospital issues over the past years has had the unintended consequence of hospital financing happening by default, that is, dictated by patterns established in past investments, including those of former mine hospitals. The urgency of setting testing and treatment centers for a variety of diseases (HIV/AIDS, tuberculosis, malaria, referral cases for child health, and to a lesser extent, maternal health) has resulted in hospital investments being dictated by specific disease initiatives with little overall coordination and long-term strategic vision. Meanwhile, private clinics and hospitals have mushroomed with little regulation, and garnering most household health expenditures (86.4 percent of total household health expenditures went to for-profit facilities between 2002 and 2004, as shown in the NHA analysis). In the absence of any sizeable risk-pooling arrangement and fee regulation, it is unclear whether households are

getting “value-for-money” for these expenditures, because they pay them at the point of vulnerability. This patchy approach needs to be corrected. Admittedly, this is a broad topic, but these three tasks could be the spring-board for wider policy discussions:

- **Hospital stock-taking exercise:** This should cover number, distribution, and ownership; patient flows and referral patterns; current physical deficits (as gleaned from the PET/QSDS); current financing; governance, management and staffing; resource requirements; sustainable number and distribution; and roles of private, mission, and government hospitals.
- **A new equity- and efficiency-enhancing allocation formula for government hospitals:** The current allocation formula preserves the status quo, does not engender efficiency and performance, and is highly geographically inequitable (favoring the urban backbone of the country). Suitable resource-allocation models from elsewhere in the developing world should be gleaned for possible adoption in Zambia. Most importantly, GRZ should have the courage to declare some hospitals redundant, if the costs of maintaining them far exceed the service that they provide.
- **Risk pooling/social health insurance:** A Cabinet paper has been submitted for this purpose. Although social health insurance (SHI) for government workers will not directly impact the welfare of the majority, SHI does have large positive collateral effects on the health system, and these “externalities” could quickly improve health services that non-SHI members could also enjoy, as has been shown in Tanzania’s National Health Insurance Fund. The “active purchasing” inherent in fee negotiation and hospital accreditation enhances institutional performance. The insurance payments that facilities receive directly translate to better-incentivized staff, more reliable drug supply financing, and better maintained facilities that everyone benefits from, whether SHI members or not.

Background, Objectives, and Analytical Tools

Over the past few years, three nagging problems have bedeviled Zambia's health sector: the country is falling off-track from reaching the Millennium Development Goals (MDGs), it is facing severe financing constraints on the government front, and the health and HIV/AIDS sector is increasingly being fragmented by the re-emergence of global disease initiatives. This health sector public expenditure review (PER) seeks to assist the Government of the Republic of Zambia (GRZ) and its development partners take stock of the resources in the health sector and how these resources can be better used to produce better health services.

Impelling Factors for the Health Sector PER

The Need to Quantitatively Assess the Performance of the Health Sector and to Better Explain the Reasons Behind the Poor Health Indicators

Previous stock-taking exercises and assessments of the health sector in Zambia have been largely qualitative (the Mahler Review in 1995, and the succeeding annual reviews of the SWAp). Though comprehensive and issues-oriented, these were largely descriptive and anecdotal. In contrast to the strong household-based data on utilization of services obtained through serial Demographic and Health Surveys (DHS) and Living Conditions Monitoring Surveys (LCMS), "supply-side" facility-based performance data have been, for the most part, lacking. The PER will undertake a Public Expenditure Tracking (PET) study to ease this information gap.

The Need to Construct Alternative Scenarios for Improved Allocation and Use of Health Resources

A common view in Zambia is the need to increase per capita health spending. Although there is little disagreement about this need, Zambia's per capita health expenditures are still relatively much higher compared to its neighbors. For instance, in 2003 the country's per capita health spending was US\$21, about 1.6 times as high as Malawi's US\$13, Tanzania's US\$ 12, and Mozambique's US\$12. Moreover, because of the pooled funding mechanism that has been going on for quite sometime, Zambia's health financing flows is not as highly fragmented nor verticalized as in other countries that were not in basket-funding mode (Malawi, Tanzania up until the early 2000s). Despite these, however, health indicators have continued to stall, signifying possible resource allocation and/or service delivery problems. The delivery system still remains weak and has not significantly reduced the disease burden. Moreover, it is unclear whether these resources have been targeted towards the indigent and vulnerable groups. To help GRZ and its development partners understand these issues, the PER will run the Marginal Budgeting for Bottlenecks model to explore alternative scenarios for resource allocation.

Objectives and Analytical Tools of the Health Sector PER

The specific objectives of the PER and the corresponding analytical tools to be employed are shown in the table below:

Objectives	Analytical Tools
To map sources and uses of funds in the health sector	National Health Accounts (NHA) exercise—the results are presented in Chapter 3
To assess the allocation, release, actual receipt and use of public expenditure down to the facility level	Public Expenditure Tracking and Quality of Service Delivery Survey (PET/QSDS)—the results are presented in Chapters 4 and 5, respectively
To analyze alternative scenarios for improving allocation of resources in the health sector and options for service delivery	Marginal Budgeting for Bottlenecks (MBB) model—the results are presented in Chapters 6

Objective 1: Mapping the sources and uses of funds in the health sector

GRZ and its donor partners pioneered “basket funding” under a program of sector-wide approach (SWAp) in the 1990s. Under this approach, participating donors pooled their resources, and these are programmed side by side with government budgetary allocations, user fee revenues, and in-kind resources for the provision of essential health services at the district level. The advent of global health initiatives such as the Global Fund for AIDS, Tuberculosis and Malaria; Roll Back Malaria (RBM); Stop TB; the Global Alliance for Vaccine Initiative (GAVI); and the U.S. Government's Presidential Expanded Program for AIDS Response (PEPFAR) has made the financing of health services ever more fragmented, necessitating the need to map all sources and uses of funds. Conventional wisdom is that basket funds now account for only around 25 percent of total resource flows in the health sector.

The National Health Accounts (NHA) is a well-established tool for mapping the sources and uses of funds. Zambia has a relatively longer history of producing NHA estimates than other countries in the region, starting in the mid-1990s (Mwikisa and others 2000), and up to the mid-2000s (Phiri and Tien 2004). The methodology and analytic categories of NHA are standard and involve:

- a) Identification, quantification, and analysis of the sources of funds, including those from the public sector, private companies, households, and donors/cooperating partners.
- b) Identification, quantification, and analysis of flows of funds through financing agents, including those of the public sector, private companies, households, and donors/cooperating partners.
- c) Identification, quantification, and analysis of the flow of funds to end-users/providers of care, including public facilities, private facilities, and others/central administration and management.
- d) Identification, quantification, and analysis of uses of funds by function, including inpatient care, outpatient care, and others (and where feasible, by sub-functions).

Objective 2: Tracking of public expenditures

Zambian discussions on health financing have tended to focus on the requirements of the basic health care package to be delivered, rather than on actual use of available resources. Through the Health Sector Committee Secretariat, formalized annual work-planning and quarterly budgeting are being undertaken for each facility and provincial health office receiving funds from the “basket” (CBOH, UNZA, and IHE 2004). However, these exercises are not complemented with equally important analysis of health facilities’ receipt and use of basket funds, other donors’ vertical financing flowing to districts, and fees that district facilities generate. To address this problem, the Public Expenditure Tracking and Quality of Service Delivery Survey (PET/QSDS) is employed in this PER.

- The PET component focused on budget allocation, release, and spending, from the MOH down to the health facility level. The analysis tried to capture all resource flows including the GRZ budget and basket funds, funds from vertical projects, and internally generated funds.
- The quality of service delivery component focused on infrastructure, utilities, and equipment; health personnel; drugs and other medical consumables; and clinic and patient management.

Objective 3: Analysis of alternative scenarios for allocating health resources and options for service delivery

Money alone is not enough and proper allocation of health resources is essential to achieve good results. Comparing alternative ways of allocating health resources would help the country to choose the most effective strategy of resource allocation and service delivery. Specifically, two issues need to be addressed in order to maximize the impact of the limited health resources. One is the formulation of essential service packages, which is important

to prioritize the high-impact interventions, and about which Zambia has focused a lot of attention over the past few years. Another is the examination of the ways of services being delivered in order to identify cost-effective delivery mechanisms.

- *Alternative service packs:* What makes health sector complex is its nature of multiple outcomes, outputs, and inputs. The existence of multiple interventions targeting the same disease or outcome requires careful planning, prioritizing, and targeting strategy. Looking into different intervention packages and identifying the most cost-effective interventions can help the country to make progress toward MDGs.
- *Alternative delivery mechanisms:* Health services can be delivered not only within health facilities, but also through some innovative approaches such as outreach and community-based initiatives. International experience indicates that the latter is actually very effective in scaling up some key health services (e.g. immunization, bed net use). The *World Development Report 2004 Making Services Work for the Poor* (World Bank 2004) suggests that the poor, who normally lack access to health facilities, benefit more from outreach and community-based delivery. Investigating the options of service delivery has implications on both scaling up service coverage and reducing cost. Unfortunately, the increasing fragmentation of the financing health services and the recent re-verticalization of service delivery emerging from global disease initiatives have somehow resulted in the relegation of service delivery impact and effectiveness as important considerations in the allocation of resources.

The Marginal Budgeting for Bottlenecks (MBB) model is an analytical tool of health service delivery, developed jointly by teams from the World Bank, UNICEF, and WHO. It was originally designed to answer the following three questions: What are the major bottlenecks in service delivery? What are the resources required to remove the bottlenecks and to reach a new coverage frontier of health services? What is the impact of the marginal increase of service coverage on health outcomes? MBB provides a more holistic (rather than fragmented), cohesive (rather than piece-meal), and “horizontal” (rather than “vertical”) approach to budgeting and allocation. MBB has been applied in various countries for different purposes. For instance, it was used to better allocate and use the additional resources expected from debt relief in HIPC; to improve the planning process in Mozambique; to mobilize more resources for the health sector in Madagascar; to formulate an MDG-reaching strategy in Ethiopia. MBB can be particularly useful to Zambia for its system-wide focus, bottleneck-identification approach, results-based costing, and impact-simulating methodology.

Uses of the PER

The results of the PER are expected to be used for a variety of purposes, including the preparation of the health sector strategic plan, and succeeding rounds of the Global Fund request for proposals. Policy dialogue between the Bank and GRZ, both at the macro and sector levels, can also be enriched by the PER. The PER also provides critical inputs into the Medium-Term Expenditure Framework (MTEF) process, and in the assessment of the Poverty Reduction Strategy Paper (PRSP). Likewise, the PER can provide inputs to fine-tune the process of the pooled basket funding mechanism under the sector-wide approach (SWAp).

Health System Challenges

Health System Goals and Structures

While the goal of the GRZ health system has been constant, the structure has been subject to dramatic changes in over a decade. The overarching goal of the Zambian health sector is “equity of access to assured quality, cost-effective and affordable health services as close to the family as possible”, and to provide cost effective quality health services as close to the family as possible in order to ensure equity of access in health service delivery and contribute to the human and socio-economic development of the nation.” To achieve this goal, the government started decentralizing health services under a health sector reform program in the early 1990s. The intention was to transfer key management responsibilities and resources from the central MOH to the district level. In this respect, two parallel but complementary structures were introduced, namely:

- The popular structures for public involvement and participation in the decision-making process, including the Central Board of Health (CBOH), Hospital Management Boards, District Health Boards (DHBs), and the Neighborhood Health Committees and Health Center Committees.
- The technical and management structures designed to ensure that services are implemented in a sound manner, including the management teams at MOH and CBOH, the Hospital Management Teams, and District Health Management Teams (DHMTs). The Provincial Medical Offices were reconstituted into Provincial Health Offices (PHOs).

After years of operating under a “split purchaser/provider model” (MOH being the purchaser and CBOH the provider), the government decided to reunite the two functions

Table 1. Health Facilities in Zambia, 2000s

Type/Level	GRZ	Mission	Private	Total
Hospitals	53	27	17	97
Health centers	1,052	61	97	1,210
Health posts	19	0	1	20
Total	1,124	88	115	1,327

Source: CBOH, *Health Institutions in Zambia: A Listing of Health Facilities According to Levels and Locations, 2002*.

under one agency. In 2006, the Government abolished CBOH and put its functions, assets, and staff back under the MOH. This comprehensive restructuring process will effectively merge the two bodies. Thus, management and control of all public health facilities and services will again directly fall under MOH, through the PHOs.

Diverse providers of health services include: public health facilities under MOH, facilities under the Ministry of Defense including clinics and one hospital in Lusaka, clinics under the Ministry of Home Affairs, mining hospitals and clinics, mission hospitals and clinics which are coordinated by the Churches Health Association of Zambia (CHAZ), non-government organizations (NGOs), private for profit hospitals, clinics, pharmacies/drug shops, labs and investigation centers, and traditional healers. The private for-profit sector is growing, but mostly concentrated in urban Zambia. Table 1 summarizes the total number of health facilities.

- *Health Posts*: Intended to cater for populations of 500 households (3,500 people) in the rural areas and 1,000 households (7,000 people) in the urban areas, or to be established within five-km. radius for sparsely populated areas. The target is to have 3,000 health posts but only 20 exist.
- *Health Centers*: These facilities include urban health centers (UHC) which are intended to serve a catchment population of 30,000 to 50,000 people, and rural health centers (RHC) which service a catchment area of 29-km. radius or population of 10,000. The target is 1,385 compared to a current total of 1,210 health centers (973 RHCs and 237 UHCs).
- *First-level Hospitals*: These are found in most of the 72 districts and are intended to serve a population of between 80,000 and 200,000 with medical, surgical, obstetric and diagnostic services, including all clinical services to support referrals from health centers. There are 74 first-level referral hospitals.
- *Second-level Hospitals*: These are general hospitals at provincial level and are intended to cater to a catchment area of 200,000 to 800,000 people, with services in internal medicine, general surgery, pediatrics, obstetrics and gynecology, dental, psychiatry and intensive care services. These hospitals are also intended to act as referral facilities for the first-level institutions, including the provision of technical back-up and training functions. There are 19 second-level hospitals. Two provinces, namely Southern and Copperbelt, have five and three second-level hospitals, respectively.

- *Third-level Hospitals:* These are central hospitals for catchment populations of 800,000 and above, and have sub-specializations in internal medicine, surgery, pediatrics, obstetrics and gynecology, intensive care, psychiatry, training and research. They act as referral facilities for second-level hospitals. There are five such facilities in the country, of which three are in the Copperbelt Province.

Challenges at the Health Outcome Level

When studying health issues, one has to take into consideration factors both at the health outcome level, health output (health services) and health inputs (service delivery systems and key elements). Zambia faces challenges across all the three levels. Zambia has not gone through the demographic and epidemiological transition yet. Its growing population is estimated at 11.3 million (growing at 3 percent a year), with 47 percent of the total population less than 15 years old. Zambia is also one of the most highly urbanized countries in sub-Saharan Africa, with much of the population living along the traditional mining towns along the “copper belt.” The epidemiological profile in Zambia features high child mortality, high maternal mortality, and a heavy burden of diseases mainly caused by communicable diseases. Despite recent improvements in service delivery, overall health status has stagnated and the disease burden has continued to increase. The disease burden is overrun by the high prevalence of HIV/AIDS, and compounded by high poverty levels and the poor macroeconomic situation in most of the early 2000s. Table 2 summarizes the statistics on the recent trends for the major diseases.

First, Zambia suffers high child mortality. Zambia has among the highest child mortality rate in the world. The infant mortality rate (IMR) and under-five mortality rate (U5MR) were as high as 95 and 168 per 1,000 live births in 2001, as indicated by the latest survey data, the Zambia Demographic and Health Survey (DHS), 2000–2001. The latest indirect estimate as shown by the World Development Indicators (World Bank) data indicated that the IMR and U5MR were 102 and 182 per 1,000 live births in 2004. The level of child mortality in Zambia compares unfavorably with most of other countries, higher than world as well as Sub-Saharan African average (Figure 1). When compared with surrounding countries, both the IMR and U5MR in Zambia are only significantly lower than those in Angola and Democratic Republic of Congo, two countries severely affected by civil wars recently. Over time, Zambia has not been able to achieve a consistent decrease of child mortality. The child mortality rates declined from 1955 to 1980, followed by a notable and progressive increase from 1980 to 1996. Then from 1996 to 2002, the Zambia DHS recorded a significant decrease in the IMR and U5MR. But the most recent data indicate the child mortality rates are showing signs of increasing (Figure 2).

Second, Zambia’s maternal mortality ratio (MMR) is one of the highest in the world. The MMR was 729 per 100,000 live births in 2002 (ZDHS), which is unacceptably high. The direct causes of those preventable maternal deaths include postpartum hemorrhage, sepsis, obstructed labor, post-abortion complications, and eclampsia. The indirect causes are malaria, anemia, HIV/AIDS as well as delays in accessing health facilities. What makes the situation more worrisome is that the MMR has increased since 1996, in which the MMR was 646 per 100,000 live births.

Table 2. Summary Statistics on the Major Diseases, 2000–05

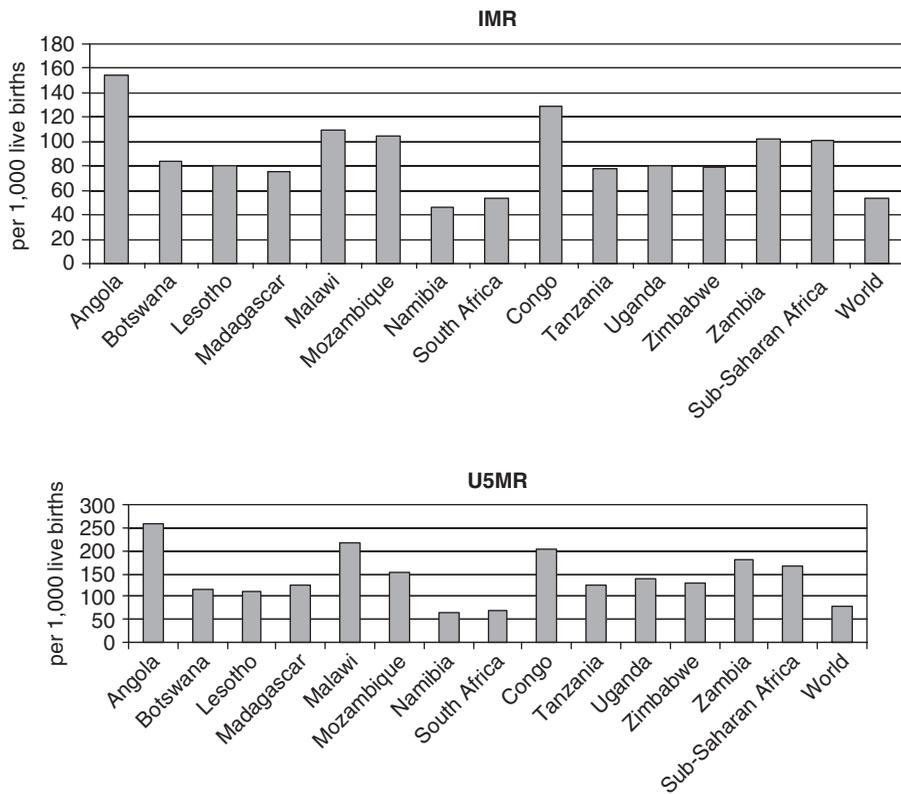
Disease	Indicator	2000	2002	2004	2005
Malaria	Incidence/1,000	316	388	383	373
	Cases	3,591,621	4,101,169	4,328,485	
	Deaths	8,952	9,021	8,289	
Respiratory infection, non-pneumonia	Incidence/1,000	119	148	153	161
	Cases	1,340,283	1,565,430	1,726,597	
	Deaths	1,269	1,057	1,436	
Respiratory infection, pneumonia	Incidence/1,000	35	45	44	42
	Cases	402,643	475,389	494,040	
	Deaths	4,254	4,484	4,186	
Diarrhea, non-blood	Incidence/1,000	65	80	75	75
	Cases	739,055	846,336	843,423	
	Deaths	2,795	2,996	2,725	
Eye infections	Incidence/1,000	47	43	40	40
	Cases	471,743	451,346	448,280	
	Deaths	72	8	5	
Trauma	Incidence/1,000	34	42	46	46
	Cases	390,869	447,278	525,039	
	Deaths	646	787	833	
Skin infections	Incidence/1,000	28	37	42	42
	Cases	309,758	393,384	472,746	
	Deaths	135	126	125	
Ear, nose, throat infections	Incidence/1,000	21	25	23	24
	Cases	238,403	260,058	259,877	
	Deaths	49	31	34	

Source: MOH.

Third, Zambia is affected by a heavy disease burden, which is overwhelmingly contributed by a small number of communicable diseases, malaria, HIV/AIDS, and TB. More worryingly, the heavy disease burden, which has adversely affected the Zambia poverty reduction and economic development efforts, has continued to increase. Based on the Health Management and Information System (HMIS) data, the incidences of the top five diseases (malaria, respiratory infection-non pneumonia, diarrhea, respiratory infection-pneumonia, eye infections) either increased or stagnated from 2002 to 2005 (Figure 3).

- **Malaria:** Incidence rates have tripled in the past three decades, making malaria the leading cause of morbidity and mortality in the country. The entire population is at risk, especially children under five and women. The disease accounts for 37 percent of all outpatient hospital visits. In 2004, out of its 11.3 million population, about 4.3 million malaria cases occurred.

Figure 1. Comparison of IMR and U5MR in Selected African Countries, Latest Year Available



Source: World Development Indicators, World Bank, 2006.

Figure 2. Trends in Neonatal, Infant, and Under-Five Mortality in Zambia, 1992, 1996, and 2001/02 Rates (Per 1,000 Live Births)

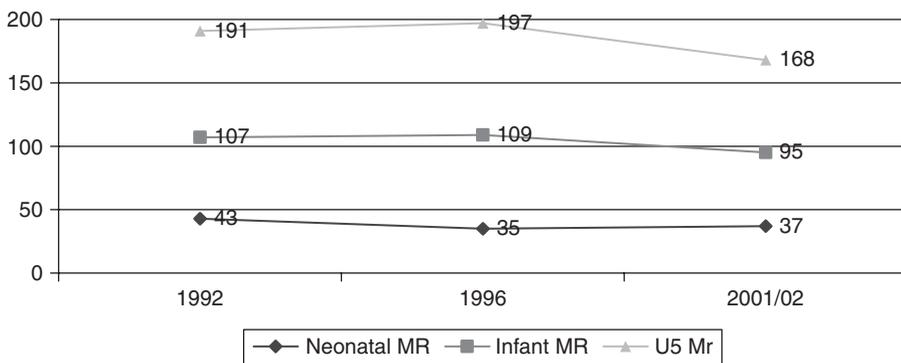
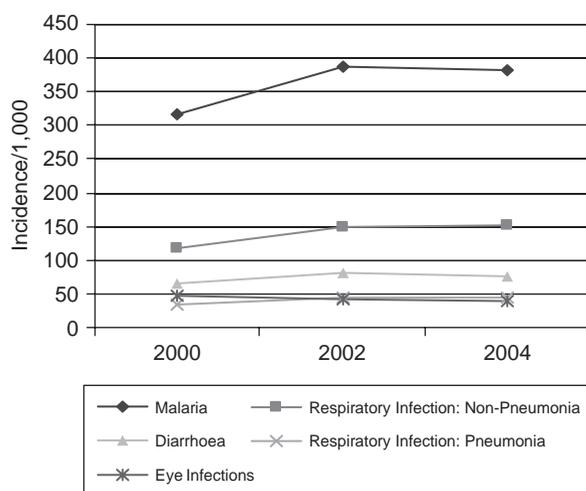


Figure 3. Trends and Levels of Major Diseases in Zambia, 2002–04

Source: Ministry of Health, HMIS, 2005.

- **HIV/AIDS:** Based on the seroprevalence survey of the 2001/02 DHS, national HIV prevalence rate among adults 15–49 years is 16 percent, among the highest in the world, but lower than the previously-believed figure arising from antenatal clinic data. Among women of childbearing age the prevalence even reached 20 percent, although it appears that prevalence rate has fallen among women 15–19 years of age. Indeed, HIV/AIDS control is one of the few indicators moving in the right direction in Zambia, and the country can rightfully take pride in being able to modestly stabilize the rate of infection. Still, the country's life expectancy has declined from 46 to 37 years mainly due to the HIV/AIDS epidemic. Moreover, the number of people living with HIV/AIDS, including orphans, have reached massive proportions, with as many as 12 to 19 percent of children (depending on the year and method of estimation) being considered orphans.
- **Tuberculosis:** The number of tuberculosis cases notified has soared from 16,863 in 1990 to 54,200 in 2002. Zambia's 2002 tuberculosis incidence rate of 668 cases per 100,000 population is the fifth highest in sub-Saharan Africa, according to the WHO TB Report, 2003. In 2002, tuberculosis prevalence (all forms) was 736 per 100,000 population while smear-positive prevalence was 353 per 100,000 population. About 49.4 percent of tuberculosis mortality is attributable to HIV/AIDS (Corbett and others 2003).

Challenges at Health Service Level

Zambia has made great efforts in defining and delivering a package of basic health services and some improvement has been achieved in some basic health service indicators. Based on the HMIS data, the coverage of several key services such as immunization, antenatal

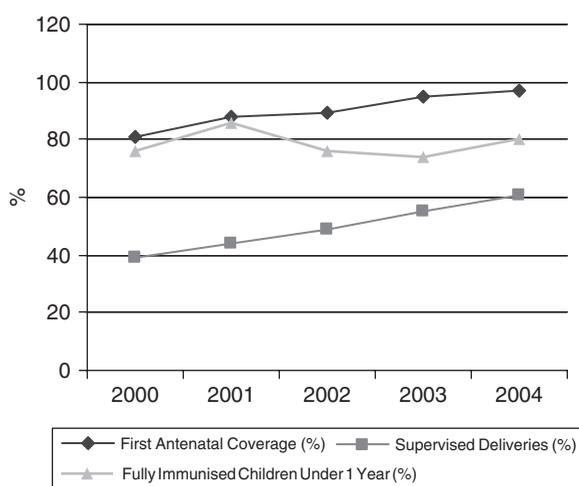
Table 3. Selected Health Service Delivery Indicators, 2000–04

Indicator	2000	2001	2002	2003	2004
Health center outpatient per capita attendance	0.42	0.77	0.73	0.86	0.76
First antenatal coverage (%)	81	88	89	95	97
Average antenatal visits (times)	3.6	3.6	3.4	3.3	3.1
Supervised deliveries (%)	39	44	49	55	61
Fully immunized children under 1 year (%)	76	86	76	74	80
New family planning acceptors rate per 1000	85	101	111	123	127
Health center staff load (patients/staff)	17	14	16	17	17
Drug kits opened per 1,000 patients	0.73	0.75	0.69	0.73	0.93

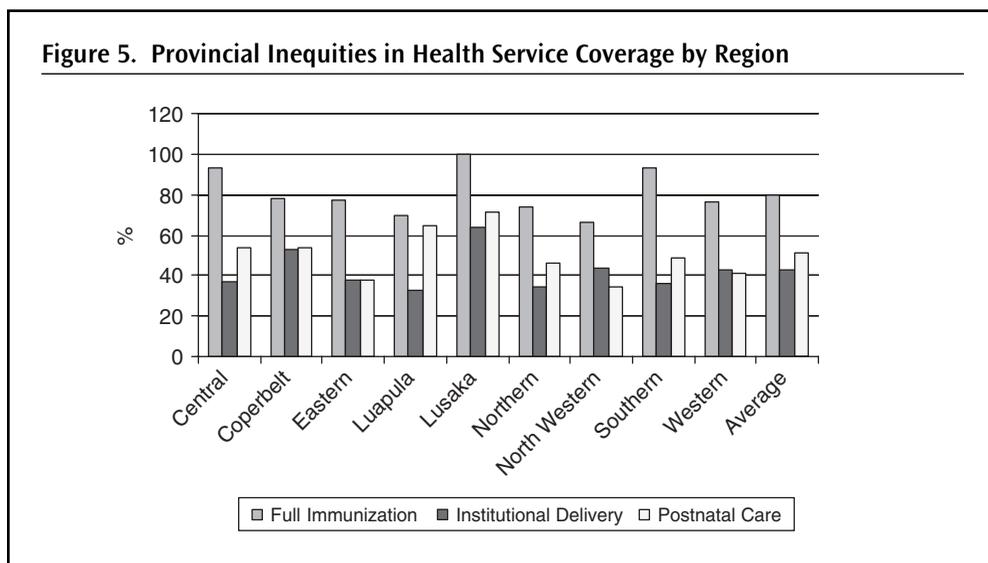
Source: Central Board of Health.

care, supervised deliveries has maintained at a high level or obtained a progressive increase since 2000 (Table 3 and Figure 4). However, the basic health service package as a whole has not been fully implemented particularly for the first and second level referral care.

The improvement in key health services has not been even across provinces. Inequalities in key service coverage are rather salient based on the official data. As a general pattern, Lusaka does better in almost all health services (Figure 5). As a contrast, Northwestern and North regions lag behind in immunization, institutional delivery and postnatal care.

Figure 4. Coverage of Key Health Services, 2000–04

Source: Ministry of Health, HMIS, 2005.



Source: Ministry of Health, HMIS, 2005.

Inequities also exist in residential location and socioeconomic status. Figure 6 and Figure 7 show that rural and poorer households have suffered disproportionately compared to urban and richer households. The rural/urban and poor/rich gap is particularly stark in the case of services reliant on skilled professionals such as birth attendance, although the gap is not so sharp in public-health services such as immunization.

The poor child health indicators is partly explained by low coverage of child health interventions as well as continuing high rates of child malnutrition, a key risk factor in childhood illness. Zambia has the highest rate of underweight children (29.4 percent) and the third-highest rate of stunted children (43.8 percent) in East and Southern Africa, after Mozambique and Malawi. Zambia's child health interventions could be further improved to be at par with its neighbors (Table 4). For instance, Tanzania exceeds Zambia's rate of measles immunization, children receiving antimalarials, and children receiving Vitamin

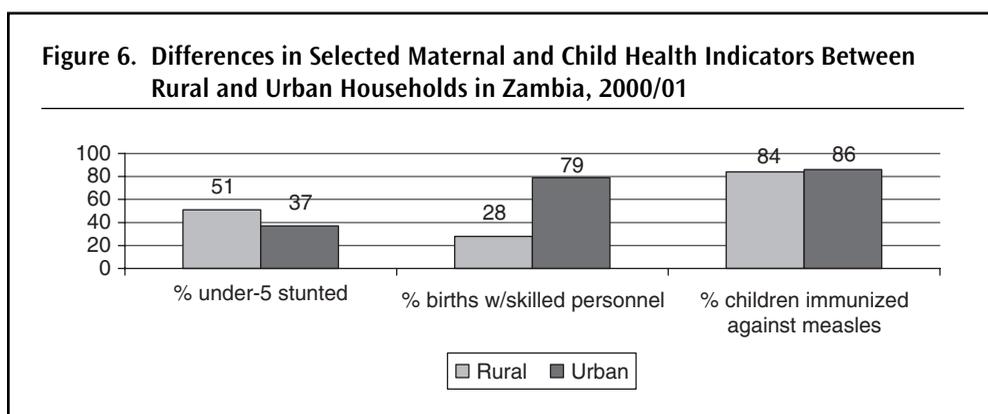


Figure 7. Differences in Selected Maternal and Child Health Indicators Between Lowest and Highest Asset Quintile Households in Zambia, 2000/01



A. Mozambique also exceeds Zambia's rate of children receiving oral rehydration therapy (ORT) for diarrhea.

The rates of coverage of maternal health services are low. The proportion of births attended by a medically trained provider remains woefully low (43 percent), but especially so among rural mothers (28 percent), while births by C-section (an indicator of the availability of appropriate obstetric care) is only 2 percent (Table 5). For both these maternal-health service indicators, Zambia is on the lowest rung of countries in East and Southern Africa.

Recent malaria control initiatives are improving coverage rates. Household ownership of insecticide-treated nets has risen dramatically: according to the 2001/02 DHS, only

Table 4. Service Coverage Indicators of Key Childhood Health Interventions in Selected African Countries, 2000s (Latest Year Available)

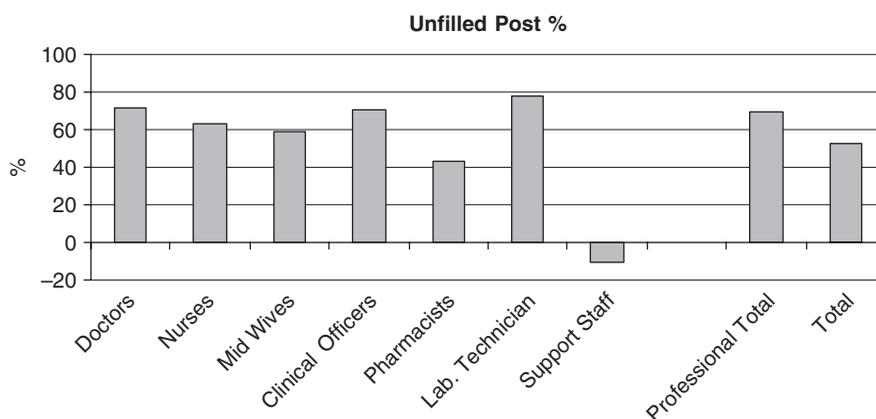
Countries	Measles Immuniz'n Rate 2004	U5 Children w/ ARI Taken to Facility	U5 Children w/ Diarrhea Receiving ORT	U5 Children w/ Fever Receiving Antimalarial	6-59 Months Children Given Vit. A
Botswana	90	n.a.	n.a.	n.a.	n.a.
Kenya	73	49.1	34.2	26.5	91.4
Lesotho	70	54.4	32.1	n.a.	n.a.
Malawi	80	26.7	35.4	31.6	85.8
Mozambique	77	55.4	46.7	n.a.	n.a.
South Africa	81	73.9	n.a.	n.a.	n.a.
Swaziland	70	n.a.	n.a.	25.5	n.a.
Tanzania	94	45.8	36.3	53.4	94.2
Zambia	84	69.1	40.9	51.9	79.8

Table 5. Maternal Mortality Ratio and Service Coverage Indicators of Key Maternal Health Interventions in Selected African Countries, 2000s (Latest Year Available)

Countries	Maternal Mortality Ratio (per 100,000 Live Births)	Antenatal Coverage Rate, 4 Visits %	Births Attended by a Skilled Health Personnel	Births by C-section
Botswana	100	97	94	n.a.
Kenya	1,000	52	42	4.0
Lesotho	550	88	55	n.a.
Malawi	1,800	55	61	3.0
Mozambique	1,000	41	48	3.0
South Africa	230	72	84	16.0
Swaziland	370	n.a.	70	n.a.
Tanzania	1,500	69	46	3.0
Zambia	750	71	43	2.0

13.6 percent of households reported having at least one net, but the 2006 malaria indicator survey reports that now 50.1 percent of households have at least one mosquito net and 44.4 percent have at least one insecticide treated net (MOH 2006b). In the 2001/02 DHS, only 7.9 percent of pregnant women slept under an insecticide-treated net the night prior to two weeks preceding the survey; by 2006, this proportion has risen to 23 percent. Residual spraying is now ongoing in 15 districts, with those in Kabwe reporting the highest

Figure 8. Unfilled Posts by Profession



Source: Ministry of Health, HMIS, 2005.

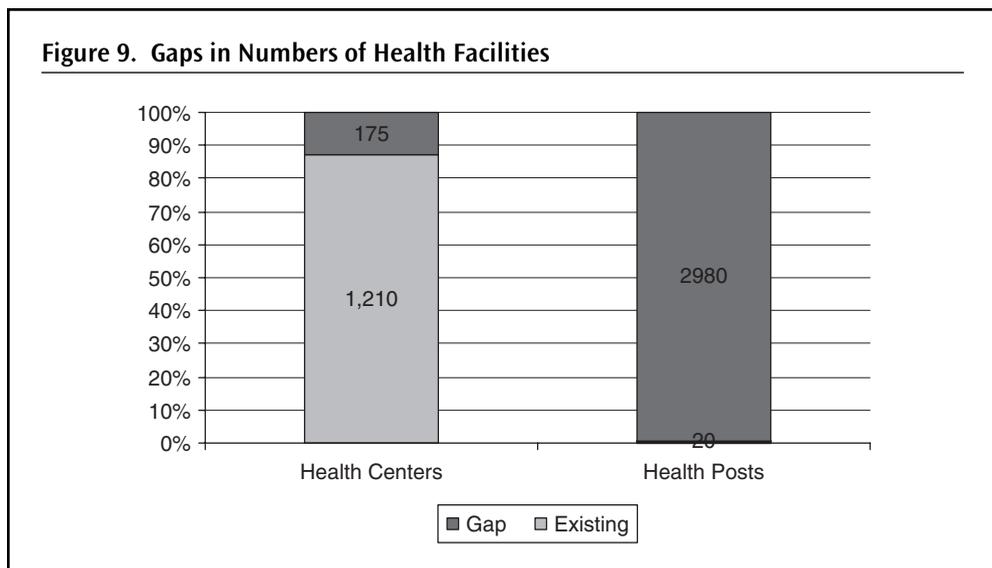
percentage of households sprayed (77.1 percent). Intermittent presumptive treatment of malaria for mothers only covered 35.8 percent of pregnant women in 2001/02, but by 2006, 77 percent of pregnant women were already taking anti-malarial drugs during pregnancy. Similar improvement in treatment of malaria in children has been recorded in the 2006 malaria indicator survey, where 58 percent of children with fever took an antimalarial drug.

Challenges at the Service Delivery Level

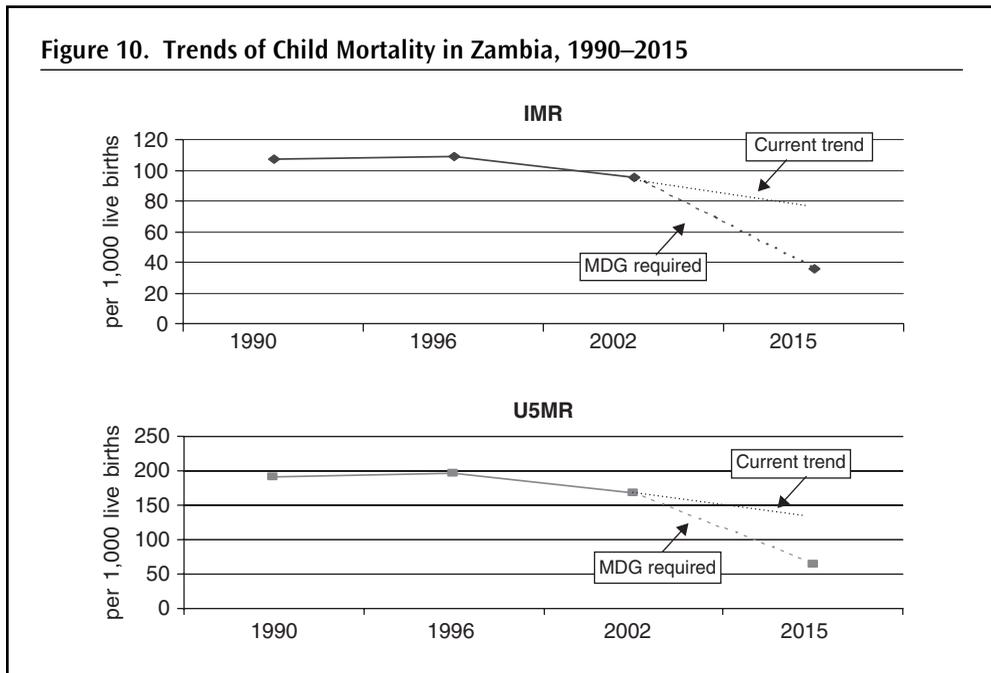
Delivering health services requires a functional health system, which in turns needs key elements and essential inputs to make it work. At present, several challenges are affecting the effectiveness of Zambia's health system. In particular, human resources and health and health facilities are two major issues.

The human resources situation in Zambia is at the state of crisis. The lack of appropriate human resources, which is being further worsened by the high attrition rate, has severely undermined the system's capacity to deliver health services. Nationally, about 69 percent of professional posts are unfilled (Figure 8). Doctors, nurses, midwives, lab technicians are in acute shortage.

Significant gaps exist in the numbers and distribution of facilities required to cover the population. In total, Zambia has 1,327 health facilities including 97 hospitals, 1,210 health centers, and 20 health posts. The majority of the health facilities belong to GRZ. Based on the National Health Strategic Plan, health service delivery relies on a network of health facilities in order to cover the entire population (see Chapter 2). The existing stock of health facilities, especially at the lowest level, however, is a far cry from this idealized network. Primary health care facilities are particularly in shortage. For example,



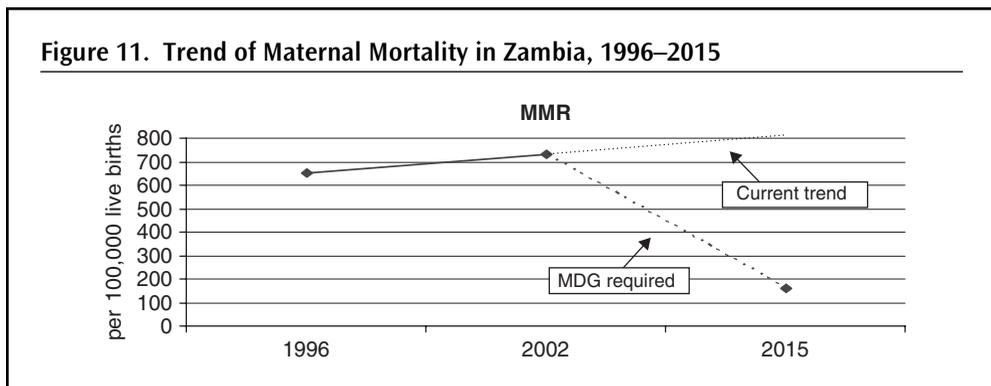
Source: Ministry of Health, HMIS, 2005.

Figure 10. Trends of Child Mortality in Zambia, 1990–2015

Source: ZDHS.

the target is to have 3,000 health posts but currently only 20 have been commissioned; for health centers, the target is 1,385 but currently there is only a total of 1,210 health centers (Figure 9).

Based on current trends, Zambia is off-track to reach the MDGs, unless dramatic changes are instituted immediately. For the child mortality target, even using the most promising trend between 1996 and 2002, Zambia is still falling behind the required pace to reach the IMR and U5MR targets (Figure 10). It is even worse for the maternal mortality target—the latest data suggests the MMR is rather increasing (Figure 11).

Figure 11. Trend of Maternal Mortality in Zambia, 1996–2015

Source: ZDHS.

Sources and Uses of Funds in the Health Sector: Results of the National Health Accounts Exercises, 1999–2004

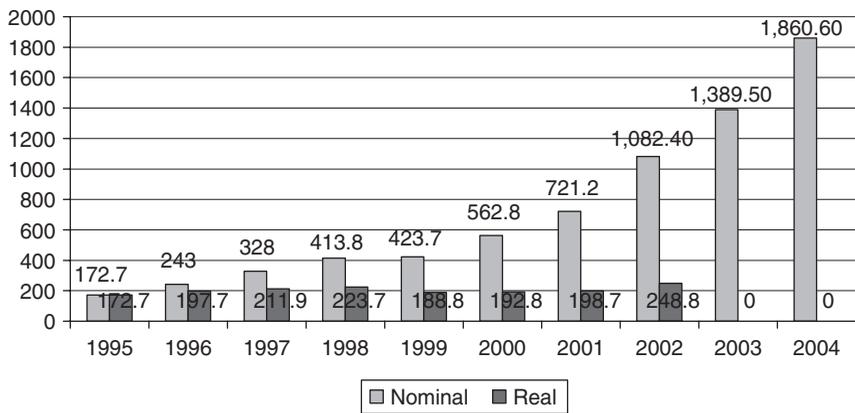
Zambia has the longest annual series of National Health Accounts (NHA) in sub-Saharan Africa. This permits the analysis of health expenditure trends over the past ten years. This chapter synthesizes the findings of several NHA reports completed through the years under the auspices of the “Institutional Collaboration—Health Economics Policy Analysis and Health Economics Project” of the Economics Department of the University of Zambia, with support from the Swedish International Development Agency.

This chapter is organized as follows. The first section provides the overview by reporting the trends in total health expenditures (THE) and expenditure ratios, especially ones pertaining to government. The next three sections analyze the patterns of health expenditures from the point of view of the sources and financing agents. The second section discusses in detail the sources of health expenditures, the third section describes the health expenditures in terms of service providers and administration, and fourth section analyzes the application of health expenditures by donors, the MOH, and households. Then the chapter analyzes the patterns of expenditures from the point of view of the recipients. The fifth section examines how service providers are financed, and the sixth section analyzes the uses of health expenditures by these recipients in terms of inputs. Finally, the last section mulls the key implications of the NHA findings.

Total and Per Capita Health Expenditures

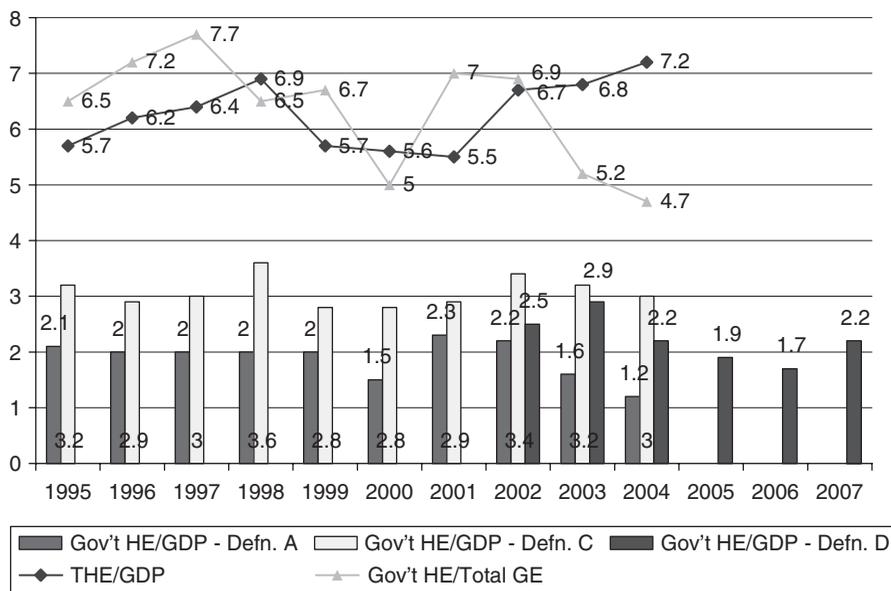
In nominal terms, total health expenditures increased from ZK172.7 million in 1995 to ZK1.86 billion in 2004, representing an eleven-fold increase in current prices (Figure 12). However, in real terms, THE increased by only 44.1 percent from 1995 to 2002. Total

Figure 12. Total Health Expenditures in Nominal and Real Terms, 1995–2004 (ZK Billion, 1995 = 1.00)



health expenditures as share of GDP inched up from about 5.5 percent in the late 1990s/early 2000s to 6.8 percent in 2003 and 7.2 percent in 2004 (Figure 13). At these THE/GDP ratios, Zambia occupies the intermediate range among East and Southern African countries, above the 4–5 percent rates of Tanzania and Mozambique, but

Figure 13. Selected Health Expenditure Ratios, 1995–2007 (percent)



below the 8 percent rate of middle-income countries such as Swaziland, Namibia, and South Africa.

During the same period of increasing THE, GRZ financial contributions to health have fallen in relative terms. As a percentage of GDP, it dropped from a consistent rate of 2.0 percent throughout the 1990s to as low as 1.2 percent in 2004. Similarly, government HE as a percentage of total government expenditures fell from an already-low share of 6–7 percent in the 1990s to a dangerously low rate of 4.7 percent in 2004. This pattern of low and declining government health spending underlies the major problems facing the Zambian health sector.

While GRZ's share to total health spending has been going down, its discretion over resources has been increasing due largely to donor support. To analyze this trend, it is necessary to consider alternative definitions of "government health spending." There are no standard definitions of what constitutes "government health spending" in Zambia, as in many other African countries. This has led to confusion, especially in cross-country comparisons. To clarify matters, the following are considered:

- *NHA spending by source*: Under this definition, expenditures are categorized by source; thus, government health spending can be defined as:
 - (a) MOH/CBOH expenditures (Definition A).
 - (b) MOH/CBOH expenditures + health expenditures of all GRZ agencies, i.e., other ministries, Defense Forces, parastatals, and local government authorities (Definition B). This may or may not include social health insurance (SHI), depending on the extent of discretion the central government or MOH has over SHI resources. However, this is not an issue in Zambia as there is no SHI.
- *NHA spending by "financing agent"*: Under this definition, expenditures are not categorized by the source or origin but by the financing agent (whomever has discretion over the expenditures). Thus, government spending can be defined broadly or narrowly as follows:
 - (c) Definition B + all other health expenditures for which the government is the financing agent. Thus it includes the "basket funds" of donors under the sector-wide approach (SWAp), as well as all health projects implemented by the government, e.g., ADB, GAVI, Global Fund, JICA, OPEC Fund, and the World Bank (Definition C).
 - (d) MOH/CBOH + Donor Basket Funds (Definition D).

Using the above definitions, government health expenditures in Zambia are presented in Table 6. If one adopts a more liberal definition of government health spending to focus on financing agency and discretion, GRZ has indeed more resources at its disposal. Table 7 shows the resources available to the government, including MOH/CBOH expenditures, health expenditures of other GRZ agencies, basket funds of donors participating under the sector-wide program (SWAp), and resources from GRZ-implemented health projects. In 2004, GRZ had discretion over a total of ZK770.0 billion in resources, about 2.4 times the size of the MOH/CBOH budget, and due largely to massive increase in basket funds and donor projects managed by GRZ.

Table 6. Government Health Expenditures (ZK Billion) Using Alternative Definitions, 1995–2007

Years	Definition A (MOH/CBOH)	Definition B (MOH/CBOH + Other GRZ)	Definition C (MOH/CBOH + Other GRZ + Basket Funds + GRZ- Implemented Donor Projects)	Definition D (MOH/CBOH + Basket Funds)
1995	58.3	65.3	96.0	—
1996	72.7	80.6	113.7	—
1997	95.6	108.8	154.2	—
1998	112.2	120.9	214.0	—
1999	140.9	149.0	205.7	—
2000	147.3	155.2	282.7	—
2001	288.2	304.1	386.4	318.4
2002	342.4	350.2	545.6	408.9
2003	327.1	337.3	654.6	597.0
2004	322.4	332.8	770.0	579.4
2005	415.5 (e)	—	—	629.3 (e)
2006 estimated	557.0 (e)	—	—	682.3 (e)
2007 budget	820.2 (e)	—	—	977.5 (e)

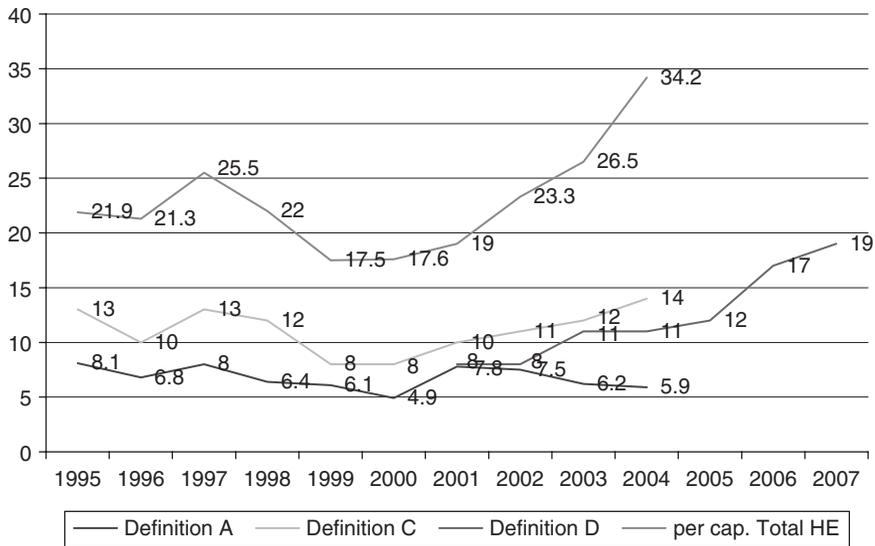
¹Note that given the plethora of government health spending definitions, it is not clear what the Abuja target of “15 percent of government spending devoted to health” means. As the numerator of the indicator is unclear, so is the denominator, i.e., whether it refers to total government spending, or only to government spending that is discretionary.

Since 1999, nominal per capita health expenditure has consistently risen; it reached US\$34.20 (in average exchange rate) by 2004 (Figure 14). This rise is mainly due to the liberal infusion of donor HE. This level of spending also places Zambia in the middle range of countries in East and Southern Africa, and is far higher than the US\$12–13 per capita

Table 7. Health Expenditures (ZK Billion) Under the Discretion of the Government, by Source, 2001–07

Sources	2001	2002	2003	2004	2005	2006	2007
MOH/CBOH	288.2	342.4	327.1	322.4	415.5	557.0	820.2
Basket funds	30.2	66.5	269.9	257.0	213.8	125.3	157.3
Subtotal	318.4	408.9	597.0	579.4	629.3	682.3	977.5
GRZ-implemented donor health projects	52.1	128.9	47.4	180.2	—	—	—
Other GRZ	15.9	7.8	10.2	10.4	—	—	—
Grand Total	386.4	545.6	654.6	770.0	—	—	—

Figure 14. Trends in Per Capita Government Health Expenditure and Per Capita Total Health Expenditure, 1995–2007 (US\$ Ave. Exchange Rate)



HE of Tanzania, Mozambique, and Malawi. As a point of interest, Zambia's per capita HE now slightly exceeds the level that the Commission of Macroeconomic and Health has deemed sufficient to finance a basic package of health care (US\$33). While per capita THE has risen since the late 1990s, per capita government HE (Definition A) has fallen to US\$5.90 in 2004, after peaking at US\$8.10 in 1995. In contrast, the most liberal definition of GHE (Definition C, which includes MOH, other GRZ, basket funds, and GRZ-implemented donor health projects) shows an uptrend. Indeed, the combined forecast for MOH budget and basket funds (Definition D) shows more optimistic rising figures in nominal per capita HE.

Sources of Health Expenditures

Changing Pattern of HE Sourcing

The advent of global disease initiatives in the late 1990s and early 2000s as well as the stagnation of government health spending have shaped the pattern of the sourcing of health expenditures in Zambia. In 2004, total health expenditures reached ZK1.8 billion (Table 8), 11 times its nominal size in 1995. During the decade, donor health expenditures grew nearly 41 times to its current level of ZK790 million. Private health expenditures multiplied eight-fold to reach ZK735 million. Government health expenditures grew only five-fold—the slowest nominal expansion among the sources—to reach ZK409 million by 2004.

Table 8. Trends in Health Expenditures by Source, 1995–2004 (ZK Billion)

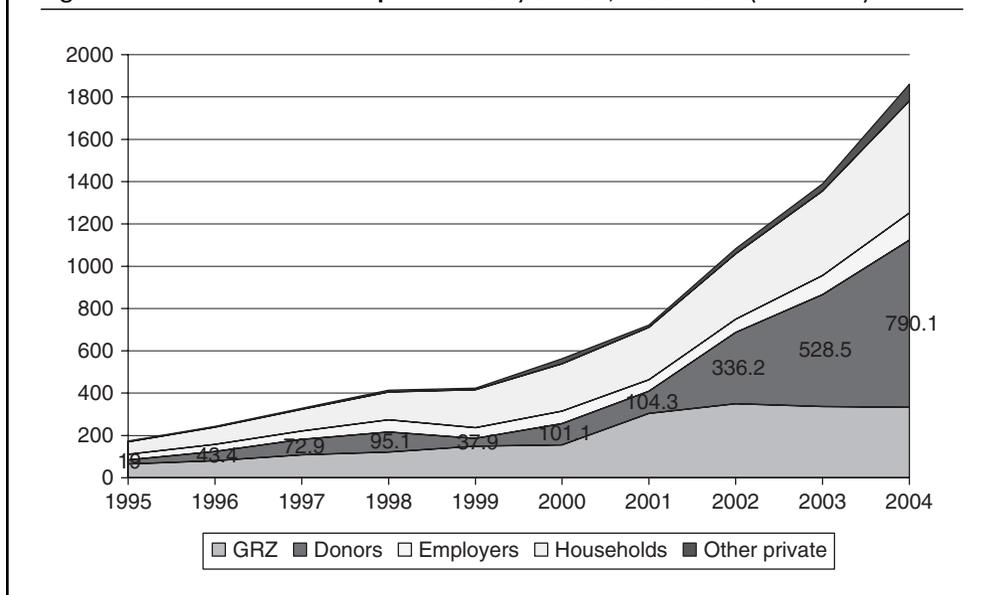
Years	GRZ	Donors	Private				Total
			Employers	Households	Other Private	All Private	
1995	65.3	19.0	26.6	58.8	2.9	88.3	172.7
1996	80.6	43.4	33.4	81.6	3.9	118.9	243.0
1997	108.8	72.9	40.1	101.7	4.5	146.3	328.0
1998	120.9	95.1	57.8	130.9	9.0	197.7	413.8
1999	149.0	37.9	50.3	178.4	8.2	236.8	423.7
2000	155.2	101.1	59.2	223.8	23.6	306.5	562.8
2001	304.1	104.3	54.7	248.2	10.0	312.9	721.2
2002	350.2	336.2	62.5	308.9	24.7	396.1	1,082.4
2003	337.3	528.4	89.8	399.6	34.4	523.7	1,389.5
2004	332.8	790.1	128.9	528.9	79.9	737.7	1,860.6

Rapid Dominance of Donor Spending

Reflecting the differential growth rates, donors now account for a massive proportion of health expenditures, with serious consequences on the way these resources are being allocated and spent. Over the past three years (2002–04), about 38 percent of THE have come from donors, 24 percent from government, and another 38 percent from the private sector. This has not always been the case. In 1995, donors only accounted for 11 percent of THE, and government accounted for 38 percent, while the private sector contributed 51 percent (Figure 15). Indeed, today Zambia's health sector has become the most donor-reliant, with the share of external resources to THE exceeding that of any country in the region, with the possible exception of Mozambique and Rwanda, which both came out of a war. For instance, in Uganda the share of donor resources has remained stable at around 29 percent; in Tanzania, it exceeded 30 percent in the early 2000s but has since stabilized; and in Mozambique it exceeded 40 percent in the early 2000s, but has also stabilized. In Zambia, the staggering and still-increasing amount of donor resources sitting on what is essentially diminishing government resources raises important public finance questions that beg to be properly articulated and analyzed.

Declining Share of GRZ Health Expenditures

GRZ health expenditures are coursed through the Ministry of Finance and National Planning (MOFNP), local government authorities (LGAs), and other public funds (see Annex Table A). The Treasury's funds are mainly channeled through the Ministry of Health (MOH), which takes a substantial 96.9 percent of all MOFNP expenditures for health. The rest (3.1 percent) go to the Ministries of Defense, Education, and Home Affairs, other public institutions and, up until the late 1990s, to nongovernmental organizations (NGOs).

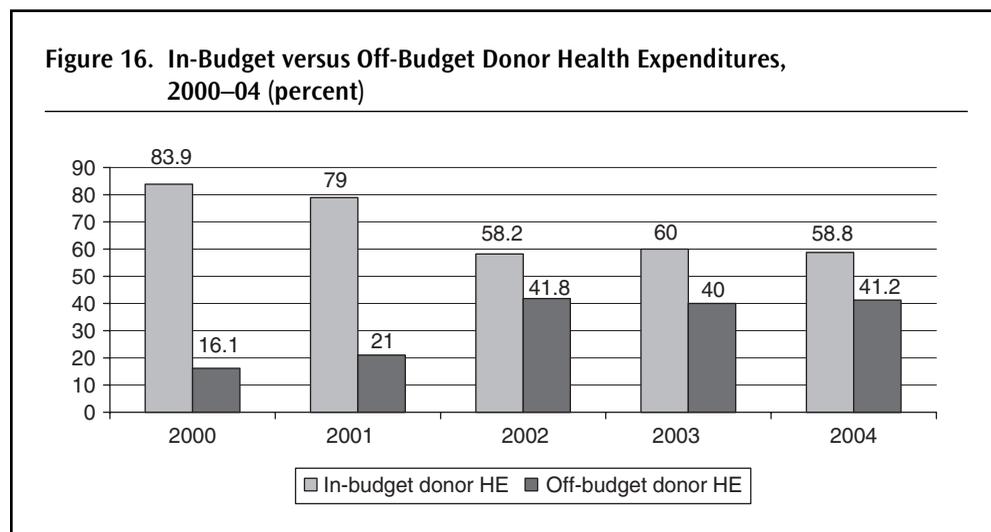
Figure 15. Trends in Health Expenditures by Source, 1995–2004 (ZK Billion)

Health Expenditures by LGAs for the Most Part Unknown

LGAs operated clinics and health centers in their jurisdictions until 2000, when these were taken over by MOH. The bigger LGAs, such as the Lusaka City Council, continue to implement public health programs. For most LGAs, however, the health expenditures are not separated from other expenditures, making it difficult to isolate health spending. A survey of all 72 LGAs need to be carried out to determine their health expenditures, although it is bound to be minor.

Increasing Off-budget Expenditures

The proportion of donor health expenditures going to MOH and other public institutions has declined from 84 percent in 2000 to 59 percent in 2004 (see Figure 16, derived from Annex Table B). In contrast, the proportion of off-budget donor expenditures began to reach 40 percent or more since 2002. This trend is expected to continue, fueled largely by the continuing large inflow resources from global and bilateral disease initiatives which are typically implemented as parallel financing arrangements by donors themselves (as financing agents), or through grants with NGOs, community-based organizations (CBOs), or hired professional contractors. Note that the tables and figures refer only for health, nutrition, and population expenditures, and excludes HIV/AIDS expenditures that are not directly related to health service provision. If HIV/AIDS expenditures are included, the proportion of off-budget spending increases even more dramatically, as these are coursed largely through NGOs and CBOs.



Employers' Health Expenditures

Until 2000, the Zambia Consolidated Copper Mines (ZCCM) was a major source of employer-provided health benefits. With its privatization, its health facilities have been taken over by MOH or privatized. Other employers have since loomed as important source of health financing so that by 2004, employers already commanded expenses amounting to ZK128.9 million (Annex Table C) representing 17 percent of all private health expenditures, and 7 percent of total health expenditures in the country.

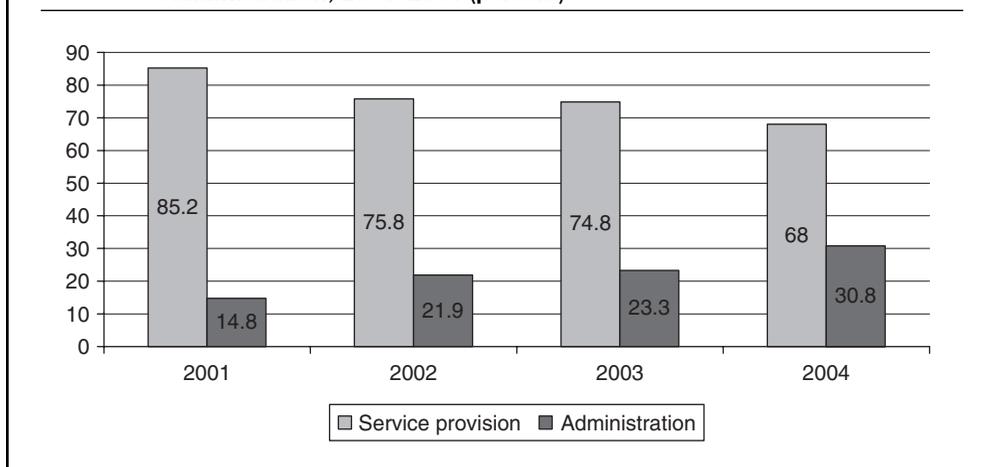
Household Health Expenditures

These are largely out-of-pocket expenditures incurred by individuals seeking care at GRZ or private facilities (paid as user fees), or purchasing drugs and other medicaments from drug stores, or paying traditional healers. They also include contributions to health insurance schemes. Household health expenditures have been growing rapidly since the late 1990s, impelled in part by a widening choice of private providers and over-the-counter drug purchases. Recent data show household health spending accounts for 71 percent of all private HE, and 28 percent of THE.

Health Expenditures by Service Provision and Administration

Health expenditures increasingly are being devoted to administration. Disaggregating health accounting data into service provision and administration reveals the increasing “bureaucratization” of health services. Expenditures on administration have quickly jumped from 14.8 percent share in 2001 to 30.8 percent in 2004 (Figure 17, based on Annex Table D), that is, nearly a third of all health expenditures in Zambia are being used for activities not directly related to health service provision. Instead of achieving economies of

Figure 17. Total Health Expenditures Going to Service Provision and Administration, 2001–2004 (percent)



Note: Rest-of-the-world health expenditures are excluded.

scale on administration, the fragmentation of financing and service delivery appears to have increased administrative costs. The increasing administrative-intensity during this period can be explained by two major factors: (a) the separation of CBOH and MOH turned out to be duplicative and costly; and (b) donors' sponsorships of a plethora of NGOs and CBOs and local and international contractors entailed administrative and transactions costs not seen previously.

A review of health expenditures on service provision shows the following (see also Annex Table E):

- The role of government financing in service provision has been highly variable, at least in terms of shares to total expenditures going to health services. The GRZ share to service provision varied from 40 percent in 1999 to 75 percent in 2002, until it stabilized back to around 41–43 percent in later years. Also, GRZ has massively increased the resources going to district health services. The share of districts to total GRZ spending on health service provision rose from 33 percent in 1999 to 65 percent in 2004. If one excludes Defense Force and ZCCM hospitals, districts' share to GRZ health service provision expenditures rises from 45 percent in 1999 to 66 percent in 2004.
- HE going to private for-profit hospitals has risen dramatically from 18 percent in the late 1990s to 30 percent by 2004. Similarly, household purchases from drug stores and chemists are becoming dominant. Their share to total HE on service provision spiked to 23–25 percent in the 1999–2000, but have since stabilized to around 13 percent.
- Mission (non-profit) hospitals have far smaller role in generating funding than conventional wisdom suggests. Their share to total HE is at most 1 percent, derived from their fee operations. On the other hand, traditional healers' share in service provision is big; it swung from 8–15 percent during the period.

A review of health expenditures on administration reveals that GRZ health administration has grown big, accounting for 46 percent of total administration costs of the sector by 2004. Even more so, administrative costs of donor-supported vertical projects—as reflected in the items “other providers’ health administration” and “other related services and institutions”—incurred 50 percent of total administrative costs in the sector. The NHA methodology records these institutions under administration, as they basically receive funding from donors which they then use to support existing health facilities. However, some of them are beginning to implement their own health services, so in fact, not all of their expenditures should be treated as administrative.

Health Expenditure Patterns of Donors, MOH, and Households

How Do Donors Spend Their Resources?

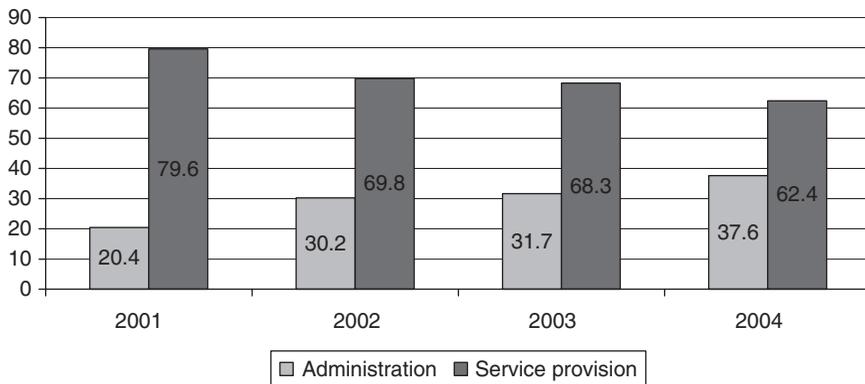
Annex Table F provides data on the recipients of donor resources in the health sector. Although only three years of NHA provide consistent data on detailed expenditures, they do show clear trends.

- MOH remains the biggest recipient of donor funds, with some small amounts going to other public institutions. Together they captured 57.4 percent of all donor health expenditures in the period 2002–04.
- Other traditional service providers such as mission hospitals, private-for-profit hospitals, ambulatory health care providers, and drug stores and chemists together captured a small proportion (2.3 percent) of donor health expenditures. Indeed, as individual categories, each received minuscule shares of less than 1 percent.
- Nontraditional providers—labeled under NHA methodology as “other public health providers,” “other providers’ health administration,” and “other related services and institutions,”—together received a large share (33.3 percent) of donor health expenditures. In common parlance, these are the nongovernment organizations (NGOs) and community-based organizations (CBOs) involved in a wide range of advocacy, social mobilization, information and education, and service provision. For a significant part of their operations, these NGOs/CBOs also make use of GRZ, mission, and sometimes for-profit health facilities.
- Research activities have rapidly grown, and now account for 3 percent of donor health expenditures. However, training is given a very short shrift, with only 0.3 percent of donor expenditures devoted to it, despite Zambia’s current human resource crisis in the health sector.

How Does MOH/CBOH Spend its Resources?

Since 2001, the percentage of MOH/CBOH health expenditures going to service provision has gone down while the percentage going to administration has gone up sharply (Figure 18, derived from Annex Table G). By 2004, administrative expenditures accounted for 37.6 percent of total MOH/CBOH expenditures. Among administrative costs, general administration at MOH/CBOH consistently expanded since 2001, rising in share from 63.4 percent to

Figure 18. MOH/CBOH Health Expenditures Going to Service Provision and Administration, 2001–04 (percent)



93.6 percent of total administration in 2004. As mentioned previously, the creation of to separate entities (MOH and CBOH) during this period largely accounts for this administrative intensity.

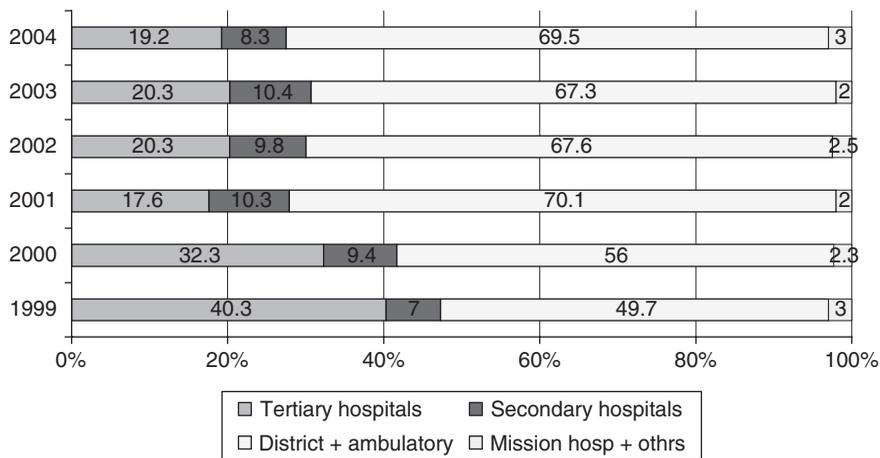
Administrative spending on “other providers of health administration” and “other related services” revolving around NGOs/CBOs rose markedly in the early 2000s, garnering as much as 30.5 percent of MOH/CBOH administrative expenditures in 2001. This type of spending has since declined at MOH as many of transactions and activities probably migrated to donors’ auspices.

Expenditures on training and research together remained stable at a nominal value of ZK5-6 billion a year. However, in terms of share to total administrative expenditures, research and training have gradually eroded from a combined 8.2 percent share in 1999 to only 1.6 percent in 2004. In addition, the composition has changed drastically as training expenditures declined acutely from ZK3.9 billion to an insignificant ZK433 million in just six years, while research expenditures more than doubled during the same period. In fact, research now exceeds training expenditures almost by a factor of 10.

MOH spending by level of care (Figure 19) reflects a dramatic re-allocation away from tertiary hospitals (which declined in share of service provision from 40.3 percent to 19.2 percent in six years) towards district and ambulatory health services (which rose in importance from 49.7 percent of service provision to 67.3 percent). The share of secondary hospitals to total service provision remained fairly stable at 7–10 percent a year.

How Do Households Spend Their Resources?

Despite the overwhelming extent of government health providers, they receive a surprisingly small share of household resources for health (Annex Table H). From 1999–2004, only 5.4 percent of household health expenditures went to GRZ health facilities, mostly to tertiary hospitals (about 2–3 percent yearly).

Figure 19. MOH/CBOH Health Expenditures by Level of Care, 1999–2004 (percent)

Households use most of their resources on the private health sector, notably on private for-profit hospitals (which received 44.2 percent of household health expenditures in 2004) and drug stores and chemists (29.1 percent). The large household spending on drugs reflects MOH facilities' inability to dispense most of the prescribed drugs, forcing households to find them elsewhere. Other providers such as mission hospitals and other public health providers capture an insignificant share of household health expenditures (at most 2 percent). Over the period 1999–2004, private providers together received a whopping 71.4 percent of household health spending.

Traditional healers also figure prominently among households seeing care. In the six years since 1999, they received 21.1 percent of all household spending on health. Indeed, household spending on traditional healers is 4 times the size of their spending on GRZ facilities.

Financing of Service Providers

What Sources of Financing Do Health Facilities Rely On?

Table 9 shows the types of health facilities and their sources of financing over a three-year period, 2002–04. The matrix shows the continuing simplicity of Zambia's health service payment system, with many zeroes in the cells, reflecting lack of contractual and financial obligations between potential payors and health facilities. For instance, employers have only established contractual arrangements with for-profit hospitals, and none with any MOH health facilities.

While all MOH facilities are all heavily reliant on the MOH budget, as expected, they become less so the higher the level of care. Instead, they become gradually more reliant on other forms of payment (user fees from households, resources from other private sources), as shown in Figure 20.

Table 9. Total Financing of Health Facilities, 2002–04 (ZK Billion)

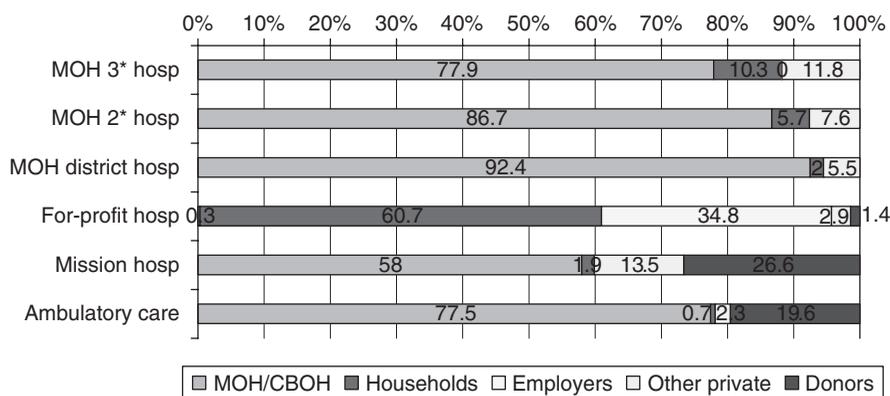
Facility Type	MOH/CBOH ^a	Other GRZ	House-Holds	Employers	Other Private	Donors	Total
MOH tertiary Hospitals	252.4	0	33.5	0	38.3	0	324.1
MOH secondary Hospitals	120.5	0	8.0	0	10.5	0	139.5
MOH district Hospitals	808.7	0	17.8	0	48.4	0	874.9
For-profit hospitals	2.3	0	490.4	281.2	23.5	11.0	808.3
Mission hospitals	19.1	0	0.6	0	4.5	8.8	32.6
Ambulatory Care	57.7	0	0.5	0	1.7	14.6	74.5
Other Providers	37.9	0	13.3	0	7.8	73.6	132.6
Other institutions	5.9	34.1	3.4	0	1.0	293.9	338.2

^aThis includes in-budget resources of donors coursed through the Ministry, e.g., the basket funds. All other off-budget (parallel financing) activities of donors are reflected under “Donors” in the table.

User fees from households are a minor source of revenues for primary and secondary MOH facilities (2–6 percent), and even less so for mission facilities (about 1 percent). However, they are quite important for tertiary MOH facilities (10 percent of their revenues come from fees). In 2006, GRZ abolished user fees for primary health services and medical care services in rural areas.

In contrast to MOH and mission health facilities, for-profit hospitals rely almost exclusively on user fees (60.7 percent of their resources) and employer payments (34.8 percent).

Under a Memorandum of Understanding between the Churches Health Association of Zambia (CHAZ) and GRZ, government is supposed to provide only 75 percent of the full funding requirements of mission facilities; they’re supposed to seek additional funding elsewhere. It is difficult to verify whether mission facilities receive the amount they

Figure 20. Financing of Health Facilities by Source, 2002–04 (percent)

request from government, nor whether this is sufficient. It is clear that the MOH subvention only accounts for 58.0 percent of their total resources, and that they also rely on private financing (13.5 percent), donor parallel financing (26.6 percent), and user fees (a paltry 2 percent, similar to the rate generated by district hospitals).

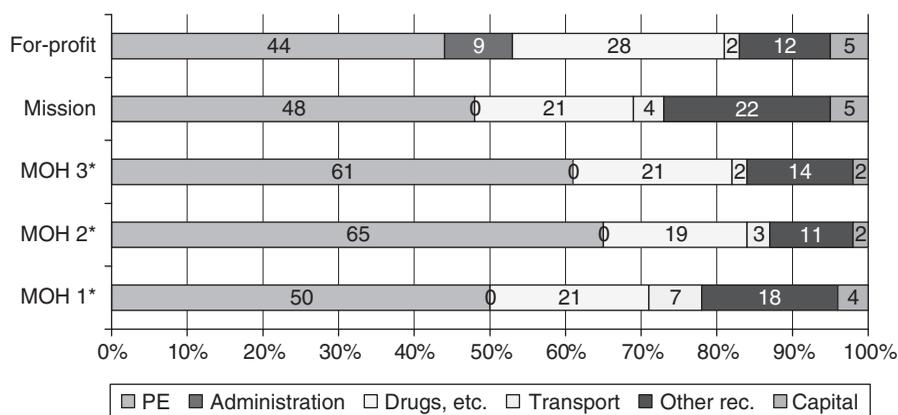
The “other providers” and “other institutions” includes nontraditional entities such as NGOs, CBOs, contractors, and the like which have come into the scene in full force especially with the advent of global and bilateral disease initiatives. They rely heavily on parallel financing from donors.

Uses of Health Expenditures

Cost structures derived from the health expenditures of various types and levels of health facilities reveal interesting differences between MOH, mission, and for-profit health facilities. The MOH expenditure ratios below should not be treated as ideal or normative patterns but rather as actual cost structures based on the existing state of affairs, which is bedeviled with problems. For instance, the high level of staff vacancies, the shortage of drugs and other supplies, deficits in transport and medical equipment, and the relatively poor state of health infrastructure requires the exercise of caution in using the above ratios for planning purposes. However, the cost structures for mission and for-profit facilities do provide interesting comparators by which to benchmark the MOH cost ratios.

Among MOH health facilities, secondary hospitals appear to be the most labor-intensive, incurring an average of 64 percent of expenditures on personal emoluments (Figure 21, derived from Annex Table I). Contrary to expectation, tertiary hospitals are less labor-intensive than secondary hospitals, using up only 61 percent of expenditures on employee

Figure 21. Health Expenditures of MOH, Mission, and For-Profit Facilities by Inputs, 1999–2004 (percent)



Note: MOH and mission facilities’ ratios are averaged from 1999–2004 data while those of for-profit facilities are averaged from 2002–04 data.

costs. Primary facilities are the least labor intensive, with only 50 percent of their expenditures going to labor costs.

The large proportion of costs going to labor in MOH facilities is somewhat surprising, given the many vacancies in facilities as a reflection of the human resource crisis. However, such large share of labor could only reflect the increase in the wage bill which began to increase sharply in 2000, and again in 2003 (which included generous housing allowances).

Compared to their MOH counterparts, non-profit mission facilities have a lower proportion of expenses incurred on labor (48 percent). It is not clear if this is because they have less staff, they have lower salaries and benefits, or the staff are simply more efficient.

For-profit facilities have the lowest proportion of personnel costs among the different types of facilities (44 percent), if administrative costs are excluded from labor costs. But even if administrative costs of about 9 percent are included to PE, labor costs would only be around 52 percent of total costs, compared to 61 percent for secondary and 64 percent of tertiary MOH hospitals. This large difference in the labor cost structure between for-profit and MOH health facilities should encourage government to investigate why, despite the large proportion of MOH resources devoted to labor, the human resource crisis persists.

Consistent across levels of care in MOH and mission facilities, drugs and other consumable supplies account for around a fifth (19–21 percent) of expenditures. However, for-profit facilities spend a greater proportion on drugs (28 percent), mainly because they spend a smaller proportion on labor, as discussed above.

The proportion of expenditures incurred on transport varies inversely with the level of care. MOH primary facilities use up 7 percent of their expenditures on transport, compared to 3 percent for secondary and 2 percent for tertiary facilities. Mission facilities, which are mostly of the secondary level, incur 4 percent of their expenditures on transport, while for-profit facilities use up 2 percent on transport. The relative “transport intensity” of primary care may have to do with the magnitude of outreach they are expected to perform, and the geographic distances they need to cover.

Other recurrent expenses (ORE) represent a range of inputs, activities, and transactions that are difficult to summarize. Among MOH facilities, primary clinics tend to use the largest proportion of expenditures on ORE (a hefty 18 percent), compared to 11 percent for secondary and 14 percent for tertiary hospitals, and 12 percent for for-profit hospitals. Mission facilities are a clear outlier, incurring as much as 22 percent on ORE.

Capital expenditures are given a short shrift across all types of MOH facilities; the proportion spent on repairs, construction, and the like is only 2–4 percent. This low level of spending is reflected in the poor state of repair of many these facilities. In contrast, both mission and for-profit facilities spend a greater proportion (5 percent) on capital expenses.

Budget Allocation, Release, and Spending: Results of the Public Expenditure Tracking Component of the PET/QSDS, 2005–06

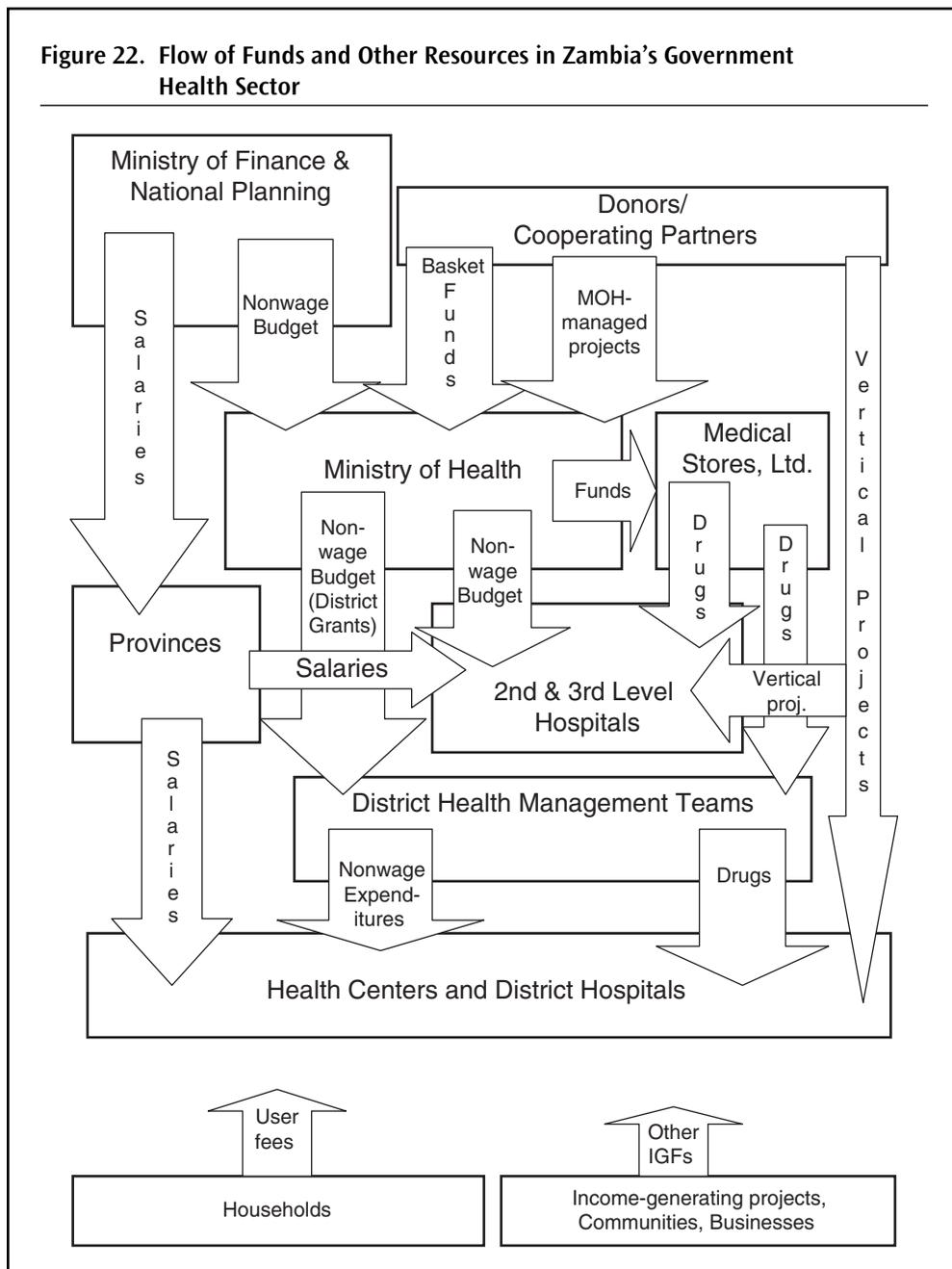
This chapter presents the findings of the public expenditure tracking in the health sector that was undertaken using FY05 financial data. The endeavor covered all major resource flows to the health facility including the GRZ budget, basket funds, vertical project funds, and internally generated funds. The analysis focused on amounts allocated, predictability of releases, differences in allocation and released or received amounts, and uses of received resources. The study proceeded optimistically at the central and facility levels, but it soon became obvious an information “black box” exists around the District Health Management Team (DHMT), which is the weak link in the fiscal information chain. Thus, while it is easy to track resources from MOH to districts, and finally how the resources are used in health facilities, what happens to these resources while they are received and allocated by the DHMT to the different health centers and district hospitals is quite opaque, and the “information fog” is hard to clear up because of lack of information, lack of standardized terminology, and related issues.

This chapter is organized as follows. The first section describes the flow of funds in the health sector and the resource envelope for FY05 and FY06. The second section discusses the GRZ budget process and allocation principles. The third section analyzes MOH allocations versus actual releases by various types of expenditure items. The fourth section focuses on the role of district health management boards (DHBs) and DHMTs that are mandated to allocate the district grants (non-wage/non-drug resources) to lower-level facilities under them (health centers and district hospitals). The fifth section focuses on donors’ vertical funds that reach the facilities. The sixth section focuses on the facilities’ own internally generated funds. The seventh section builds a comprehensive picture of resource availability at the level of typical health facilities (RHC, UHC, and hospital).

Funds Flow and Resource Envelope

The flow of funds in Zambia's health sector is a complicated and fragmented system, where salaries, drugs, and other recurrent expenditures are disbursed separately by different agencies.

MOFNP provides salaries directly to the Provincial Health Offices, which then remit these to their health centers, first-level district hospitals, and second- and third-level hospitals (Figure 22).



MOFNP provides the budget for other recurrent expenditures directly to MOH. Cooperating partners (as donors are called in Zambia) also provide the budget for other recurrent expenditures through their basket funds to MOH. These basket funds are allocated in tandem with GRZ funds, and are managed and monitored closely within the MOH framework.

For drugs, MOH allocates specific funding for the Medical Stores Ltd. (MSL), the parastatal in charge of drug procurement and distribution. MSL distributes drugs to DHMTs largely through a supply-driven (“drug-kit” system), and to second- and third-level hospitals through a combination of “drug-kit” and demand-driven requisition system.

MOH then provides running costs (using GRZ and basket funds) to DHMTs and second- and third-level hospitals. The DHMTs, in turn, provide running costs and drugs (which they obtain from MSL) to the health centers and district hospitals under them.

Additional resources come from the following:

- Separate projects implemented by MOH, and following GRZ procurement and fiduciary systems or donor-determined systems. If implemented using GRZ systems, these flows follow the usual channels as described above.
- Vertical projects implemented by donors or their financing agents or contractors which, for the most part, lie outside the MOH procurement and fiduciary systems, but which may be implemented by MOH facilities. For the most part, these provide in-kind support, but as will be shown in the survey, they are increasingly providing cash support directly to facilities in ways that are still not well-understood or documented.
- The internally-generated funds (IGFs) of health facilities, including user fee revenues, training revenues, community donations, revenues from income-generating projects, and the like. These are not well understood or documented, but they are quite significant, as will be shown in the survey results.

The resource envelope in Zambia’s health sector was about ZK899.8 billion for FY05 and about ZK1,080.8 billion for FY06. The details are shown in Table 10. Note that these amounts only include monies where the GRZ/MOH is the financing agent; it excludes vertical projects. It also excludes IGFs, although formally, the MOH health facility is the financing agent for them.

The FY05 and FY06 resource envelopes show the following patterns.² There has been an 11 percent increase in flexible health funding from ZK612 billion in FY05 to ZK681 billion in FY06. The gainers in FY06 were MOH nonwage expenditures (up by 31 percent), third-level and second-level hospitals (up 8 percent for wage component and 55–59 percent for nonwage component), and grants and other payments (up by 41 percent). The losers were expenditures on district nonwage expenditures (down by 13 percent) and district drug expenditures (down by 34 percent). Indeed, drug allocations declined all levels of care, but particularly in districts. Changes by types of inputs shows a massive increase in capital expenditures (39 percent), a modest increase for wage and non-wage expenditures (8 and 9 percent respectively), and a 15 percent decline in drug expenditures.

2. This paragraph draws on the analysis done by Yates (2006).

Table 10. Health Sector Resource Envelope, FY05 and FY06 (ZK Billion)

Headings	GRZ + Basket Funds				Subtotal GRZ + Basket	Donor Projects	Total
	Wage	Non- wage	Drugs	Capital			
FY05 (US\$ 1 = ZK4,500)							
MOH HQ	4.4	51.6	29.7	0.1	85.8	288.1	373.9
3rd-level hospitals	57.5	13.2	4.2	—	74.9	—	74.9
2nd-level hospitals	41.2	13.5	4.2	—	58.9	—	58.9
Districts	164.4	142.7	12.7	24.1	343.9	—	343.9
Training institutions	3.8	15.8	—	2.0	21.6	—	21.6
Grants & other payments	—	26.6	—	—	26.6	—	26.6
Total	271.3	263.4	50.8	26.2	611.7	288.1	899.8
FY06 (US\$ 1 = ZK3,500)							
MOH HQ	4.8	67.4	29.1	0.3	101.6	399.8	501.4
3rd-level hospitals	62.2	20.4	2.8	17.5	102.9	—	102.9
2nd-level hospitals	44.7	21.5	2.8	—	69.0	—	69.0
Districts	178.1	123.8	8.4	36.9	347.2	—	347.2
Training institutions	4.1	16.0	—	2.8	22.9	—	22.9
Grants & other payments	—	37.4	—	—	37.4	—	37.4
Total	293.9	286.5	43.1	57.5	681.0	399.8	1,080.8

The resource envelope is still less than the financing required to meet the health MDGs. Several costing studies were recalculated in the IMF “Country Case Study Zambia” (2006) to present all projections in terms of the same baseline GDP and GDP growth used in the FNDP. The results, shown in Table 11, indicate that the annual costs of providing basic care and reaching the health MDGs is in the range of US\$30–32 per capita, or around

Table 11. Range of Cost Estimates to Meet the Health MDGs in Zambia

Basis	Total Cost 2005–2015 in US\$ Million	Average Annual Cost in US\$ Million	Per Capita Annual Cost in US\$	% of GDP (FNDP Projections)
CBOH (2004) + Kombe & Smith (2003) costing	4,444.9	404.0	31.1	2.9
Mphuka (2005) costing	4,403.6	400.3	30.8	2.9
CBOH (2004) + NAC (2006) costing	5,369.1	488.0	37.5	3.5
FNDP Core Costs	4,578.8	416.2	32.0	3.0

3 percent of GDP.³ If the NAC costing on HIV/AIDS interventions are used, the figures rise to US\$37.50 per capita health expenditure, and 3.5 percent of GDP. Recent experience shows that GRZ allocates only about 2 percent of GDP to health, and even projections in the Medium-Term Expenditure Framework do not see the per capita health expenditure and health/GDP ratios rising dramatically anytime. These indicate: the need for closer dialogue between the MOFNP and MOH on what the former allocates to the sector and what the latter sees as the level of resources needed in the sector; and the need for stronger priority setting if the ideal levels of spending and health/GDP ratios cannot be achieved.

Important caveats must be kept in mind in interpreting the above resource requirements. The costing models do not take full account of the likely costs of addressing the human resource crisis, including needed actions on adding posts, filling posts, increasing wages and/or consolidating benefits, and training. Also, the costing models deal mainly with recurrent cost requirements, but as will be shown in the PET/QSDS survey, there are severe deficits in infrastructure, utilities, equipment, and systems as well.

MOH Budget Process and Allocation Formula

The planning and budgeting process was formalized by then-CBOH in 2005, and calls for bottom-up approach in priority setting. According to this formal process, the budget preparation and schedule within the MOH are as follows. Around July, MOFNP issues the overall budget guidelines to MOH, which then transmits them to Provincial Health Offices (PHOs) and District Health Boards (DHBs) and District Health Management Teams (DHMTs). In late July, the DHMTs schedule a briefing meeting with their respective community representatives. The communities discuss their health priorities up until early August, when they collect their proposals and present these draft requests in a meeting at their Health Centers. In early September, all the Health Center requests are aggregated and presented in a meeting with the DHMT. Feedback is obtained, and incorporated into the draft, which gets finalized by the DHMT into an action plan by early October. In late October/early November, DHMTs present their Action Plans to the DHBs. In early November, DHBs submit their Action Plans to the PHO, which reviews it and provides feedback. Any revisions are incorporated in late November. In early December, the Final Plan is submitted back to the PHO. In December, the PHO submits the Final Plan to the MOH.

The budget allocation formulae for health combine equity-enhancing and status-quo-maintaining elements whose overall effects may prevent achievement of greater geographic equity.

- *Districts:* DHBs/DHMTs receive a direct grant from MOH for non-wage and non-drug recurrent spending. The MOH abandoned incremental budgeting for this component of its budget in the mid-1990s when it adopted per-capita allocations to improve equity. In January 2004, further refinement was introduced in the formula by the inclusion of a material-deprivation index (Kabaso and Tembo, 2004). Thus,

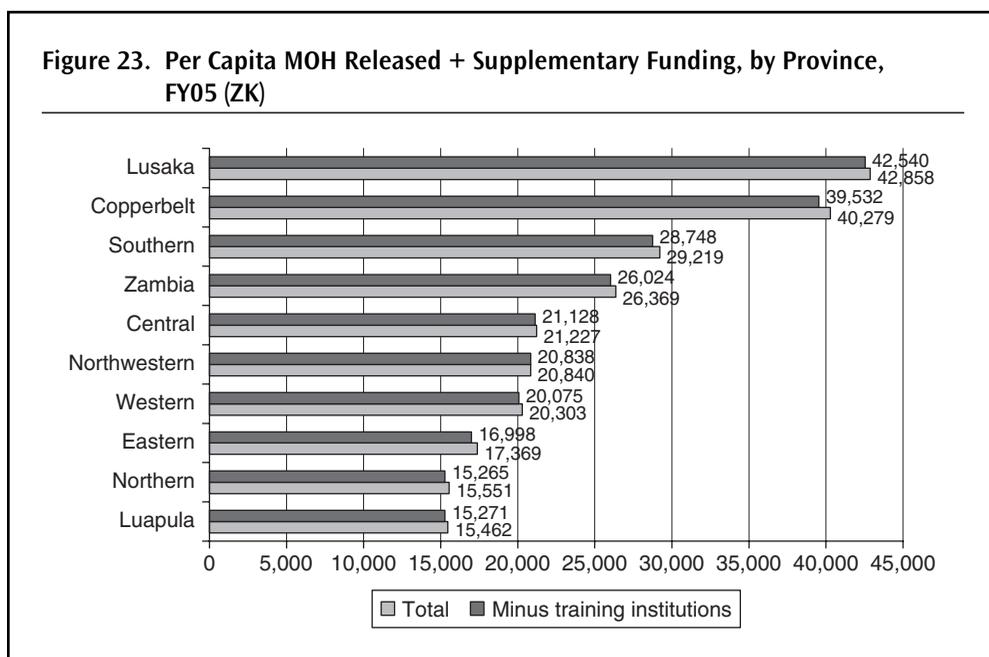
3. The FY06 resource envelope of ZK1,080.8 billion translates to per capita health expenditures of about US\$26.85, using an exchange rate of ZK3,500 per US\$1. However, if the “pre-appreciation” 2005 exchange rate of ZK4,500 is used, this figure goes down to US\$20.90.

the formula for district grants now consist of four variables: population weighted for price of fuel (to reflect the large distances that primary health care workers need to cover), population weighted for epidemics, population weighted against population density (it is cheaper to move around in urban areas), and presence of a bank. Note that the district grant formula only affected 23 percent of the total GRZ + Basket Budget in FY05 and only 18 percent in FY06. So only a rather small percentage of the budget is subject to this equity-enhancing feature.

- *Second- and third-level hospitals:* Allocations to this level of care continue to be based on the health facilities' number of beds (historical budgeting). If the hospitals were constructed not based on some equity considerations to start with—and some of them weren't, especially the mine hospitals which are now under MOH—then the continued use of historical budgeting ignores present-day equity considerations. Indeed, there are quite a few instances where mine and government hospitals co-exist in the same neighborhood (for example, Kabwe).

There have been discussions about hospital allocation especially in light of the MOH's continuing burden of maintaining the mine hospitals, but in practice, formal criteria for second- and third-level allocations that reflect equity and efficiency aspects have not been developed. The planned introduction of a social health insurance program for civil servants should make this an urgent concern. Note also that this "status-quo-maintaining" part of the budget (wage and nonwage allocation for second- and third-level hospitals) ate up 21 percent of the GRZ + Basket Budget in FY05 and 24 percent in FY06.

The persistence of historical budgeting in hospital allocation means that Zambia has not been able to reduce provincial inequities. Figure 23 shows the per capita values of MOH



releases and supplemental funding to provinces in FY05 (total releases as well as total minus releases to training institutions in the province). Three provinces (Lusaka, Copperbelt, and Southern) have per capita releases twice or more than the poorest provinces of Luapula, Northern, and Eastern provinces. Indeed, Lusaka and Copperbelt provinces have almost thrice the values of Luapula and Northern provinces. Note also that the best-resourced provinces in health also happen to be the richest provinces in terms of household income, and the most urbanized, so the MOH allocation merely perpetuates and exacerbates the underlying socio-economic inequity instead of redressing it. The three least resourced provinces have a combined 2005 population of 3.9 million, representing 35 percent of Zambians.

The geographic budget allocation does not do service to the burden of common diseases and indeed runs counter to disease incidence. Figure 24 shows budget release per capita for each province matched against the incidence rates for Zambia’s two common diseases, malaria and pneumonia. The trendlines, especially for malaria (Zambia’s number one leading cause of morbidity and cause of visit to health facilities), graphically depict the inconsistency between resource allocation and need. The same inconsistency can also be shown using charts of service coverage indicators, such as full immunization, institutional delivery, and postnatal care.

Resource planning is not universally undertaken by DHMTs to inform their resource requests. While MOH has long emphasized district planning, a cursory examination of the 21 districts included in the survey showed that at least three DHMTs (Kaoma and Shangomo in Western Province and Lusaka Urban) did not undertake resource planning of the type that would inform accurate resource needs. These districts merely plugged in the same amounts for different health sub-programs into their budgets. Nor is this practice uncommon.

Not all DHMTs in the survey provide the full complement of necessary public health services. Those with “missing” health services (no budget was allocated to them, nor were there any amounts received) are as follows.

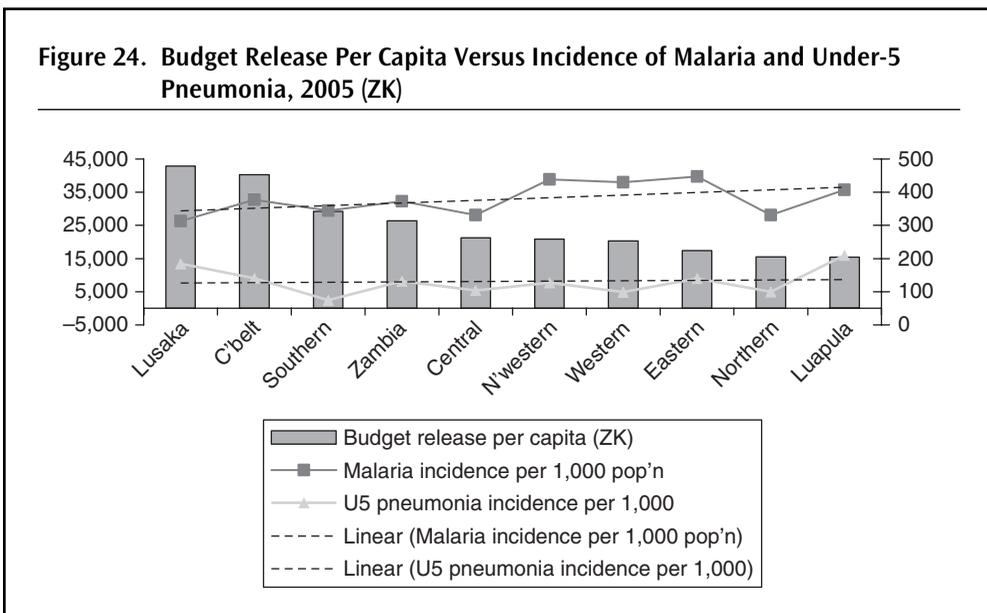
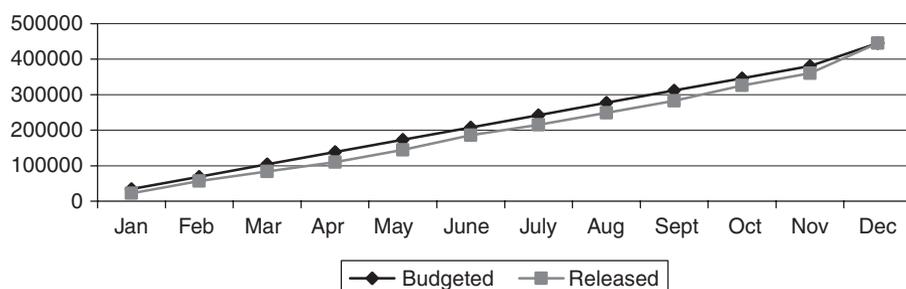


Figure 25. Cumulative Budgeted Versus Released Amounts of Total MOH Budget, by Month, FY05 (ZK Million)



- First referral services—Mufulira;
- Child health—Mufulira;
- HIV/AIDS—Lusaka Urban;
- Malaria—Mufulira;
- Maternal health—Chingola and Mufulira;
- Water and sanitation—Chingola;
- Mental health—Lusaka Urban, Chingola, Luangwa, Kasama, Chinsali, Chilubi, Mpika, Nakonde, Livingstone, Kalomo, Namwala, Siavonga, Sinazongwe, Mongu, and Sesheke; and
- Oral health—Ndola, Chingola, Mufulira, Luangwa, Chilubi, and Sesheke.

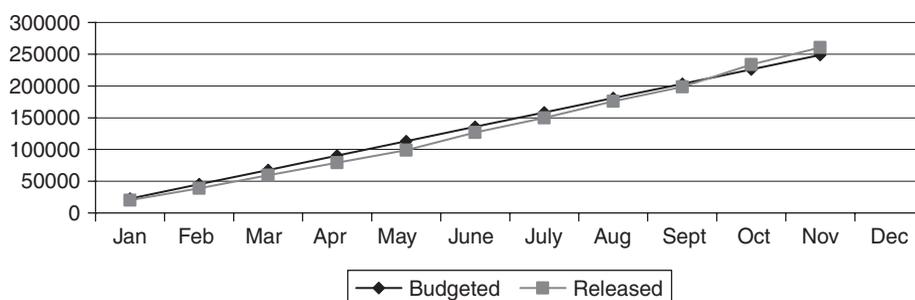
MOH Allocations versus Release of Resources

The “cash budgeting” system in place since 1993 to control government spending and inflation has had a checkered record, but seems to have worked well in 2005, the focus year of the PET/QSDS survey. The system was intended to keep actual spending in line with revenues, and this seemed to have worked well in the early years. However, problems occurred in the first half of 2000s as the government was prone to take on additional expenditure commitments during the year, resulting in large budget overruns and payments arrears. This macro problem manifested in line ministries such as MOH through expenditure squeezes and unpredictability of monthly cash releases, especially on non-wage and capital spending. An IMF assessment (2006) indicates that the cash budget system was in effective operation since 2005, but that adverse shocks occurred again in 2006 due, among others, to the shortfalls in kwacha-denominated donor support because of the large exchange rate appreciation (ZK4,500 to ZK3,500) and election-related spending not included in the budget, both of which adversely affected the MOH.

Overall, MOH budget releases were made in a predictable and timely fashion in FY05.⁴ This is shown in Figure 25. However, there were significant differences in the pattern of

4. The budget release data for this section drew from the work of Mumbwali (2006).

Figure 26. Cumulative Budgeted Versus Released Amounts for Personal Emoluments, by Month, FY05 (ZK Million)



releases across types of budget items (see Figures 26 to 30). Personal emoluments were released very predictably. RDCs were released quite predictably until May, and then they dramatically slackened. Releases for grants began to exceed budgeted amounts starting May, and it continued on this trajectory for the rest of the year. Budget releases for essential drugs were also relatively reliable until May, when they also slowed down. Budget releases for capital expenditures were the most erratic; these budgets were not released until well into the year. Capital budget releases picked up in May but then slackened through the rest of the year. Subsequent analysis for the early part of 2006 also showed similar trends (DfID, 2006).

Provinces and DHMTs received their allocations in full. MOH budget releases exceeded budget allocations in FY05 for all provinces and districts and provinces included in the survey, as shown in Figure 31 and Figure 32.

Figure 27. Cumulative Budgeted Versus Released Amounts for District Grants, by Month, FY05 (ZK Million)

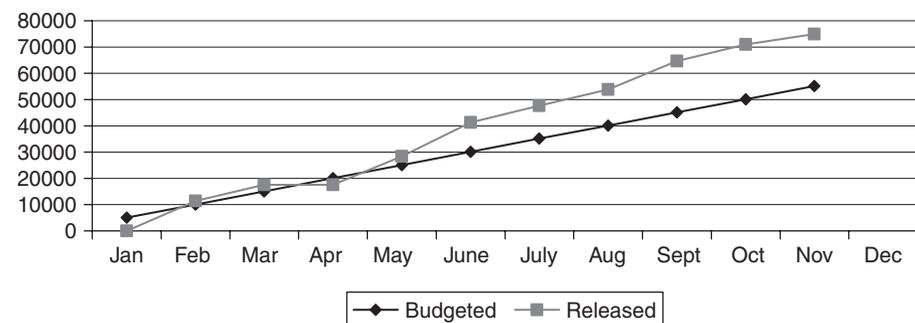


Figure 28. Cumulative Budgeted Versus Released Amounts for RDCs, by Month, 2005 (ZK Million)

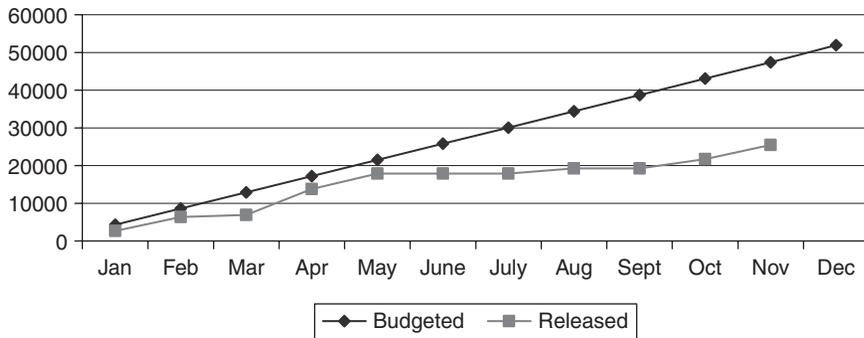


Figure 29. Cumulative Budgeted Versus Released Amounts for Essential Drugs, by Month, FY05 (ZK Million)

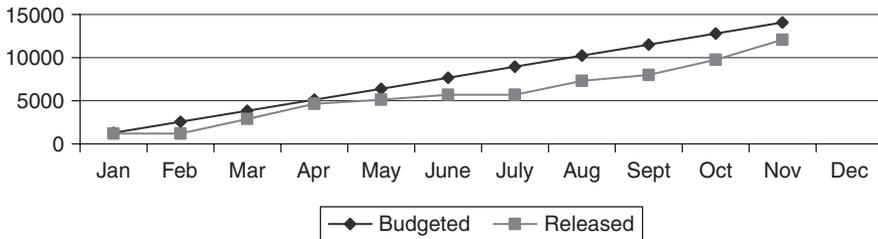


Figure 30. Cumulative Budgeted Versus Released Amounts for Capital Expenditures, by Month, FY05 (ZK Million)

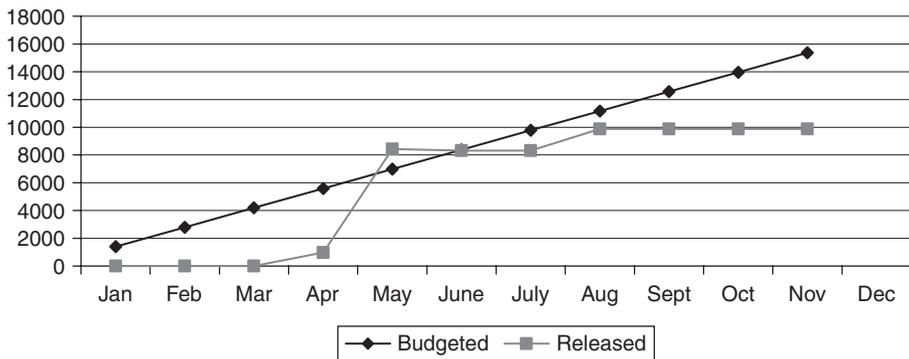


Figure 31. MOH Allocation Versus Releases to Provinces Included in the Survey, FY05 (ZK Million)

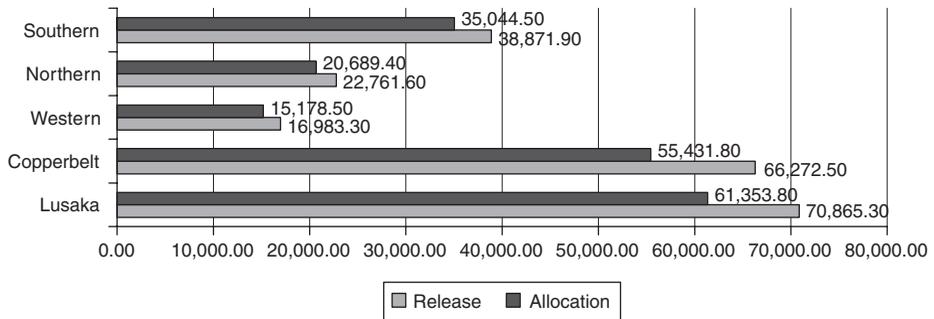
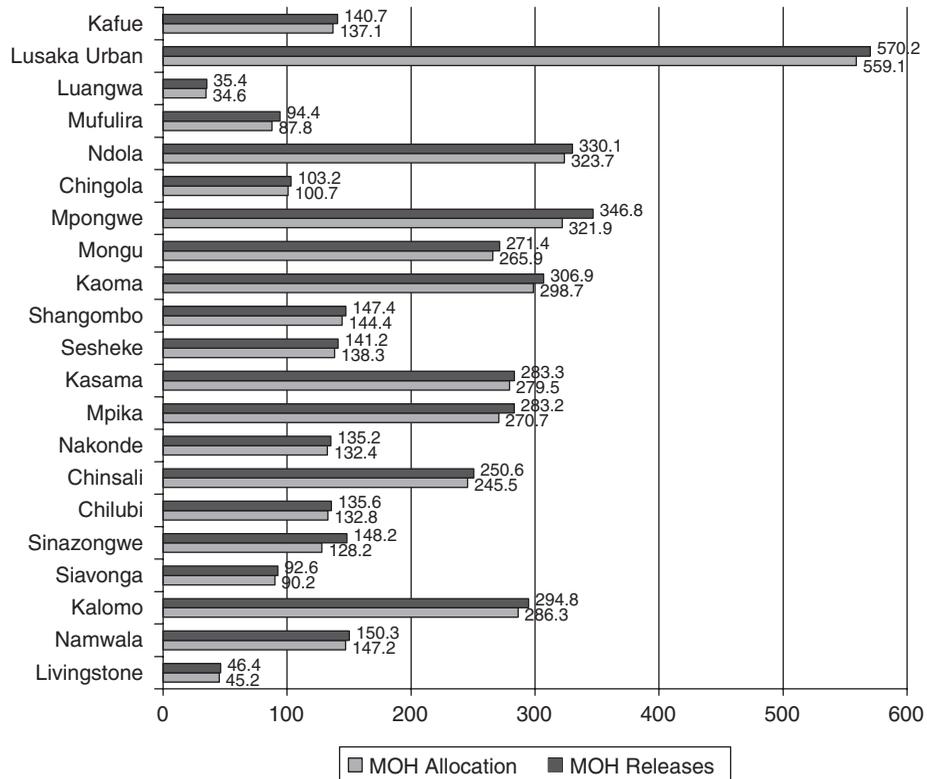


Figure 32. MOH Allocation Versus Releases to DHMTs Included in the Survey, FY05 (ZK Million)



Allocation and Releases of District Grants

Among the different segments of the PET/QSDS exercise, this section provided the least reliable data. Survey response rates were uniformly low across the different types of health facilities. Facility in-charges often did not have solid information, and many did not have a good grasp of the financial figures' orders of magnitude. Even with pretesting, it is clear that the terminologies used were interpreted variously (planned, allocated, released, and so forth) Moreover, there is no clear financial reporting especially at the lower levels. When tallied, survey responses revealed wide variances. Confirming and triangulating the survey results with other existing sources of information showed major discrepancies, and in many cases, there were no corroborating data to begin with. In any case, we report what is "salvageable" with the caveat that caution must be exercised in interpreting the information.

The timing of MOH releases on district grants is predictable. At least for FY05 and early FY06, district grants were provided on time. Indeed, by about the middle of the year in 2005 (May), the released amounts already exceeded the budgeted amounts, as shown in an earlier chart.

More than a third of DHMTs reported delays in the release of district grants to health facilities. Funds are released on a monthly basis from DHMTs to the health facilities. However, sometimes delays occur. Out of the 20 DHMTs queried, seven (or 35 percent) reported delays in releasing funds to the health centers and district hospitals under them, 50 percent did not, and 15 percent provided no categorical answer. However, if the monthly receipts of health centers were cumulated and charted as in Figure 33, the DHMT releases seemed to be predictable (assuming, of course, that health facilities got their district grants in full, which seems to be supported by less-than-robust data). To be sure, the response rate to this question is low. Also, the "actual" figures seem suspiciously in line with the "planned" figures that it is likely the difference between planned and actual receipts were misunderstood, or that some of the enumerators simply divided the annual figures by 12, instead of obtaining the actual monthly figures from facilities. A similar exercise was performed for hospitals and shown in Figure 34, and the same pattern was obtained.

Figure 33. Cumulative Planned Versus Actual Facility Grants by DHMTs to RHCs, by Month, FY05 (ZK Million)

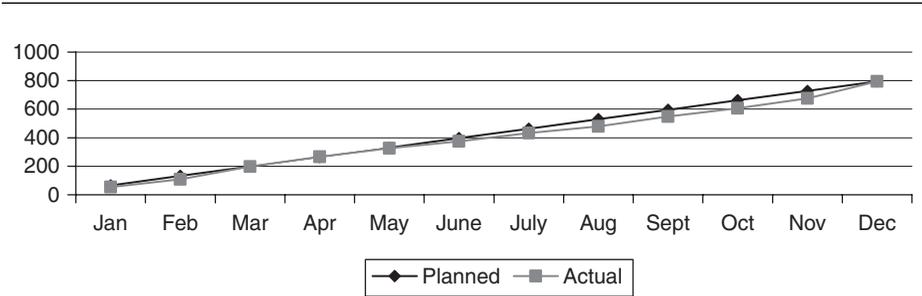
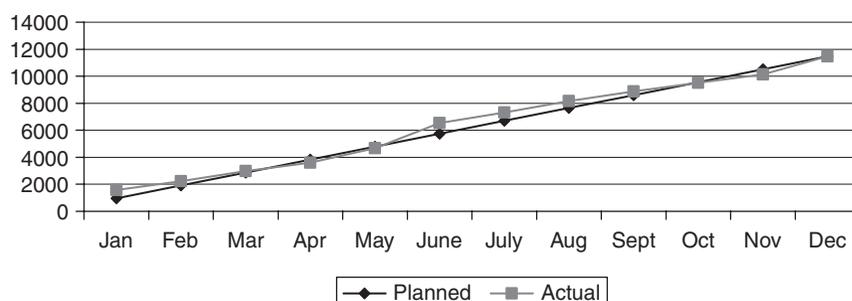


Figure 34. Cumulative Planned Versus Actual Hospital Grants, by Month, FY05 (ZK Million)



How much do DHMTs provide the health centers under their responsibility? Table 12 shows the amount of GRZ budget provided by DHMTs to their health centers, as gathered from the survey. The sizes of health centers, as inferred from the resources they provided, vary greatly. Leaving out the clear outlier districts, a typical health center would receive about ZK35 million to ZK90 million (about US\$8,000–20,000).

Four out of five health centers received the planned amount of resources that were allocated to them by their respective DHMTs. This issue was explored using two questions, the first requiring a simple yes/no answer from the in-charge, and the second asking specific financial figures. Recall that in general, 2005 was a year when the health sector and most of the health programs and facilities received releases more than their original budgetary allocations, as discussed earlier. This is borne out in this survey (Table 13), where 56 percent of health centers received equal to, and another 22 percent received more than, their annual budget allocation (a total of 78 percent for both categories). Thus, only 22 percent of health centers received amounts less than their allocations.

Many health centers and district hospitals could not provide good data that would categorically show that they received the amounts released to them by DHMTs. About 84 percent of health centers reported receiving amounts of releases that were less than a quarter of what their respective DHMTs having paid them. Only 9 percent of the health centers reported having received amounts of releases within 5 percentage points (+ or –) of what their respective DHMTs indicated as having released to them. Finally, about 7 percent of health centers reported receiving amounts more than what the DHMTs indicated releasing, but these may be outliers (caused by data reporting or entry errors) since the observed variations are too large (greater than 200 percent). Figure 35 recovers data that are “cleaner” than most for district hospitals, while Figure 36 does the same for health centers. It would seem from this small sample that 50 percent of the health centers did receive their full allocations while another 50 percent received less than their full allocations.

Table 12. Amount of GRZ Budget Provided by DHMTs to Their Health Facilities, FY05 (ZK Million)

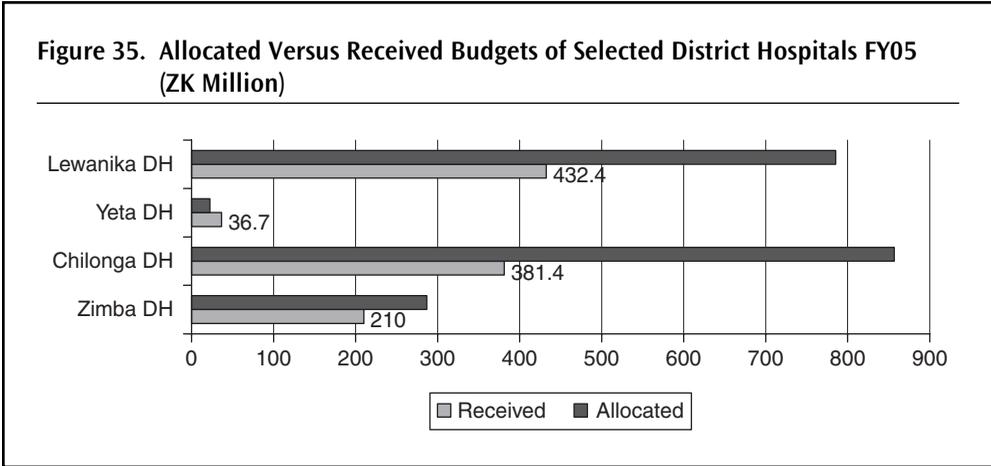
Province	DHMT	No. of Health Centers under DHMT	Total Amount of GRZ Budget Provided to Health Centers (ZK Million)	Average Amount per Health Centers (ZK Million)
Lusaka	Kafue	6	211.9	35.3
	Luangwa	4	37.6	9.4
Copperbelt	Ndola	10	1,016.1	101.6
	Chingola	6	463.3	77.2
Southern	Livingstone	4	665.5	166.4
	Namwala	4	392.9	98.2
	Siavonga	5	31.9	6.4
	Sinazongwe	4	8.8	2.2
Northern	Kasama	7	211.6	30.2
	Chinsali	6	430.4	71.7
	Nakonde	4	857.2	214.3
	Chilubi	4	366.2	91.6
	Mpika	3	217.6	72.5
Western	Sesheke	6	277.7	46.3
	Shangombo	5	446.9	89.4
	Mongu	11	510.8	46.4
	Kaoma	5	210.4	42.1
Total		94	6,356.8	1,201.2
Average		6/district	373.9/district	70.7/HC

How did health facilities actually spend the GRZ resources and basket funds they received? Table 14 shows the expenditure patterns of surveyed health facilities, by type of expenditures.

The absence of banks in many districts necessitates an imprest system where delays sometimes occur. Only 16.2 of the health facilities surveyed had bank accounts: 11.4 percent

Table 13. Health Centers' Responses on Whether They Received an Amount More Than, Equal to, or Less Than Their Annual Allocations, 2006

Allocated vs. Received Amount	RHCs (n = 76)	UHCs (n = 43)	All HCs (n = 119)
Allocated > Received	22%	21%	22%
Allocated = Received	57%	56%	56%
Allocated < Received	21%	23%	22%



among RHCs, 8.3 percent among UHCs, and 47.6 percent among hospitals. These low rates of bank-account ownership, even among hospitals which are located in urban areas, explains the need for an imprest system. Some 86 percent of RHCs, 89 percent of UHCs, and 88 percent of hospitals operate such a system (or 87 percent of all surveyed facilities). Of these facilities having an imprest, only 32 percent of RHCs, 30 percent of UHCs, and 40 percent of hospitals said they received their monthly imprest in a timely manner.

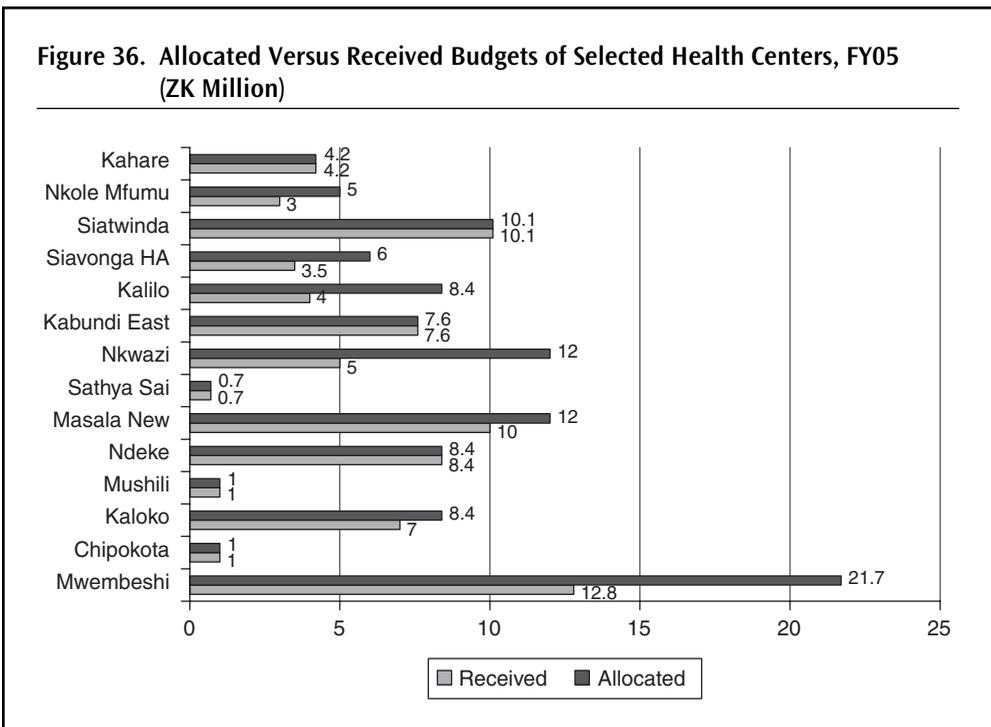


Table 14. Uses of GRZ Budget and Basket Funds by Health Facilities, FY05 (percent)

Expenditures	RHC	UHC	Hospital	All
Personal emoluments	28.4	—	38.0	29.7
Drugs & medical supplies	7.3	10.3	8.4	8.8
Non-medical supplies	4.1	—	5.7	4.4
Workshops, conferences, etc.	7.5	24.1	16.0	17.2
Repairs & maintenance	8.8	21.7	0.3	5.1
Food & catering	6.6	18.0	2.3	5.7
Utilities	2.7	—	4.1	3.2
Fuel & transport	11.6	—	7.6	6.2
Payments for TA, consultancies	1.8	—	—	0.1
General charges	2.7	16.7	8.9	10.1
Payments of debt	—	—	—	—
Capital purchases	0.6	7.1	2.5	3.3
Total	100.0	100.0	100.2	100.0

This means that about two-thirds of health facilities operating on an imprest face delays in financing their operations.

A quarter of the health facilities are indebted. Thirty-two health facilities (or 25 percent of those surveyed) reported having debts of various kinds in FY05 (Table 15). Most of the debts are for transport fuel and electricity and other utilities. More than half of the hospitals and more than a third of the UHCs had debts. Many of these health facilities, including 10 percent of district hospitals and 3–4 percent of health centers borrow from the DHMT to pay off part or the full amount of their debts.

Table 15. Composition of Average Debt Per Facility, FY05 (ZK Thousands)

Items	RHC	UHC	Hospital	All
<i>Composition of debts</i>				
Electricity	52.2	2,205.1	11,813.1	4,301.8
Other utilities	—	14.3	2,264.7	643.2
Transport fuel	440.7	22,535.9	10,033.1	12,805.2
Drugs & medical supplies	—	1,799.4	1,924.8	1,313.4
Food supplies	287.2	26.8	4,202.1	1,274.4
Staff-related debts	55.6	3,767.5	143,597.6	42,050.7
Others	281.1	6,481.8	80,450.4	25,541.5
Total	1,116.8	36,830.7	254,285.8	87,930.3
<i>Health facility borrowings from DHMT to pay off debts</i>				
Median amount	281.1	2,205.1	10,033.1	4,301.8
Maximum amount	440.7	22,535.9	143,597.6	42,050.7

Health Facilities' Management of Vertical Funds

Despite the high visibility of vertical disease funding in the global and national scenes, their presence is not felt strongly by many peripheral GRZ health facilities. Only a tiny minority of health centers reported having received cash or in-kind receipts from these donors/projects. Only 4 percent of health centers have received resources from the Global Fund, and only 1 percent have received support from GAVI, UNICEF, WHO, DANIDA, and AfDB. Strangely, although many of these projects have a public-health orientation, they are far more palpable in hospitals. For instance, 20 percent of hospitals report having obtained support from the Global Fund; 10 percent, from the World Bank; and 5 percent, from the UNICEF. Collectively, only 35 health facilities in the survey (19 RHCs, 11 UHCs, and 5 hospitals) have actually received support from these vertical projects; 110 health facilities have not.

Vertical resources as a proportion of overall resources of the few health facilities that do receive them is significant. For the very few health facilities (35 in the survey) that do receive support from vertical funding, the proportion of such support to total resources available for the health facility is about 15 percent, a not insignificant share. As Table 16 shows, of the 19 RHCs that received vertical support, each received an average of ZK5.8 million. The average amount received per facility rises to ZK50.5 for UHCs, and to a whopping ZK266.2 million for hospitals.

Vertical resources as a proportion of total health facilities' resources are modest. If the same amount of available vertical financing were shared across all health facilities, the average amount going to each type of health facility would be quite low, as shown in the above table. Thus, the dilemma of vertical funding is that by its nature, it needs to focus on a few favored health facilities. This limitation is dictated by two factors: the lumpiness of health investments requires focusing on a few sites, rather than such investments being dissipated in many sites; and the need to show impact requires restricting the interventions and the population coverage. However, in the process, vertical funding leaves a trail of system-wide inequity, with many health facilities being unable to benefit from the large funding. In this study, as much as 80 percent of health facilities (136 out of 171) did not benefit from any vertical support. In this light, basket funding and budget support programs have potentially far more equitable impact.

Table 16. Donors' Vertical Funds Received by Health Facilities, FY05 (ZK Million)

Items	RHC	UHC	Hospital	All
Total amount of vertical financing received	110.215	555.425	1,330.863	1,996.503
No. of facilities that received	19	11	5	35
Average amount for each recipient facility	5.800	50.493	266.173	57.042
All health facilities in the survey sample	90	40	18	171
Average amount if total vertical financing was spread to all facilities in each category of sample	1.224	11.000	73.937	11.675

Table 17. Uses of Vertical Funds by Health Facilities, FY05 (percent)

Expenditures	RHC	UHC	Hospital	All
Personal emoluments	0.6	7.3	2.4	3.1
Drugs & medical supplies	6.4	10.2	8.3	8.5
Non-medical supplies	5.8	18.7	2.2	4.7
Workshops, conferences, etc.	10.2	Negl.	7.4	6.4
Repairs & maintenance	2.3	16.4	8.7	9.7
Food & catering	3.5	Negl.	5.5	4.7
Utilities	28.4	2.5	8.4	7.9
Fuel & transport	1.6	Negl.	Negl.	Negl.
Payments for TA, consultancies	Negl.	Negl.	Negl.	Negl.
General charges	24.5	Negl.	37.2	31.6
Payments of debt	7.6	21.3	0.3	3.5
Capital purchases	2.4	Negl.	4.0	3.3
Others	6.6	23.6	15.6	16.6
Total	100.0	100.0	100.0	100.0

Surprisingly, health facilities have used vertical resources in a broad variety of expenditure categories, although much is still hidden under “general charges.” The results shown in Table 17 somehow casts doubt on the conventional wisdom that vertical resources are inflexible and could only be used for specific and narrow line items. To be sure, each donor imposes its own specific rules on the use of project funds, but it is clear that health facilities have used these resources in more creative ways than originally thought, even for the payment of debts, for instance. Nevertheless, for the most part, the fact remains that vertical financing is often not fungible across a wide range of disease interventions and programmatic uses, and since activities “follow the money,” vertical financing tends to distort national priorities in preference for what global sponsors dictate.

The above discussions dealt only with cash support provided by vertical projects. It did not include in-kind support (drugs, commodities, technical assistance, training, information and management systems, research, monitoring and evaluation, and so forth) that donors support under their vertical projects. It is well-recognized, though not quantified, that these in-kind assistance far outweigh the financial support provided by vertical projects. In this survey, only nine facilities reported having received in-kind support from donors, mostly in the form of medical and non-medical supplies and workshops.

Health Facilities’ Management of Internally-generated Funds

Internally-generated funds (IGFs) are often ignored in public expenditure reviews, but they are an important source of revenue for the health facilities. IGFs include revenues from user fees, prepayment schemes and health insurance reimbursements, referral and medical fees,

Table 18. Internally Generated Funds of Health Facilities, 2005 (ZK Million)

IGFs	RHC		UHC		Hospital		All	
	Total	Ave.	Total	Ave.	Total	Ave.	Total	Ave.
User fees (low-cost & high-cost)	239.7	4.4	1,574.1	47.9	2,676.6	104.1	4,490.5	51.9
Prepayments and health insurance	2.0	Negl.	144.5	4.7	153.9	5.2	300.4	0.5
Referral & medical fees	Negl.	Negl.	341.2	11.0	459.6	18.4	800.8	7.4
Rev. from hospital-affiliated training inst.	Negl.	Negl.	3.4	0.1	3.4	0.1	6.8	Negl.
Income generating projects	19.6	0.4	Negl.	Negl.	37.3	1.5	56.8	1.1
Community donations	Negl.	Negl.	27.4	0.9	579.0	35.3	606.4	Negl.
Others	1.0	Negl.	3.0	0.1	287.2	20.4	291.2	20.2
Total	262.3	4.8	2,093.7	64.6	4,197.0	185.0	6,553.0	81.1

revenues from hospital-affiliated training institutions, income-generating projects (IGPs) of health facilities, and various forms of community donations, including those coming from churches, mosques, and other faith-based organizations, businesses, community-based organizations, and philanthropies. Table 18 shows different types of IGFs generated by each type of health facility.

User fee revenues are the largest source of IGFs of health facilities. User fees account for 91 percent of RHC, 75 percent of UHC, and 64 percent of hospital IGFs. The declining importance of fees in hospitals has to do with their broader base of other IGFs. Thus, prepayments and health insurance, and referral and medical fees, become more significant as one goes up the level of care. Moreover, community donations and a broad category of “others” rise dramatically in hospitals. Aside from fee-based revenues which are governed by official policy, it is unclear how these other significant amounts of IGFs are managed at the facility level, given that these hospitals do not have autonomy.

Zambia abandoned user fees for lower-level facilities (health centers) and for services deemed of a public health nature in 2006. Even before fees were abolished for health centers and for public health services in hospitals, the fee program was already stumbling along. As the survey showed, only 4 percent of RHCs and barely a fourth of the hospitals charged fees. Fee programs were strongest in UHCs where 58 percent of them had formal fee programs generating considerable revenues. In most cases (60–80 percent), fees were set by the district health boards or DHMTs, with informal approval of neighborhood health committees where they exist. Only a fifth of the facilities admitted that “fee rates have always been like this.” Most facilities have copies of the official fee guidelines, although this is not universal. Most facilities also display the applicable fee schedules. However, only very few health facility staff explained to the patients what the fees were for.

Before fees were abolished, a small proportion of rural patients and a large proportion of urban patients paid fees. Table 19 summarizes several features of the fee program in health. Fees for outpatient department (OPD) services is about ZK2,500 for RHCs,

Table 19. User Fee Practices, 2005

Items	RHC	UHC	Hospital	All
% of facilities where copy of official fee guidelines exist	71	73	65	71
% of facilities that displayed applicable user fees	69	71	90	72
% of facilities that charge fees to some categories of patients	4	58	25	23
% of patients who reported staff explained what fees are for	2	12	8	7
% of OPD patients who paid (per Facility Questionnaire)	16	49	8	—
% of OPD patients who paid (per Patient Questionnaire)	6	40	25	—
Ave. amount of OPD fees paid (per Facility Questionnaire)	ZK2,718	ZK3,675	ZK7,886	ZK3,960
Ave. amount of OPD fees paid (per Patient Questionnaire)	ZK2,484	ZK3,791	ZK8,041	ZK4,607
% of patients who paid registration card	8	27	9	15
Ave. amount paid for registration card	ZK403	ZK2,084	ZK2,863	ZK1,807
% of patients who paid separately for supplies not available in facility	1	3	1	2
Ave. amount paid for unavailable supplies	ZK3,346	ZK3,420	ZK3,125	ZK3,328

ZK3,500 for UHCs, and about ZK4,000 to 4,500 for hospitals. There is a very close correspondence between what the patients and the health facilities reported on the fees charged. Even before it was abolished, only a small proportion of patients (less than 10 percent) paid OPD fees in RHCs; this proportion shoots up in UHCs where as much as 40–50 percent of the patients pay. Strangely, the proportion of paying patients drops in hospitals, where only about 8–25 percent of patients pay, depending on whether the information is obtained from the patients themselves or the hospital. In addition to the fees themselves, some patients are asked to pay the registration card (presumably for first-time patients). In even rarer cases (1–3 percent), patients pay separately for supplies not available in the health facility. Drugs and other supplies are in shortage in many health facilities, and patients often buy these outside the clinics. The low percentage of this phenomenon in the survey can only be explained by the fact that the patients are still in the health facility when they were interviewed, and have not actually bought the missing drugs and supplies, if ever.

Revenue retention was not universal. Full fee retention at the point of service and collection is still not universal in Zambia, even in hospitals. Only 39 percent of facilities surveyed retained 100 percent of their fee revenues (Table 20).

Fee revenues are mostly used for staff enhancements. Table 21 shows that almost 47 percent of user fees and other internally generated funds were spent on personal emoluments and capacity-building activities (workshops, and such) that have a salary-augmenting effect on health workers. RHCs are less prone to resort to these two activities (36 percent), compared to hospitals, which use up more than half (54 percent) of their revenues on

Table 20. Percent of Health Facilities' Rate of Retained Fee Revenues, FY05 (percent)

Rate of Fee Retention	RHC	UHC	Hospital	All
100 percent	41	29	50	39
75 percent	6	13	—	8
50 percent	1	9	5	4
25 percent	4	13	—	6
0 percent	29	20	5	23
No response or D.K.	19	16	40	20

“salary-augmenting” items. UHCs do not directly use their fees for PE, but still use up nearly a quarter of these revenues on workshops. None of the fee revenues was ever spent on the payment of facility debts, although a modest portion was used for utilities (3 percent) and fuel and transport (6 percent). About a tenth of these revenues were used to purchase drugs and medical supplies, and another 4 percent for non-medical supplies.

The measurement of leakage in user fee program is highly reliant on “self-reported” assumptions that are tenuous and prone to variability. Table 22 puts together various assumptions derived from the survey in order to compare actual versus expected fee revenues. One presumes that if actual revenues are less than expected revenues, then there must be leakage. In this case, however, expected revenues are well within the actual revenues reported by health facilities, by a significant factor. It is clear that this arithmetic method, though useful, is not strongly reliable. A careful study and audit would be necessary to conclude whether or not the fee program leaks resources.

Table 21. Uses of User Fee Revenues by Health Facilities, FY05 (percent)

Expenditures	RHC	UHC	Hospital	All
Personal emoluments	28	—	38	30
Drugs & medical supplies	7	10	8	9
Non-medical supplies	4	—	6	4
Workshops, conferences, etc.	8	24	16	17
Repairs & maintenance	9	22	0	5
Food & catering	7	18	2	6
Utilities	3	—	4	3
Fuel & transport	12	—	8	6
Payments for TA, consultancies	2	—	—	Negl.
General charges	3	17	9	10
Payments of debt	—	—	—	—
Capital purchases	1	7	3	3
Total share	100	100	100	100

Table 22. Expected Versus Actual User Fee Revenues for OPD, FY05 (ZK Million)

Items	RHC	UHC	Hospital
Ave. no. of OPD patients per month	368	663	317
Proportion of patients paying user fees	.16	.49	.08
No. of patients paying user fees per month	59	325	25
No. of patients paying user fees per year	707	3,898	304
User fees (ZK)	2,718	3,675	7,886
Expected user fee revenues per year, ZK Million (a)	1.922	14.327	2.400
Proportion of patients paying registration card	.08	.27	.09
No. of patients paying card per month	29	179	29
No. of patients paying card per year	353	2,148	342
Registration card (ZK)	403	2,084	2,863
Expected revenues from regist. card per year (b)	0.142	4.477	0.980
Expected total fee revenues per year, ZK Million (a + b)	2.064	18.804	3.380
Actual low-cost user fee revenues, average, FY05	4.332	29.612	76.316

Overall Resource Availability at the Facility Level

Zambia's fragmented health financing system requires an effort to put together a comprehensive picture of each typical facility's sources of funds. Table 23 summarizes the findings of the expenditure tracking in terms of the various sources of financing and how they end up at the service delivery level. Still, the table is full of caveats. For GRZ, PE is not always included in the DHMT grant, but lies outside it for a number of facilities and districts. Drugs often come in-kind as drug kits, and weren't monetized and included in the table. The imprest system is the purview of the DHMT/DHO, and it is hard to track how much of the resources go specifically to the facility requesting such imprest. Vertical projects often provide in-kind resources, which cannot be monetized. Thus, although the table below is comprehensive, it still not comprehensive enough.

Table 23. Level of Annual Resources at the Facility Level, by Major Sources, FY05 (ZK Million)

Sources	One Typical RHC		One Typical UHC		One Typical Hospital		One Typical Facility	
	Amt	%	Amt	%	Amt	%	Amt	%
GRZ allocation	27.145	72.4	19.427	19.9	575.110	52.5	113.366	44.7
Basket funds	4.358	11.6	2.625	2.7	261.189	23.8	47.464	18.7
Internally-generated funds	4.783	12.8	64.649	66.2	184.968	16.9	81.101	32.0
Vertical projects	1.224	3.3	11.000	11.3	73.937	6.8	11.675	4.6
Total	37.510	100.0	97.701	100.0	1,095.204	100.0	253.606	100.0

Table 23 shows that UHCs rely heavily on internally-generated funds, specifically user fees. This may be a response to the surprisingly low financial support they obtain from GRZ and basket funds allocation. Alternatively, it could also be hypothesized that such allocations are small because of the anticipated large expected fee revenues every year. Also, vertical projects are a minor factor in a typical RHC. These projects tend to provide greater support, in relative terms, to UHCs and hospitals, in contrast to their often-banded public-health and rural orientation.

The State of Health Facilities and Services: Results of the Quality of Service Delivery Component of the PET/QSDS, 2005–06

This chapter presents the results of the quality of service delivery component of the PET/QSDS. A full-blown report providing the detailed results of the PET/QSDS was written separately,⁵ and only the summary is provided in this chapter. The first section deals with infrastructure, utilities and equipment; the second with health personnel; the third with drugs and other medical consumables; and the final section with clinic and patient management.

Management of Infrastructure, Utilities, and Equipment

The Zambian National Health Accounts show that over the past years, MOH has devoted low level of spending to capital. While for-profit health facilities spend as much as 5 percent of their resources on capital expenditures (capex), MOH facilities only spend 2–4 percent. Primary MOH facilities have witnessed increasing allocation to capex, where its share consistently rose from 2 percent in 1999 to 5 percent in 2004. However, for both secondary and tertiary facilities, this share has been irregular and has tended to decline, from 5 percent in the early 2000s to 1–2 percent in the mid-2000s. For FY05, the data on MOH releases show that capex was squeezed midway through the year. In contrast to these trends, MOH dramatically increased capital spending in the 2006 budget, perhaps in an effort to arrest further erosion of its capital estate.

The PET/QSDS provided a graphic picture of the gravity of problems with the health sector's capital assets. Despite their age, most of the health facility buildings appear to be

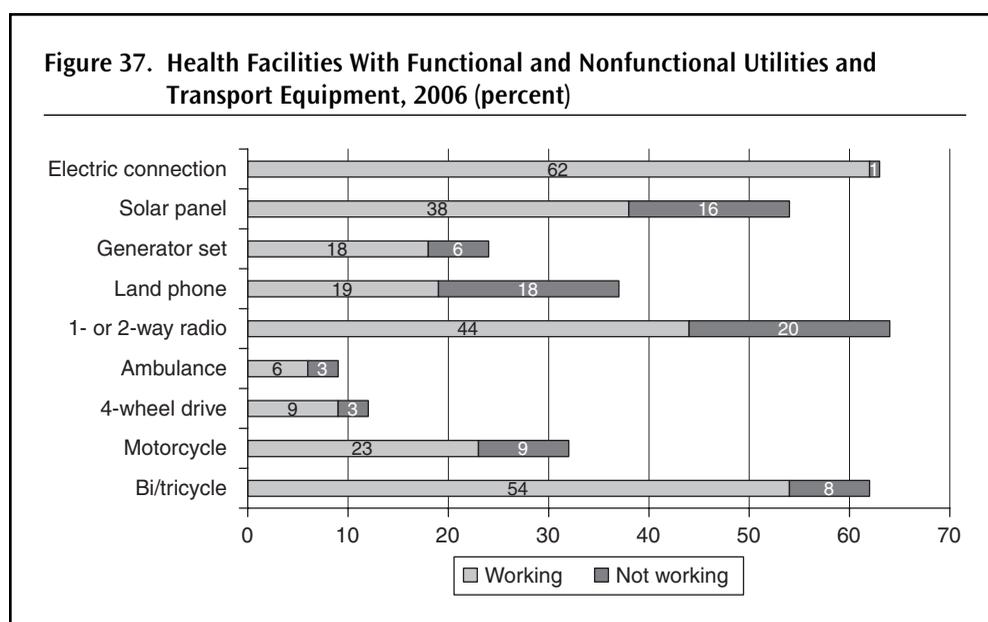
5. "Zambia Public Expenditure Tracking and Quality of Service Delivery Survey in the Health Sector: Findings and Implications." MOH, UNZA, WB, and SIDA.

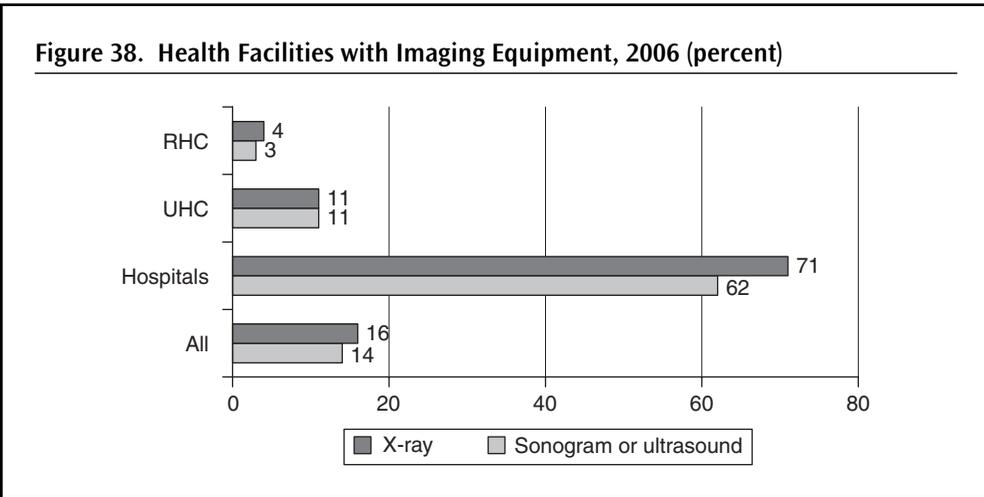
in good shape, and most are maintained in hygienic condition by the staff. However, significant deficits exist in many areas.

- Less than half (43 percent) of RHCs and only 82 percent of hospitals have electric connection. Only UHCs have almost universal access to electric power (95 percent).
- Serious transport handicaps exist, especially in RHCs, where only 5 percent of them have a car, ambulance, or animal-drawn vehicle. Roughly 30–40 percent of hospitals do have these, and 62 percent have a 4-wheel drive.
- For communications, most facilities rely on land-based phone and/or 1- or 2-way radios that often conk out. Electronic connectivity is extremely low (only 7 percent of health facilities have e-mail); but even in mostly-urban hospitals, electronic connection is low (27 percent).
- Only 62 percent of hospitals have incinerators, and only 32 percent of UHCs and 24 percent of RHCs have them.
- Only half of the facilities have a mothers' waiting area.

The high rates of nonfunctional utilities and transport equipment erode actual access to them. Capital assets with high rates of non-functionality include solar panels, generator sets, land-based phones, 1- or 2-way radios, and bicycles and motorcycles (Figure 37). Hospitals have high rates of nonfunctional transport: one out of three hospitals have nonworking ambulance; one out of three hospitals have nonworking four-wheel drives; one out of seven hospitals have nonworking trucks; and one out of five hospitals have nonworking motorcycles. Clearly, asset maintenance needs to be given greater budget allocation and management attention.

Many hospitals continue not to have the complete complement of medical equipment. Only 71 percent of hospitals have an x-ray and only 62 percent have a sonogram machine





(Figure 38). In general, a little more a two-thirds (67–76 percent) of hospitals have anesthetic equipment, blood bank, oxygen supply, and laboratory equipment. Thus, around a third of the hospitals continue to operate without these basic imaging and other medical equipment.

Medical equipment and instruments are better maintained than non-medical equipment. Health facilities had surprisingly low rates of nonfunctional medical equipment. Only 2–4 percent of health facilities reported non-functioning medical equipment in their possession, such as x-ray, sonogram, refrigeration equipment, anesthetic equipment, laboratory equipment, blood bank, and oxygen supply (Figure 39).

Large demand exists for medical instruments by RHCs. Rural health centers are clearly the least provided among the three types of health facilities included in the survey. Because

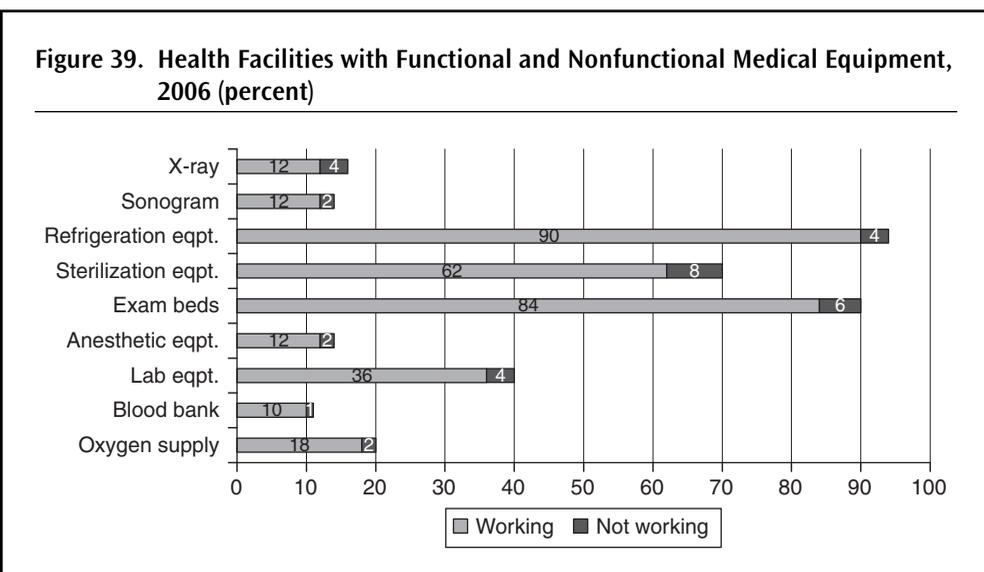


Table 24. Health Facilities Reporting Inadequate Medical Equipment, Instruments, and Lab Test Supplies, 2006 (percent)

Items	RHC	UHC	Hospital
X-ray	33	75	33
Sonogram	50	50	23
Lab equipment	54	56	50
Anesthetic equipment	—	—	53
Blood bank	—	—	43
Oxygen supply	—	—	64
Height measuring device	54	45	19
Microscope	74	55	10
Audioscope	87	68	33
Surgical instruments for ob-gyne	57	66	19
Gowns and protective clothing	54	50	14
Malaria smear	76	58	14
Urine test strip	81	74	19

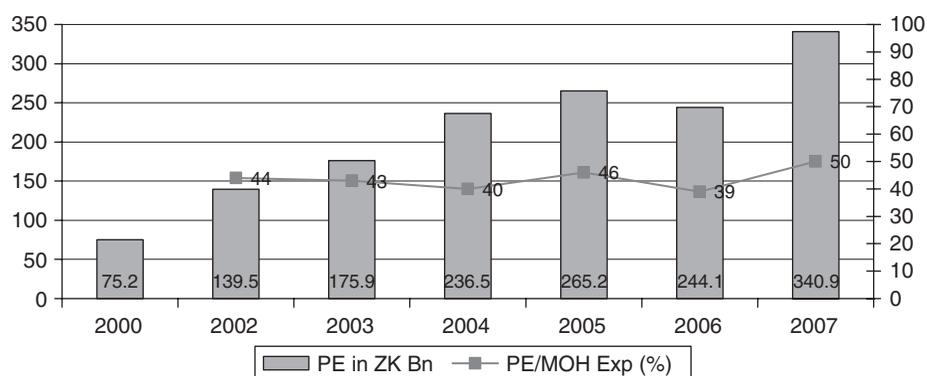
of the large inadequacies at this level, RHCs expressed the highest demand for such items as height measuring devices, microscopes, audioscopes, surgical instruments for ob-gyne, gowns for protective clothing, malaria smears, and urine test strips (Table 24).

Management of Health Personnel

MOH personnel expenditures steadily increased in nominal levels until 2005; it dipped in 2006 but is expected to rise dramatically to ZK340.9 billion in 2007. Reflecting these trends in absolute levels, PE as a share of MOH expenditures peaked at 46 percent in 2005, and fell to 39 percent the following year (Figure 40), although it is estimated to garner 50 percent of the MOH's budget in 2007, the highest-ever share. MOH PE/GDP is about 1 percent of GDP.

The vacancy rates are undeniably high at 33.5 percent (even higher at 41.4 percent for clinical staff; see Table 25), and the rapid staff turnover especially at RHCs has become untenable. For this reason, the HRH Strategic Plan (2006–11) suggests a substantial increase in recruitment and in staffing establishments. The PET/QSDS, however, showed that skewed patterns persist in established posts (for example, the burden of having “on the books” so many low-skill posts in RHCs, and so many administrative posts in UHCs, as shown in Table 26). The staffing pattern as reflected in these established posts need to be carefully reviewed before any large-scale recruitment. This is all the more important because as shown in the NHA analysis, MOH facilities are far more labor-intensive than either mission or for-profit facilities, even with the large shortage of MOH workers. Alternatively, MOH should set explicit criteria on the types of posts/cadres that should be filled or created as urgent, i.e., professional staff and critical administrative staff in rural areas. Failing to do so would result in bloated administrative and low-skill cadres (because they are easier to fill)

Figure 40. Personnel Expenditures in MOH Budget and Share of Personnel Expenditures to Total MOH Expenditures, 2000–07 (ZK Billion and percent)



even as professional staff may continue to be in short supply. It would also seem reasonable that, given the increasing share of health expenditures going to administration (as shown in the NHA analysis), central MOH HQ should receive less priority in recruitment.

Half of the staff surveyed complained of the workload, and very little time is being devoted to patient care. About 47 percent of health workers claimed working long hours.

Table 25. Vacancy Rates in Health Facilities, by Cadre, 2006 (percent)

Cadre	RHC			UHC			Hospital		
	No. of Estab Posts	No. of Vacant Posts	% of Posts Vacant	No. of Estab Posts	No. of Vacant Posts	% of Posts Vacant	No. of Estab Posts	No. of Vacant Posts	% of Posts Vacant
Doctors	11	10	91	58	22	38	85	50	59
Clin officers	110	64	58	136	59	43	111	59	53
Medical licentiates	15	13	87	12	5	42	24	18	75
Midwives	109	55	50	282	90	32	179	63	35
Nurses	215	92	43	577	131	23	695	344	49
Env health officers	76	30	39	37	9	24	14	6	43
Pharma, etc.	18	12	67	34	7	21	37	17	46
Dentists, etc.	13	13	100	44	9	20	23	9	39
Lab, x-ray tech, etc.	15	12	80	48	13	27	76	37	49
Physio, etc.	8	8	100	15	3	20	47	34	72
Administrative staff	48	24	50	280	24	9	215	79	37
Other staff	292	55	19	485	62	13	594	152	26
Total	930	388	42	2,008	434	22	2,100	868	41

Table 26. Established Posts and Average Number of Actual Staff by Major Occupational Groups, 2006

Staff	RHC		UHC		Hospitals		All	
	No.	%	No.	%	No.	%	No.	%
Established Posts								
Prof'l/clinical staff	590	63.4	1,240	61.8	1,291	61.5	3,124	62.0
Administrative staff	48	5.2	280	14.0	215	10.2	543	10.8
Non-clinical, non-administrative staff	292	31.4	485	24.2	594	28.3	1,371	27.2
Total	930	100.0	2,005	100.0	2,100	100.0	5,038	100.0
Average Number of Staff								
Prof'l/clinical staff	5	57	25	60	52	58	16	57
Administrative staff	0	0	6	14	8	9	3	11
Other staff	4	44	11	26	30	33	9	32
Total	9	100	42	100	90	100	28	100

Long hours of work, however, could not take the place of an “extra hand.” The overall effect is that the available time of available workers is being rationed to patients, and so the amount of time being spent on patient care is being squeezed, given that there are other competing tasks that the health worker has to do (Figure 41). The shorter time spent on patients has implications on quality that have not been analyzed. Moreover, the long hours worked manifests itself negatively in the following day as tardiness (due to their being “on-call” the previous night) and tiredness, in a persistent and vicious cycle.

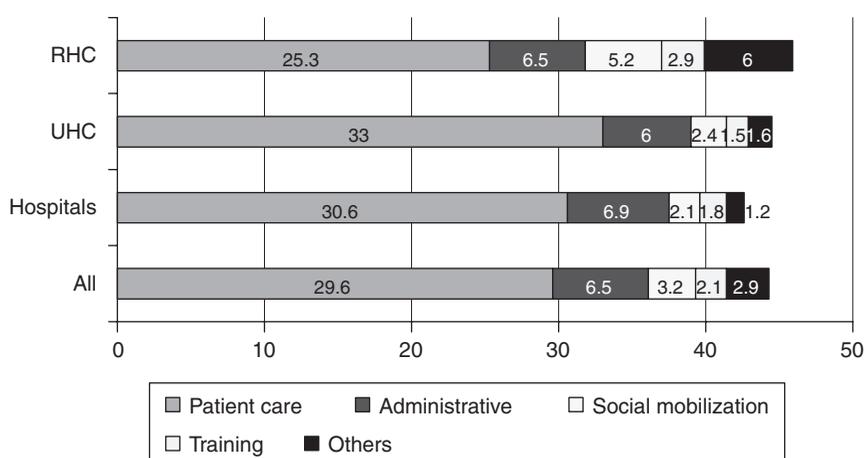
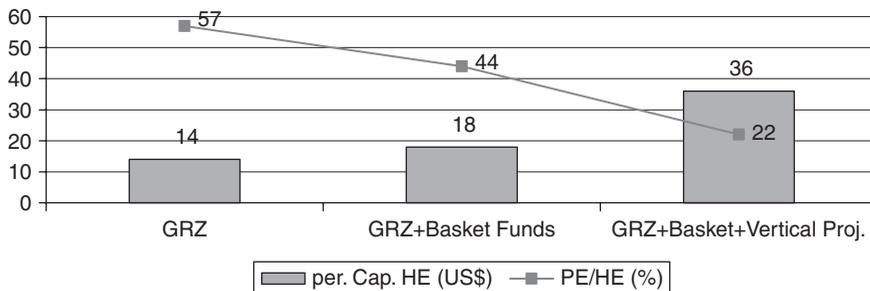
Figure 41. Average Number of Hours Worked in a Week by Type of Task, 2006

Figure 42. Per Capita Health Expenditures and Share of Personal Emoluments to Health Expenditures, 2006 (US\$ and percent)



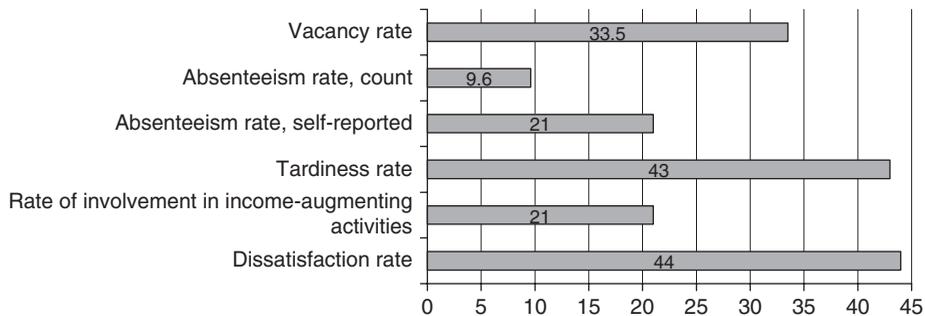
Note: The data and table are borrowed from Par Eriksson of SIDA who presented these data during the HR Roundtable in Zambia in 2006, held at the Swedish Embassy.

Paradoxically, the MOH and mission facilities' HR shortage is worsening at a time when the health sector is being flooded with donor resources. The causes are obvious, though not often heeded.

- First, vertical projects rarely, if ever, provide direct salary support (although some do provide allowances in various forms, and “top-ups” for selected staff). Belatedly, the Global Fund through Round IV has allowed the funding of health systems strengthening including human resource development. (Curiously, the Global Fund has funded NGO project staff from the very beginning, but not government staff.) Indeed, most of the other large vertical initiatives (such as PEPFAR) lie outside the purview of government, even though they involve the MOH service delivery system and rely on MOH health workers.
- Second, the basket-funding cooperating partners still haven't created a fund to support personal emoluments directly.
- Third, MOH has been unable to adjust to the emerging era of budget support that could have increased the funding for human resources overall, preferring instead health-sector-specific support that it can control (IMF 2007). Moreover, efforts in the 1990s to de-link health workers from the civil service so that they can be provided higher salaries failed.
- The combined result of these trends is depicted starkly for the year 2006 in Figure 42. As total per capita health expenditures increase with the addition of more funding into the health system, the proportion of PE to total health expenditures declines (even as the proportion of PE to MOH expenditures increases, as mentioned above). In short, it is the inability of the basket funds and vertical financing to formally⁶ finance PE that causes “so much money chasing so few workers.” The imbalance in

6. The word “formally” is important, because as was shown in the chapter on “Budget Allocation, Release and Spending,” vertical funds are being used by health facilities to incentivize health workers through one form or another.

Figure 43. Summary Rates of Staff Vacancy, Absenteeism, Tardiness, Involvement in Income-Augmenting Activities, and Dissatisfaction, 2006 (percent)



this factor ratio has not been properly analyzed, including its tendency to inflate wages in the “flexible-wage” sector (NGOs, contractors) vis-à-vis the “fixed-wage” sector (government, missions). Indeed, a proper labor dynamics analysis is needed.

Absenteeism and tardiness severely restrict the actual number of full-time equivalent (“real”) workers, and these twin problems must be tackled head-on (see Figure 43). Based on staff count, some 9.6 percent of staff were not in the health facility during the survey. Absenteeism was highest among doctors (31 percent), clinical officers and medical licentiates (20 percent), nurses and midwives (14 percent), and other clinical staff (14 percent).⁷ However, the rate of self-reported absenteeism was higher, with 21 percent of staff admitting having been absent at least once during the previous month of the survey; five days was the average number of days’ absent. Self-reported tardiness was also high (3 percent overall) at an average of four days’ absence per month. Human resource discussions in Zambia have overly focused on the need to fill vacancies, and have relegated the issue of staff absenteeism and tardiness to the background. The rates of absenteeism and tardiness derived from the PET/QSDS imply a total loss of 4,108 working days per month. Thus, if absenteeism and tardiness were fully eliminated, Zambia would gain virtually 187 full-time equivalent staff, enough to staff 2 hospitals, or 4 UHCs, or 21 RHCs. HR systems need to have a better handle on the absenteeism and tardiness problems, and how to deal with it.

7. The high rate of absenteeism among health workers is not unique to Zambia. Indeed, it is pretty common in the developing world. For primary health facilities, Reinikka and Svensson (2006) find the rates of absenteeism to be as high as 35 percent in Bangladesh, 27 percent in Honduras, 40 percent in the 19 states of India, 40 percent in Indonesia, 19 percent in New Guinea, 23 percent in Peru, and 37 percent in Uganda. Lindelow (2006) reports 19 percent absenteeism rate in Mozambique. Absenteeism studies and methods need to be standardized: it matters whether the survey team announces or not their visit to the health facility. In the case of the Zambia PET/QSDS, the visit of the survey team was announced, which could explain the relatively lower absenteeism rate compared to the other countries. However, the health worker survey found higher rates of self-reported absenteeism.

Figure 44. Composite Monthly Salaries and Allowances of Clinical/Professional Health Workers, 2005 (ZK Million)



An overall wage strategy is needed. The salary structure is highly compressed (see Figure 44) and although the allowance system has given a reprieve in decompressing such structure, it is not the best way of dealing with the problem. While the retention scheme was a right stop-gap measure at the beginning of the human resource crisis, it involved only a tiny minority of staff. The fragmented cash allowance and in-kind benefit system need to be consolidated. The wide variety of allowances and benefits only caters to a small segment of the health workforce, and it is difficult to forecast the budget implications of such a wide range of benefits.

GRZ salary management needs to be strengthened. The PET/QSDS revealed a number of weaknesses in this system, including the following:

- *Inconsistency in the number of posts actually filled:* If reckoned as a residual of vacant posts, the filled posts from the survey would be 3,348 staff. However, if reckoned in terms of staff count from the absenteeism component of the survey, the filled posts would total 3,885 staff. The difference between these two figures is 537 staff.
- *Nonreceipt of the full amount of salaries:* About 15 percent of staff did not get all their salaries in the previous 12 months (Table 27), a higher percentage of them in hospitals. The unpaid salaries for these staff can be as high as 3–5 months.⁸

8. Studies on unpaid salaries of civil servants in the developing world are few. In Kogi State, Nigeria in 2001–02, the average number of months that salaries were unpaid was 5 months for all health workers. It ranged from 1 month in Ogori Magongo District to 10 months in Dekina District (Das Gupta, Gauri, and Khemani, 2003).

Table 27. Salary Management, 2006

Percent of Staff	RHC	UHC	Hospital	All
% of staff who received all salaries due the past 12 months	85.4	87.7	82.3	85.4
% who did not receive all salaries due the past 12 months	14.6	12.3	17.8	14.6
Ave. no. of months not paid	4	3	5	4
% who received all salaries on time	28.7	16.7	19.8	21.9
% who experienced delays in receipt of salaries	71.3	83.1	80.2	78.1
Ave. no. of months delay	1	1	1	1
% who received salaries in cash	11	10	10	10
% who had salaries automatically deposited in the bank	88	90	90	90
% who received all salaries net payable	90.9	86.0	75.0	84.5
% who received less than net payable salary, without consent or understanding	9.1	14.0	25.0	15.5
Ave. amount of salary missing (ZK)	72,444	239,133	244,278	189,015
% who recovered missing portion of salary	18	0	25	21
% who paid "expediter's fee" to obtain salary	6	8	13	10

- *Delay in the receipt of salaries:* Most staff (78.1 percent) experienced delay of about one month in receiving their salaries. A third of those who experienced this problem said it is due to "systemic delays," and half cited "other reasons."
- *Unauthorized deductions in salaries:* About 15.5 percent of staff received an amount less than their net payable salary without their consent or understanding. This is highly prevalent in hospitals where 25 percent of staff cited this problem. The missing portion of salaries is not an insignificant amount: it averaged ZK189,015, and the missing amount tends to be higher in hospitals compared to health centers. About 21 percent of staff who experienced this problem reported they eventually recovered the missing portion of their salary.
- *Payment of "expediter's fee" to obtain salaries:* A tenth of the staff reported paying a facilitation fee to obtain their salary; this problem occurs mostly in hospitals. One can surmise that this problem occurs among those staff who continue to receive salaries in cash (10 percent of staff), since the salaries of most staff (90 percent) are automatically deposited into their bank accounts.

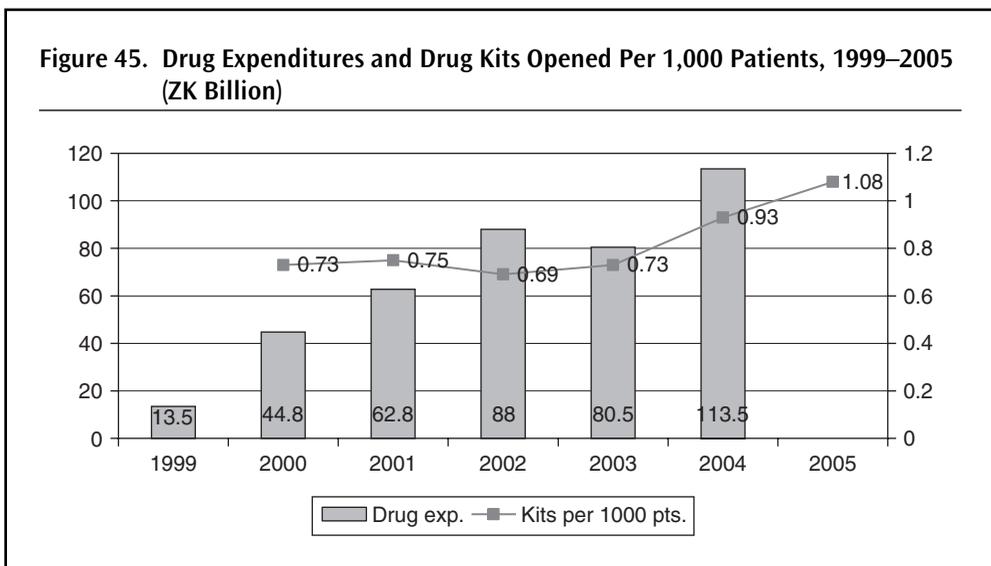
Due to time limitations, staff productivity was not assessed in this study. However, it is critical that this be done (the raw data already exists from the PET/QSDS) to understand better the input-mix of service provision, and to provide better evidence on how health workers should be incentivized.

Management of Drugs and Other Medical Supplies

The visible improvement in drug availability could be reversed with the surprisingly sharp decline in the drug budget for FY06. Since the early 2000s, the drug budget has been increasing, and this has resulted in a positive impact on drug availability as drug kits opened per 1,000 population rose steadily since 2002 (Figure 45). Thus, it is surprising that for FY06, the MOH + Basket Fund Budget slashed drug allocations by as much as 15 percent, with the districts bearing the brunt of the reduced allocations by as much as 34 percent. These budget reductions come at a time when health facilities are still smarting from very visible drug shortages as will be documented in this section.

The PET/QSDS data revealed the following drug distribution problems:

- Although MSL drugs are supposed to arrive on a predetermined schedule, more than a third of the districts reported *delays* in receiving drug kits, some as frequently as seven times a year. The drug kits arrive relatively on-schedule in hospitals, but a third of the UHCs and RHCs experience delays.
- Evidence of *drug diversion* can be inferred in 25 percent of the facilities receiving drug kits in excess of what DHMTs claimed they distributed, and 39 percent of facilities receiving drug kits fewer than what DHMTs claimed they distributed. Only 36 percent of facilities reported exactly the same amount that DHMTs reported they distributed.
- Essential and life-saving drugs are *widely unavailable*. Coartem, a malaria drug, was out of stock on average for as long as 9.5 weeks in RHCs while ampicillin, an antibiotic, was out of stock on average for 7.4 weeks in UHCs. Life-saving drugs such as insulin and dextrose were also unavailable in many hospitals during the survey, although their lengths of stock-out were shorter.



Note: The drug expenditure data were taken from the NHA series, as broken down into primary, secondary, and tertiary facilities. It is likely that this series also included expenditures from vertical projects, which are not included in the GRZ + Basket Funds budget.

- More than half (55 percent) of hospitals and about half (46 percent) of RHCs reported having *expired drugs*. Inappropriate drugs were less of a problem; still, 14 percent of all health facilities reported having them.

Clinic and Patient Management

Actual capacity of facilities to deliver health services falls short of their self-reported capacity. Health facilities tend to be over-optimistic about their capacity to provide care. For instance, health centers consistently pride themselves in being able to deliver basic services such as family planning, antenatal and postnatal care, child immunization, child health/IMCI, and adult malaria treatment and diagnosis. Some 93–100 percent of RHCs and UHCs reported their ability to dispense these. However, using availability data on drugs, consumables, equipment, and instruments from the survey, it is clear that actual capacity is several percentage points lower than claimed capacity. Using indicators on the availability of drugs, vaccines, and key consumables, it can be shown that:

- Only ~87 percent of RHCs and ~95 percent of UHCs could provide family planning services (rather than the self-reported 98 and 100 percent, respectively);
- Only ~89 percent of RHCs and ~84 of UHCs could provide antenatal and postnatal care (rather than the self-reported 99 and 95 percent, respectively);
- Only ~77 percent of RHCs and ~84 percent of UHCs could provide child immunization services (rather than the self-reported 94 and 95 percent, respectively);
- Only ~86 percent of RHCs and ~81 percent of UHCs could provide child health/IMCI services (rather than the self-reported 93 and 97 percent, respectively).

Regarding facility management and supervision, the PET/QSDS revealed that data accuracy of patient registers is still an issue. While having such system is high among health facilities, only two-thirds of them have accurate data. There is a functional system and regular timing of facility supervision where the supervisory team does a variety of tasks and provides feedback and follow-up.

Regarding patient management, the PET/QSDS revealed that Facilities are quite close to patients (60 percent of them are within 30 minutes walking distance to a health facility), but waiting times are long (average of 65 minutes). Indeed a few patients wait hours to obtain service. Needless to say, the long queues and waiting times are a direct effect of the human resource shortage. Most patients simply walk to a health facility incurring no transport costs, but a quarter of them do entail sizeable transport costs. Although a very small percentage of patients (1 percent) incur hotel and food costs as they sleep overnight in town to access care, their average costs for these are high (average of ZK36,875).

Overall patient rating of quality is moderate, at 85 percent. Some 89–95 percent of patients rated health workers highly on the “hospitality” aspects of care (friendliness, provision of information), but only less than half of them (40–42 percent) rated health workers well on the “technical” aspects of service delivery (for example, explaining the purpose of the procedure, exam or drug).

Despite the drug shortages found in the survey, only about 8 percent reported not receiving any medication after the clinic visit. Of the 92 percent of patients who did receive medication, only 74 percent said health workers explained what the medication is for.

Scaling Up Health Service Delivery to Reach the MDGs: Results of the Marginal Budgeting for Bottlenecks Modeling Exercise, 2006

About 15 years into the Zambian health sector reform process, the country has made remarkable progress particularly in improving access to some basic health services and formulating health policies and strategies as well as its implementing mechanisms. However, as discussed in the earlier sections of this report, these efforts have not translated to a significant improvement in health status, and Zambia is facing tremendous challenges in reaching its MDGs. Chapter 2 of this report documented the challenges facing the health sector in delivering health services and organizing health inputs in order to improve health outcomes, and describes the country's strategies and efforts to scale up health service delivery. Chapter 5 further portrayed the deficits in service delivery in terms of key inputs. Based on these findings, this chapter evaluates the options of maximizing the impact of health resources on outcomes by examining the bottlenecks along the service delivery chains and effective service delivery arrangements. Finally, it provides the evidence from a simulation analysis on specific service delivery scenarios and their cost and impact.

Health Sector Response to the Challenges: Strategy and Resources

National Health Strategic Plan (NHSP)

Realizing these challenges itself, the country's current NHSP, 2006–10, the fourth in the series of strategic plans implemented under the health sector reform, emphasizes the importance of focusing on a defined list of national health priorities, which include resolving the human resource crisis; addressing national public health priorities; and ensuring that priority support systems and services receive the necessary support. One of the important steps to achieve the objectives of the NHSP is to continue to finalize and deliver the Basic Health Service Package, which is not fully implemented mainly due to both financial and

human resource constraints. It is estimated that the Basic Health Service Package for the primary and second levels of care costs about US\$12 per capita. The cost will go up to US\$18 per capita if tertiary care and ARV treatment is included. The estimated cost is reasonable when compared to international standards. To help reach this target, the government is also planning to increase its health budget to 15 percent of the total government budget in the near future as requested by the Abuja target.

Options for Maximizing the Impact of Health Spending

To improve health outcomes in Zambia, one of the priorities for Zambia as well as development partners is to improve effectiveness and efficiency of health resources. International experience has proven that resources are necessary but not sufficient solution to better health. Ineffective spending is not uncommon in the field of internal health as health is such a complex field with multiple outcomes, outputs and inputs as well as the interactions among them. It is imperative for Zambia to avoid mistakes made by other countries and to learn for its own lessons in the past. To align resources to results, the country needs to look into the following questions:

- Whether resources are spent toward solving the main health problems?
- Whether resources are spent on services that not only are cost-effective but also have an impact on the main health problems?
- Whether resources are spent on an efficient and integrated service delivery system to deliver the services?
- Whether resources are spent on inputs that are key to the service delivery system?
- Whether resources are spent on effective service delivery arrangements?

Choosing Effective Service Delivery Modes

Among these elements, Zambia performs well in identifying health problems by using its information and M&E systems; defining health priorities under the process of the National Health Strategic Plans; and prioritizing a list of cost-effective interventions through the formulation of the Basic Health Service Package. However, to achieve the impact at the health outcome level, Zambia will need to further focus on building a functional service delivery system with proper service delivery arrangements and necessary inputs. One important step to build a functional service delivery system is to explore and invest on effective service delivery modes in order to align inputs towards results. Health services can be delivered not only within health facilities, but also through outreach or mobile arrangements, and by communities themselves. Based on international experience, health services can be classified according to three types of service delivery mode:

- *Family or community-based care.* This consists of interventions that include preventive measures and the management of maternal and childhood illnesses. They can be delivered by households or communities themselves under guidance from health professionals. Insecticide treated bed nets (ITNs) for pregnant women and children under five, condom use, breastfeeding, and oral re-hydration therapy (ORT) are some examples of interventions that are family or community based.

- *Population-oriented outreach services.* These services are delivered to all the population, regardless of whether or not people are currently sick. They are usually delivered through periodic outreach or scheduled clinical services. This delivery mode includes preventive care interventions, such as immunizations, antenatal care, family planning, TB treatment.
- *Clinical-based individual care.* These activities include all types of individual curative care interventions that need to be delivered at a health facility and by a trained health care professional. They are offered in a continuous manner so that they can respond to unpredictable situations, such as a sudden illness, or the delivery of a baby.

Traditionally, facility-based care has been the focus of health service delivery and drawn most resources, but each mode has its unique advantage and can be useful for different services. For example, for services with standardized procedure and that apply for a segment of population instead of just sick individuals, the outreach mode can be particularly effective, especially when access to health facilities is limited. The promotion of healthy behavior and domestic hygiene practices undertaken in household and community settings is a critical complement to professional health services. Each service delivery mode requires a different set of inputs. For outreach services, the availability of vehicles, essential drugs and supplies, qualified nurses, and the participation of communities are the basic requirements to improve service coverage. The success of community-based services is based on the dissemination of health knowledge, the supply of essential materials, and the follow-up by community health workers. Meanwhile, for facility-based services, qualified health professionals, infrastructure, equipment, and drug supply are essential to ensure quality of care.

International experience has shown that delivering a set of essential services through community-based service and outreach arrangement are very cost-effective in reducing mortality (particularly child mortality) and controlling infectious diseases. A study of 12 countries (Benin, Burkina Faso, Ethiopia, Ghana [north], Madagascar, Mali, Mauritania, Mozambique, Niger, Nigeria, Rwanda, Senegal [west]) shows that, at a low cost, community-based and outreach services can potentially reduce child mortality by 43 percent and 16 percent, respectively. While the rebuilding of health facilities will take some time and requires a large investment, the development of community-based and population-based outreach service delivery should go in parallel with facility-based service delivery. And even facilities should not just be points of service provision, but serve as bases to support outreach teams and community-based services.

Bottlenecks in the Service Delivery Chains

To deliver good-quality health services to the users, a smooth service flow is required along the five dimensions of the service delivery chain, which are: availability, accessibility, utilization, continuity, and quality.

- *Availability:* The availability of critical health system inputs such as drugs, vaccines, supplies, and human resources.
- *Accessibility:* Refers to the physical access of health services to the clients. This includes the presence of trained human resources at the community level, the number of

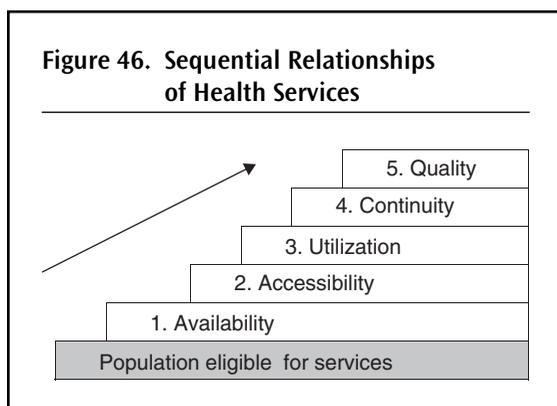
villages reached frequently by outreach services, and the time taken to reach a facility providing basic and emergency obstetric and neonatal care services.

- **Utilization:** It indicates the first use of multi-contact services, such as the first antenatal contact or BCG immunization.
- **Continuity of coverage (or adequate coverage):** It represents the actual contacts of the target population with health services compared to optimal contacts. This applies to services that require multiple visits, such as DPT3 immunization that require three shots, or antenatal care where women should have at least three visits to a health facility during their pregnancy.
- **Quality of coverage (or effective coverage):** This measures the quality of care by assessing the skills of health workers. The skills are assessed in terms of workers' ability to examine beneficiaries, diagnose, provide the requisite interventions, use the equipment appropriately, and advise properly.

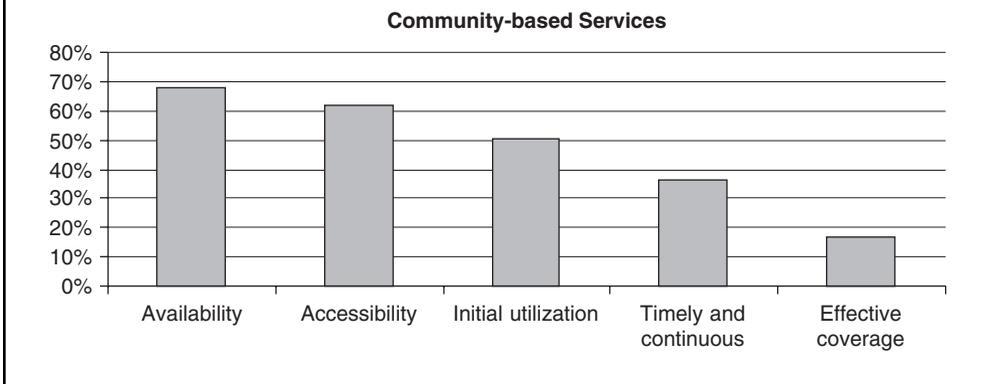
The five determinants are sequential, following the logic of service delivery flow. First, services have to be available in a given area. Second, the service locations have to be physically accessible to users. Third, to receive health benefits, potential users have to actually use the services. Fourth, potential beneficiaries should utilize the services with continuity, for example, follow the complete schedule of care such as three doses of DPT. Finally, potential users should utilize the services in a correct and effective matter (see Figure 46). In a perfect world, services are delivered smoothly and effectively when key inputs are available, services are widely accessible, the quality of care is good, and the utilization rate by patients is high. In this case, the investment will achieve a high return and users will obtain maximal benefits from the services. In reality, bottlenecks can occur in any of the five dimensions to hinder service delivery. Consequently, this not only stops services from reaching their intended target, but also makes resources invested in other dimensions ineffective. So, it is imperative to understand the nature of the bottlenecks, which is not an easy task, as different service delivery modes may face different bottlenecks.

A bottleneck analysis conducted on all the three service delivery modes in Zambia indicates that a series of bottlenecks exist in the service delivery chain and different delivery modes face different problems. The analysis first clustered a list of key services under each service delivery mode to represent each mode; then identified indicators for the five dimensions (availability, accessibility, utilization, continuation, and quality) under each key

service; finally used the weighted averages of all services under each mode to demonstrate the gaps in each of the five dimensions.



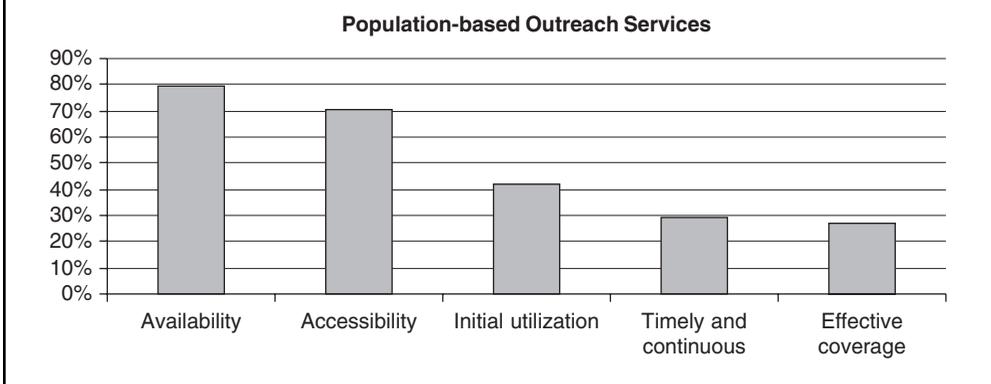
- **Community-based services:** The bottlenecks exist in all five dimensions but the quality of care (or effective coverage) presents the largest problem. It is estimated that community-based services are provided to areas covering about 68 percent of the

Figure 47. Bottlenecks in Community-Based Services

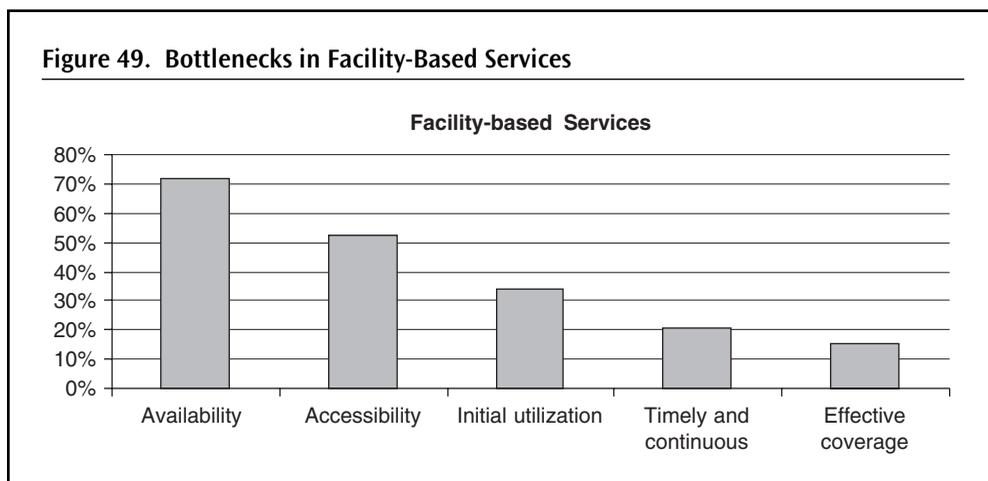
Source: MBB Team's analysis based on available survey and official data.

households, about 62 percent of households have reasonable access to the services, on average 51 percent are actually using the services, 36 percent used the services in a timely and continuous matter, and only 17 percent received effective and quality services that would achieve the potential effectiveness of the services (Figure 47).

- *Population-based outreach services:* The availability and accessibility indicators reasonably stand at 79 and 71 percent each. However, the levels of utilization, continuity, and effective coverage are low at 42, 29, and 27 percent respectively, indicating that major bottlenecks exist in these dimensions (Figure 48).
- *Facility-based services:* While availability is reasonable, accessibility is a concern with only slightly more than 50 percent of households having access to the defined list of services. In addition, utilization, continuity, and quality are very low, representing significant bottlenecks in these dimensions of service delivery (Figure 49).

Figure 48. Bottlenecks in Population-Based Outreach Services

Source: MBB Team's analysis based on available survey and official data.



Source: MBB Team's own analysis based on available survey and official data.

To build a smooth service delivery chain, investment has to be balanced among the five dimensions. Making a strong investment in one part of the chain while ignoring the others will be a waste of resources, and will not help the delivery of services. For example, expanding health infrastructure in order to improve access to services must go together with the availability of health staff, drugs and supplies, as well as the utilization and quality of the services. Building a health facility without proper staff, medicine and equipment, as well as demand-side incentives, will only undermine the value of the investment and not increase service coverage for the needy. Only high effective coverage can maximize the impact on health outcomes; but in doing so, availability, accessibility, utilization, and continuity need to be systematically improved.

Different bottlenecks require different solutions. For example, solving the problem of low availability and accessibility requires an expansion of health services. However, low utilization and poor quality need to be addressed differently. Carefully studying the nature of bottlenecks can help target resources effectively and ensure the smooth operation of service delivery.

Scenarios for Scaling Up Service Coverage

This report recommends the country to consider the following steps in two phases. Phase I will aim at increasing most the essential service coverage by 30 percent (with adjustments made on the coverage targets to be consistent with the National Health Strategic Plan) and Phase II increases the coverage by 50 percent. Phase I will need about three years to complete and Phase II may take longer. A simulation analysis, using the Marginal budgeting for Bottlenecks tool, was conducted to estimate the cost and impact for each step and phase.

- Step 1: Undertake social mobilization and behavioral interventions as well as supply essential materials to households through community-based interventions;
- Step 2: Organize outreach and mobile teams to provide a set of standardized services to populations without access to health facilities;
- Step 3: Expand the primary health care network to provide preventive and basic curative care;

- Step 4: Strengthen the first level referral care that can provide comprehensive and emergency health care;
- Step 5: Improve the second-level referral care that can provide specialized care.

Step 1

This aims at reducing child mortality, controlling communicable diseases, and improving environment health. To that effect, it is essential to scale up community-based services (such as breast feeding, bed net use, and so forth). The implementation of this step requires a sufficient number of community health volunteers and health promoters to actively disseminate health knowledge and promote healthy behaviors. It is estimated that one volunteer is needed for about every 1,000 population in order to carry out the required workload. Other inputs required include training, incentives, and essential materials (such as mosquito nets). While Zambia is experiencing a human resource crisis for health professionals, it has a good base of active community health workers. Therefore, the development of community health interventions can be started relatively quickly as it is not conditional on the expansion of health infrastructure. The challenge will be how to establish a sustainable incentive mechanism to motivate community health workers. Many countries have issues on the proper form and amount of the incentives, and in the case of Zambia this will need to be decided in function of the local context. The simulation result indicates that the additional average annual cost for this step would be modest at \$0.85 per capita per year for Phase I and \$1.66 for Phase II, and if properly implemented, it would potentially reduce under-five mortality by 13 percent for Phase I and 20 percent for Phase II, and maternal mortality by 0.5 percent for Phase I and 0.7 percent for Phase II (see matrix below).

Cost and Impact of Step 1			
Step 1: Undertake Community-Based Social Mobilization and Behavioral Interventions	Reduction in U5MR	Reduction in MMR	Cost (US\$ per capita p.a.)
Phase I	12.8%	0.5%	0.85
Phase II	19.7%	0.7%	1.66

Step 2

This includes efforts to take a package of highly effective and standardized services (such as immunization and antenatal care) outside health facilities and bring it to the households and communities. This is particularly important in Zambia, as significant percentage of the population does not have a reasonable access to health services. The country has achieved a significant success in delivering immunization services in communities, and this effort should be expanded to integrate other interventions and deliver a broader package. This step requires putting together an outreach team with at least two qualified nurses or other types of health professionals to visit communities totaling about 5,000 people in a timely manner. To ensure quality and efficiency, the outreach team needs to work together with community health workers and its support teams in health centers or health posts.

Key inputs to make the outreach team functional include vehicles, essential drugs and supplies, and training. The cost and impact of this step are summarized in the matrix below.

Cost and Impact of Step 2			
Step 2: Scale up Population-Based Outreach Services	Reduction in U5MR	Reduction in MMR	Cost (US\$ per capita p.a.)
Phase I	9.2%	0.3%	0.73
Phase II	14.0%	1.0%	1.88

Step 3

This aims at expanding the health facility network so that the majority of the population has reasonable access (less than 2 hours walking distance) to basic primary health care (including IMCI). This step requires investment effort and sufficient recurrent budget to ensure that the required human resources and other inputs are in place. At this level, health services provided in facilities include both individual curative treatment and preventive services. This step involves facilities, health professionals, equipment and recurrent costs (salary, supplies). The cost and impact of this step is shown in the matrix below.

Cost and Impact of Step 3			
Step 3: Expand Clinical Primary Health Care (including IMCI)	Reduction in U5MR	Reduction in MMR	Cost (US\$ per capita p.a.)
Phase I	14%	2%	0.16
Phase II	16%	8%	1.10

Step 4

This aims at improving the first referral care, which is particularly crucial for complicated cases and maternal complications. Individual treatment and emergency obstetric care needs to be provided at this level, and at least one general doctor or qualified clinical technician needs to be installed. To implement this step, Zambia will need to produce/introduce more physicians and deploy more physicians to the district level. The cost and impact of this step are summarized in the matrix below.

Cost and Impact of Step 4			
Step 4: Strengthen the First Level Referral Care	Reduction in U5MR	Reduction in MMR	Cost (US\$ per capita p.a.)
Phase I	2.5%	0.8%	0.36
Phase II	7.2%	5.2%	1.08

Step 5

This focuses on the delivery of comprehensive emergency obstetric care and specialized care. Specialists are needed at this level. The cost for this step is higher as it requires constructions, salary and incentives, equipment and drugs (see matrix below).

Cost and Impact of Step 5			
Step 5: Improve the Second Level Referral Care	Reduction in U5MR	Reduction in MMR	Cost (US\$ per capita p.a.)
Phase I	0.2%	1.9%	2.25
Phase II	0.3%	2.7%	3.39

Overall Impact

Altogether, the five steps, if implemented successfully, would have a significant impact on child and maternal mortality. They would reduce child mortality by 24 percent for phase I and 46 percent for Phase II, and maternal mortality by 5 percent for Phase I and 16 percent for Phase II. This achievement would cost Zambia, on average, an additional US\$ 4.38 per capita per year for Phase I and US\$9.08 for Phase II.

Total Cost and Impact of all Five Steps			
All Five Steps	Reduction in U5MR	Reduction in MMR	Cost (US\$ per capita p.a.)
Phase I	24.4%	4.9%	4.36
Phase II	45.7%	15.9%	9.07

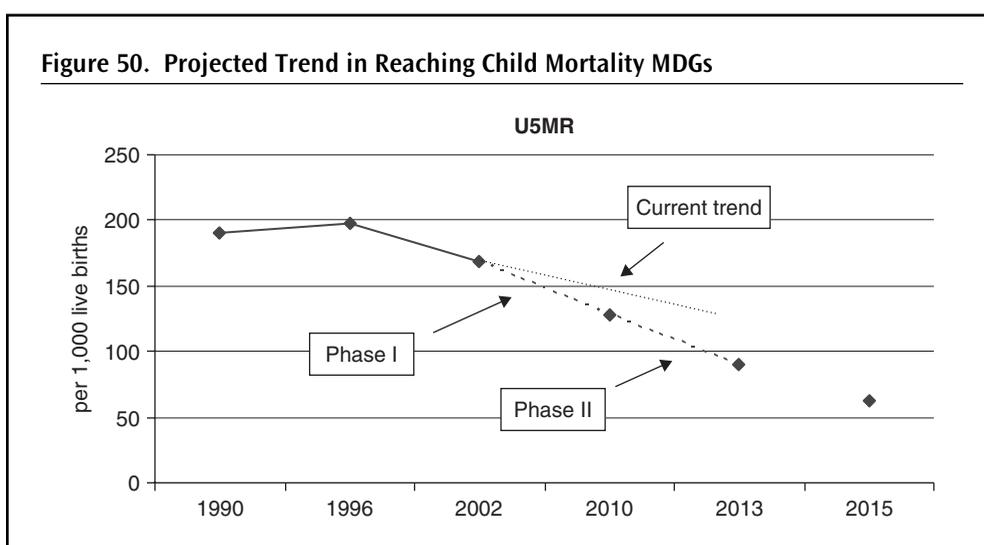
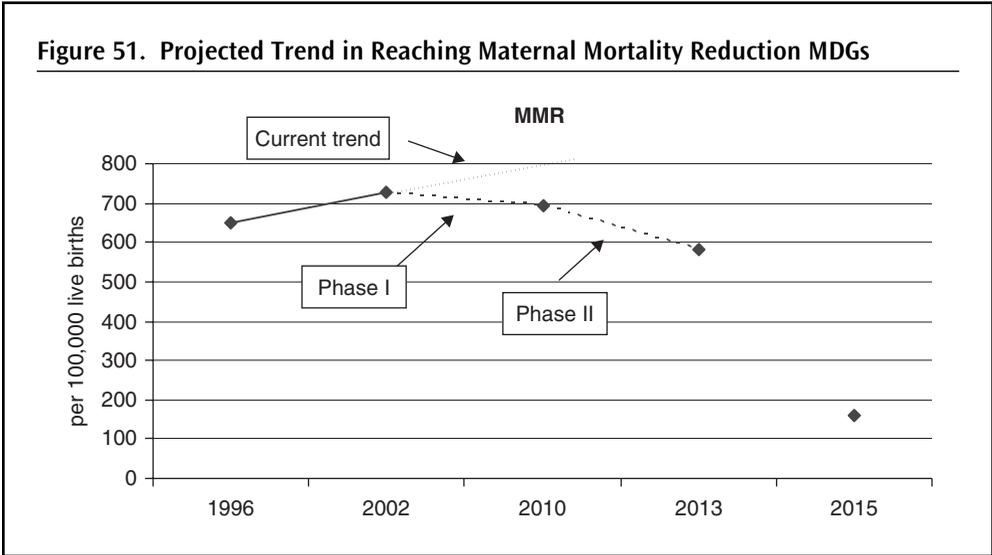


Figure 51. Projected Trend in Reaching Maternal Mortality Reduction MDGs



Zambia needs to make a commitment and take concrete steps to scale up the coverage of essential health services and to improve the population’s health status. If successful, the improved health will no doubt boost the economy, improve productivity, and provide stability to the country. The simulations are by no means a prescription for the country’s future health strategy to reach the MDGs. Rather they provide examples of how this evidence-based simulation exercise could help the country’s policy development. Other policy scenarios, if requested by the country, can also be incorporated in to future simulation exercises. These steps will help Zambia accelerate the pace of reducing child mortality and make it back on track to reach the child mortality MDGs (Figure 50). They will also reverse the worsening trend of the MMR and make it possible to start to lower the level of maternal mortality towards the MDGs (Figure 51).

Statistical Appendix

Annex Table A. MOFNP and Local Government Authorities' Health Expenditures by Recipient, 1995–2004 (ZK Billion)

Years	MOFNP				LGAs		
	MOH/ CBOH	Other Ministries & Public Inst.	Non- government Inst.	Total	MOH/ CBOH	Local Autho rities	Total
1995	58.3	2.1	3.4	63.8	0	1.5	1.5
1996	72.7	2.8	2.5	78.1	0	2.5	2.5
1997	95.6	5.2	2.6	103.3	0	5.5	5.5
1998	112.2	3.7	3.9	119.8	0	1.2	1.2
1999	140.9	5.2	0	146.0	0	3.0	3.0
2000	147.3	6.2	0	153.4	0	1.8	1.8
2001	288.2	5.2	0	293.8	10.3	0	10.3
2002	342.4	7.7	0	350.2	0.8	0	0.8
2003	327.1	10.2	0	337.3	0	0	0
2004	322.4	10.4	0	332.8	0	0	0

Annex Table B. Donors' Health Expenditures by Recipient, 1995–2004 (ZK Billion)

Years	MOH/CBOH & Other Public Institutions		Donors as Financing Agents, incl. NGOs		Total
	Amount	%	Amount	%	
1995	17.6	92.2	1.5	7.8	19.0
1996	9.3	21.4	34.1	78.6	43.4
1997	16.7	22.8	56.3	77.2	72.9
1998	63.1	66.6	32.0	33.4	95.1
1999	29.2	74.4	9.7	25.6	37.9
2000	84.9	83.9	16.2	16.1	101.1
2001	82.3	79.0	21.9	21.0	104.3
2002	195.6	58.2	140.6	41.8	336.2
2003	317.3 ^a	60.0	211.2	40.0	528.5
2004	437.2 ^b	58.8	352.8	41.2	790.1

^aMOH/CBOH alone is ZK309.9 billion.

^bMOH/CBOH alone is ZK413.2 billion.

Annex Table C. Employers' and Households' Health Expenditures by Recipients, 1995–2009 (ZK Billion)

Years	Employers			Households		Total
	ZCCM	Other	Total	Households	Health	
		Employers		as Financing	Insurance	
				Agents		
1995	16.4	10.2	26.6	58.8	0	58.8
1996	26.0	7.5	33.4	81.6	0	81.6
1997	30.6	9.5	40.1	101.7	0	101.7
1998	30.8	27.0	57.8	130.9	0	130.9
1999	27.8	22.5	50.3	178.4	0	178.4
2000	31.9	27.2	59.2	223.8	0	223.8
2001	0	54.7	54.7	248.2	0	248.2
2002	0	62.5	62.5	308.9	3.6	308.9
2003	0	89.8	89.8	395.3	4.2	399.6
2004	0	128.9	128.9	524.3	4.6	528.9

Annex Table D. Total Health Expenditures by Service Provision, Administration, and Rest of the World Transactions, 1995–2004 (ZK Million)

Years	Service Provision		Administration		Rest of the World		Total HE
	Amount	%	Amount	%	Amount	%	
1995	135,120	78.4	37,317	21.6	0	0	172,437
1996	202,411	83.3	40,556	16.7	0	0	242,967
1997	278,700	85.2	48,302	14.8	0	0	327,002
1998	314,550	76.0	99,209	24.0	0	0	413,759
1999	343,528	80.9	81,217	19.1	0	0	424,745
2000	462,791	82.2	100,043	17.8	0	0	562,838
2001	614,673	85.2	106,545	14.8	0	0	721,218
2002	820,947	75.8	236,783	21.9	24,707	2.3	1,082,437
2003	1,038,802	74.8	324,538	23.3	26,168	1.9	1,389,508
2004	1,265,153	68.0	573,317	30.8	21,088	1.1	1,860,558

Notes: “Administration” includes general administration, research, and training.

Annex Table E. Total Health Expenditures by Service Provision and Administration and by Type of Providers, 1999–2004 (ZK Billion)

Items	1999	2000	2001	2002	2003	2004
Service Provision						
MOH tertiary hospitals	48.1	59.7	61.5	91.6	105.8	126.8
MOH secondary hospitals	8.1	18.6	31.6	39.3	51.5	48.6
MOH district facilities	45.7	87.4	215.9	258.2	279.2	337.6
Defense Force hospitals	5.1	6.0	5.1	5.5	5.9	10.0
ZCCM hospitals	31.0	36.4	0.0	0.0	0.0	0.0
Private for-profit hospitals	63.2	87.7	140.7	171.0	255.3	382.0
Mission hospitals	2.8	4.5	5.8	9.5	12.6	10.8
Nursing and residential care	Negl.	Negl/	Negl.	0.3	0.5	1.3
Ambulatory health care	8.3	6.5	5.4	17.2	39.0	18.3
Traditional healers	36.3	45.6	52.4	72.2	87.7	103.4
Drug stores & chemists	86.3	108.5	96.2	107.3	131.2	162.1
Other pub. Health providers	8.9	1.8	—	48.9	70.1	64.2
Subtotal, Service provision	343.5	462.7	614.7	820.9	1,038.8	1,265.2
Administration						
GRZ health administration	59.4	74.0	49.8	147.9	174.6	261.8
Other providers' health adm.	7.7	7.0	30.1	21.8	36.6	74.2
Other related svcs & inst.	8.3	12.1	21.1	45.2	82.9	210.3
Research	1.9	2.4	4.5	17.2	22.4	20.7
Training	4.0	4.5	0.2	4.6	8.1	7.3
Subtotal, Administration	81.2	100.0	106.5	236.8	324.5	573.4
Rest of the world	0	0	0	24.7	26.2	21.0
Grand total	424.7	562.8	721.2	1,082.4	1,389.5	1,860.6

Annex Table F. Donor Health Expenditures by Type of Providers and Administrators, 2002–04 (ZK Billion)

Items	2002	2003	2004	Total 02–04	% Share
MOH and other public institutions	195.5	317.3	437.2	950.0	57.4
Donors acting as financing agents (i.e., parallel financing)					
■ Defense Force hospitals	0	0	3.4	3.4	0.2
■ Private for-profit hospitals	1.4	3.0	6.6	11.0	0.7
■ Mission hospitals	2.5	3.5	2.8	8.8	0.5
■ Ambulatory health care	4.3	7.3	3.0	14.6	0.9
■ Drug stores & chemists	0	0	2.7	2.7	0.2
■ Other public health providers	48.9	70.0	64.2	183.1	11.1
■ Other providers' health administration	8.4	12.8	52.4	73.6	4.4
■ Research	13.1	19.5	16.6	49.2	3.0
■ Training	1.1	2.7	1.1	4.8	0.3
■ Other rel. svcs. & institutions	39.8	70.4	183.7	293.9	17.8
■ Rest of the world	21.1	21.9	16.4	59.5	3.6
Sub-total, parallel financing	140.6	211.2	352.8	704.7	42.6
Grand total	336.2	528.5	790.1	1,654.8	100.0

Annex Table G. MOH/CBOH Health Expenditures by Level of Care and Administration, 1999–2004 (ZK Billion)

Items	1999	2000	2001	2002	2003	2004
Sources of Funds						
MOFNP	140.9	147.3	288.2	342.4	327.1	322.3
Donors	29.2	84.9	82.3	195.5	309.9	413.2
Total	170.1	232.1	370.6	538.0	637.0	735.5
Application of Funds						
<i>Service provision, by level of care</i>						
MOH tertiary hospitals	41.0	51.6	53.3	76.1	88.2	88.1
MOH secondary hospitals	7.1	15.1	31.4	36.9	45.3	38.3
MOH district hospitals	42.9	83.7	207.8	243.4	261.5	303.9
ZCCM hospitals	0.2	0	0	0	0	0
Private for-profit hospitals	0.4	0.3	0.5	0.5	0.7	1.1
Mission hospitals	2.0	3.2	5.3	6.5	6.5	6.1
Nursing and residential care	0	0	0	0.2	0.5	0.8
Ambulatory health care	7.8	5.9	4.7	11.8	31.5	14.5
Drug stores & chemists	0	0	0	0	0.9	5.6
Other public health providers	0.3	0	0	0	0	0
Subtotal (a)	101.8	159.7	303.1	375.4	435.1	458.3
<i>Administration</i>						
MOH/CBOH health administration	59.4	73.6	49.3	146.1	173.0	259.1
Statutory boards	0	0	0	1.3	1.1	1.9
Other providers of health admin.	3.9	2.6	20.5	8.8	19.4	9.8
Other related svcs & inst.	0	0.4	3.2	1.6	2.9	1.4
Subtotal (b)	63.3	76.6	69.8	156.2	193.4	270.8
Research	1.8	2.2	4.4	4.1	2.8	4.2
Training	3.9	4.3	0.5	0.8	2.8	0.4
Subtotal (c)	5.7	6.5	4.8	4.8	5.6	4.6
Grand total (a + b + c)	170.8	242.9	380.9	537.9	637.0	735.0
Errors and omissions	(0.7)	(10.7)	(10.3)	Negl.	Negl.	(0.5)

**Annex Table H. Household Health Expenditures by Type of Providers, 1999–2004
(ZK Million)**

Items	1999	2000	2001	2002	2003	2004
MOH tertiary hospitals	4,310	6,644	8,158	9,546	10,223	13,709
MOH secondary hospitals	552	1,830	1,954	2,229	2,158	3,600
MOH district facilities	2,052	2,751	2,923	4,357	5,511	7,886
ZCCM hospitals	2,976	4,510	0	0	0	0
Private for-profit hospitals	38,095	50,192	80,868	102,103	154,493	233,766
Mission hospitals	172	179	86	89	280	265
Ambulatory health care	325	131	138	150	176	181
Traditional healers	36,250	45,616	52,400	72,230	87,687	103,444
Drug stores & chemists	86,289	108,506	96,178	107,362	130,338	153,760
Other pub. Health providers	5,492	0	0	0	0	0
Service provision	176,513	220,359	242,705	298,066	390,866	516,610
Administration	1,888	3,418	5,446	7,280	4,472	7,677
Health insurance	0	0	0	3,580	4,227	4,616
Grand total	178,401	223,777	248,151	308,926	399,565	528,903

Annex Table I. Health Expenditures by Line Items by Type of Facility, 1999–2004
(ZK Million)

Years	Personal Emol.	Drugs & Supplies	Transport	Other Recur. Expend.	Capital Expend.	Total
MOH Primary Facilities						
1999	28,032	5,881	4,982	5,819	1,009	45,722
2000	34,659	29,155	7,301	13,509	2,757	87,381
2001	107,050	45,869	13,013	37,946	12,050	215,927
2002	134,734	55,602	14,240	52,110	10,600	267,285
2003	146,607	44,696	14,611	57,220	16,018	279,152
2004	155,244	77,969	20,526	68,171	15,667	337,577
Ave. share	50%	21%	7%	18%	4%	100%
MOH Secondary Facilities						
1999	5,086	1,320	485	1,200	28	8,118
2000	8,951	4,983	883	2,927	856	18,600
2001	23,301	5,521	137	1,234	1,423	31,616
2002	32,162	5,417	234	1,294	212	39,320
2003	31,599	11,069	1,549	6,593	730	51,540
2004	29,198	10,005	1,968	6,395	1,042	48,608
Ave. share	65%	19%	3%	11%	2%	100%
MOH Tertiary Facilities						
1999	34,690	6,287	759	5,481	873	48,089
2000	38,622	10,687	1,074	6,222	1,092	57,698
2001	35,225	11,380	1,214	10,386	3,271	61,475
2002	43,241	26,992	1,432	15,842	4,064	91,571
2003	61,435	24,725	2,005	16,275	1,347	105,787
2004	79,054	25,541	2,682	17,475	2,038	126,790
Ave. share	61%	21%	2%	14%	2%	100%
Mission Facilities						
1999	1,040	433	227	581	470	2,751
2000	1,580	1,337	231	1,228	153	4,529
2001	3,528	1,510	77	431	256	5,802
2002	4,912	1,752	62	2,752	28	9,507
2003	4,723	2,115	569	5,059	163	12,629
2004	4,739	1,405	453	3,994	259	10,848
Ave. share	48%	21%	4%	22%	5%	100%

Annex Table J. Resources at the Disposal of a Typical DHMT, FY05

Items	ZK Million	US\$ (at 4,2000 per 1 USD)	% Share of Health Services
Personal emoluments	32,540.2	7,747,667	—
Administration	12.6	3,000	—
Health services	165.0	39,285	100.0
■ First referral	41.6	9,904	25.2
■ Child health	22.9	5,452	13.9
■ HIV/AIDS	17.6	4,190	10.7
■ Malaria	18.7	4,452	11.3
■ Maternal health	20.7	4,929	12.5
■ Tuberculosis	15.5	3,690	9.4
■ Water & sanitation	17.3	4,119	10.5
■ Mental health	4.4	1,048	2.7
■ Oral health	6.3	1,500	3.8

Annex Table K. Self-Reported Versus Actual Capacity to Deliver Selected Health Services in Rural Health Centers, 2006

Health Services	Self-Reported Capacity	Assessment of Actual Capacity of RHCs Based on PET/QSDS Indicators	
		Availability of Drugs and Other Consumables	Availability of Capital Assets
Family planning	98%	1% reported condoms not available today; 13% reported pills not available today; 9% reported injectables not available today	24% reported not having private counselling area; 6% reported not having private examination area
Antenatal and postnatal care	99%	13% reported Vitamin A not available today; 7% reported iron folate for anemia not available today	43% reported not having mothers' waiting area
Child immunization	94%	RHCs reported the following vaccines were not available today: 21% for BCG; 10% for polio; 24% for pentavalent; 10% percent for measles; 10% for tetanus toxoid	7% reported refrigeration for cold chain not available
Child health/IMCI	93%	13% reported cotrimoxazole for pneumonia not available today; 2% reported ORS for diarrhea not available today; 13% reported Vitamin A not available today	7% reported not having weighing scale 54% reported not having height measuring device
Adult malaria diagnosis and treatment	94%	56% reported malaria slides not available today 76% reported not having malaria smears 29% reported Coartem not available today	70% reported not having lab equipment 74% reported not having microscopes

Annex Table L. Self-Reported Versus Actual Capacity to Deliver Selected Health Services in Urban Health Centers, 2006

Health Services	Self-Reported Capacity	Assessment of Actual Capacity of RHCs Based on PET/QSDS Indicators	
		Availability of Drugs and Other Consumables	Availability of Capital Assets
Family planning	100%	4% reported condoms not available today; 2% reported pills not available today; 9% reported injectables not available today	16% reported not having private counselling area; 11% reported not having private examination area
Antenatal and postnatal care	95%	15% reported Vitamin A not available today; 8% reported iron folate for anemia not available today	42% reported not having mothers' waiting area
Child immunization	95%	UHCs reported the following vaccines were not available today: 11% for BCG; 9% for polio; 31% for pentavalent; 9% percent for measles; 13% for tetanus toxoid	5% reported refrigeration for cold chain not available
Child health/IMCI	97	20% reported cotrimoxazole for pneumonia not available today; 13% reported ORS for diarrhea not available today; 15% reported Vitamin A not available today	3% reported not having weighing scale 45% reported not having height measuring device
Adult malaria diagnosis and treatment	100	38% reported malaria slides not available today 58% reported not having malaria smears 40% reported Coartem not available today	58% reported not having lab equipment 55% reported not having microscopes

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