

# Linking Indicators from National Health Accounts and the NHA HIV/AIDS Subanalysis to Health Policy Goals

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- ▲ *Generation of new financing for health care, as well as more effective use of existing funds.*
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- ▲ *Delivery of quality services by health workers.*
- ▲ *Availability and appropriate use of health commodities.*

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# Abstract

Many low- and middle-income countries possess only limited information on health care expenditures made by government, households, donors, and others in their countries. Thus, it is difficult for them to accurately determine what they can best provide and finance from among the myriad demands for health care made by their populations. Exacerbating the problem is that, among these countries are many with high HIV/AIDS prevalence rates; those that have received increased levels and diversity of health funding to combat the disease are required by donors and governments to show accountability for those funds, i.e., to analyze and demonstrate the impact of changing financial strategies. As a result, more and more countries are applying the National Health Accounts (NHA) framework. NHA tracks finances from sources to users in the health system as a whole as well as within disease- or intervention-specific sectors (i.e., HIV/AIDS, reproductive health), and it produces data to compute key financial indicators. This report shows how to use NHA and HIV/AIDS subanalysis data to compute relevant policy indicators for evidence-based policymaking with respect to three health policy goals: financial sustainability, efficiency, and equity.

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# Table of Contents

Acronyms .....	ix
Acknowledgments .....	xi
Executive Summary .....	xiii
1. Introduction .....	1
1.1 Background .....	1
1.2 National Health Accounts .....	2
1.3 Objective of This Report .....	2
2. Conceptual Framework .....	5
2.1 Financial Sustainability .....	5
2.1.1 General NHA Indicators for Financial Sustainability .....	6
2.1.2 HIV/AIDS-Specific NHA Indicators .....	11
2.2 Efficiency .....	14
2.2.1 Technical Efficiency .....	15
2.2.2 Economic Efficiency .....	18
2.2.3 Allocative Efficiency .....	20
2.3 Equity .....	22
2.3.1 Equity in utilization of medical care .....	22
2.3.2 Equity in Financing of Health Care .....	24
3. Conclusion and Recommendation .....	27
Annex A: Global HIV/AIDS Initiatives .....	29
Annex B. ICHA Code List .....	31
Annex C. Classifications for NHA HIV/AIDS and TB Subanalyses .....	37
Annex D: Bibliography .....	41

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## List of Tables

Table 1: Financial Sustainability Indicators, using NHA financing sources table .....	7
Table 2: Per Capita Financial Sustainability Indicators, using NHA financing sources table .....	7
Table 3: Additionality Indicators, using NHA financing sources table .....	8
Table 4: Financial Sustainability of Public and Private Funds, using NHA FS to HF table .....	9

Table 5: Financial Sustainability Indicators, using all NHA tables .....	10
Table 6: Financial Sustainability Indicators, using NHA financing sources and users tables .....	10
Table 7: HIV Financial Sustainability Indicators, using HIV/AIDS tables .....	11
Table 8: HIV Additionality Indicators, using HIV/AIDS financing sources table .....	13
Table 9: Financial Sustainability Indicators on Use of HIV Money, HIV/AIDS tables .....	13
Table 10: Technical Efficiency Indicators, using provider data .....	17
Table 11: Economic Efficiency Indicators, using NHA functions table .....	19
Table 12: Economic Efficiency Indicators, using NHA HIV/AIDS functions table.....	20
Table 13: Allocative Efficiency Indicators, using NHA provider and care table .....	20
Table 14: Allocative Efficiency Indicators, using NHA HIV/AIDS provider and care table.....	21
Table 15: Equity in Utilization Indicators, using household survey data .....	22
Table 16: Proxies for Equity in Financing, using NHA provider and care table .....	24
Table 17: Proxies for Equity in HIV/AIDS Financing, using NHA HIV/AIDS provider and care table .....	26
Table A-1: Global HIV/AIDS Initiatives and Financial Indicators .....	29
Table B-1: Financing Sources (FS).....	31
Table B-2. Financing Agents (HF) .....	32
Table B-3. Health Care Provider (HP).....	33
Table B-4. Health Care Functions (HF).....	35
Table C-1: List of Sources of Funds for HIV/AIDS and TB .....	37
Table C-2. List of Financing Agents for HIV/AIDS and TB.....	37
Table C-3. List of Health Care Providers for HIV/AIDS and TB .....	38
Table C-4. List of Health Care Functions for HIV/AIDS and TB .....	39



# Acronyms

<b>AIDS</b>	Acquired Immune Deficiency Virus
<b>ART</b>	Antiretroviral Therapy
<b>DHS</b>	Demographic Health Survey
<b>GDP</b>	Gross Domestic Product
<b>GFATM</b>	Global Fund for AIDS, Tuberculosis and Malaria
<b>HIPC</b>	Highly Indebted Poor Countries
<b>HIV</b>	Human Immunodeficiency Virus
<b>ICHA</b>	International Classification of Health Accounts
<b>M&amp;E</b>	Monitoring and Evaluation
<b>MOH</b>	Ministry of Health
<b>NHA</b>	National Health Accounts
<b>OOP</b>	Out-of-Pocket
<b>PEPFAR</b>	President's Emergency Plan for AIDS Relief
<b>PHR<i>plus</i></b>	Partners for Health Reform <i>plus</i>
<b>USAID</b>	United States Agency for International Development



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# Executive Summary

A growing number of low- and middle-income countries have started to implement National Health Accounts (NHA) to document the flow of funds in their health sector. In some countries, this process has resulted in the institutionalization of NHA, as well as in disease- and intervention-specific subaccounts – for example for HIV/AIDS or reproductive health – to identify the proportion and utilization of health funds spent in specific areas. Subaccounts have become an important tool particularly in contexts of increased donor funding for specific diseases such as HIV/AIDS. Increased funding has led to a request to better monitor the flow of funds, document the use of health monies, and evaluate to what extent funding has contributed to overall health policy goals that are relevant for low- and middle-income countries, including financial sustainability, efficiency or cost-effectiveness, and equity.

This report is addressed to NHA analysts and policymakers. It shows how NHA information can be used to compute indicators that are relevant in a country's health policy context. Policymakers and analysts may use the indicators presented in this report to track and evaluate the flow of funds in the overall health sector and within disease-specific subsectors, and to examine the impact of financing on sustainability, efficiency, and equity.

The conceptual framework used in this paper focuses on three health policy goals relevant in overall health and HIV/AIDS, namely sustainability, efficiency, and equity. They are defined as follows:

- ▲ Sustainability refers to the capacity of a health system to continue its activities in the future and to expand activities to keep up with population growth and with the additional demands created by diseases such as HIV/AIDS. Financial sustainability refers to the capacity of the health system to replace withdrawn donor funds with funds from domestic sources.
- ▲ Efficiency has three dimensions: technical, economic, and allocative. Each is assessed by different indicators.
  - △ Technical efficiency indicators allow comparing countries with respect to how much they get for what they invest in health. Technical efficiency addresses the question: *How much does country A spend on health per capita compared to country B to achieve a specific amount of health output (e.g., deliveries attended by medical personnel or HIV prevalence rate)?*
  - △ Economic efficiency aims to respond to the resource management question: *With what financial input combination (e.g., percent of total health spending for drugs versus to personnel) in health do we reach at current health spending level the current health outcome or output (e.g., percentage of AIDS patients receiving ARV treatment)? How does this result differ from previous years?*
  - △ Allocative efficiency examines: *What proportion of health funds is allocated to what mix of interventions to reach the current health outcome at current health spending level? How does this result compare to previous years and neighboring countries?*
- ▲ Equity analysis focuses on two dimensions: equity in utilization and in financing of medical care.

- △ Equity in utilization of care means that individuals in equal need for care use care equally, independent of their socio-economic background. Analysis of equity in utilization based on NHA data aims to respond to the question: *Which socio-economic group receives how much and what kind of care when sick?*
- △ Equity in financing of health care implies that individuals with equal income make equal payments, independent of health status, and that higher-income groups contribute a higher rate of their income to health than poorer-income groups. NHA data can be used to respond to the question: *How does household spending on health care differ across socio-economic groups?*

NHA is useful to evaluate specific efficiency- and equity-related questions of a health system, though it addresses efficiency and equity issues only to some extent. Detailed production and cost data would be needed to examine efficiency in a *health system*, and micro-level data to analyze a system's equity impact.

For each of the above three goals, first a definition is given for the overall health and the HIV/AIDS context as well as the underlying rationale. Then, several NHA indicators are proposed and their formulae explained by referring to the IHCA code lists for the general health sector (Annex B) and HIV/AIDS subaccounts (Annex C). Finally, for each section, examples are presented from the NHA literature to illustrate how indicators have been reported in NHA reports and used for information-based decision-making in various health policy contexts.

It is recommended that analysts compare results from NHA indicators against clear defined goals (e.g., effectiveness measures such as health outcome); and across time, and countries in similar socio-economic contexts or health subsectors within the same country (i.e., private versus public health sector). This requires standardizing NHA by collecting similar data sets over several years in different countries, which highlights the importance of institutionalizing NHA in a country to fulfill its policy purpose.

# 1. Introduction

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## 1.1 Background

With increasing demands for health care by their populations but only limited information on health care financing, many low- and middle-income countries are challenged to make informed decisions on the most appropriate and affordable package of services that their public health systems can offer. This situation is exacerbated in many countries by the additional demands that HIV/AIDS places on health care delivery and financing. High levels of HIV/AIDS funding are now available from a growing number of international donors<sup>1</sup> and private sector contributors such as commercial companies and private foundations. However, the increased levels and diversity of health financing come with demands for accountability and transparency in the use of the resources, and demonstration of the impact that changing financial strategies have on health status. Meeting these demands requires comprehensive information on financial indicators that track resource use, and eventually link it to health outcomes. Many countries lack this information, which in turn limits understanding of the burden that health expenditures place on households, governments, and donors.

The disconnect between policy recommendations and the evaluation of their impact is particularly apparent in the HIV/AIDS context. HIV/AIDS policies focus on increasing the scale of prevention and care services to specific population groups that often are marginalized and not able to access general health services. Indeed, discussions surrounding major HIV/AIDS policy initiatives raise issues such as sustainability, efficiency, effectiveness, equity, and resource availability. But current monitoring and evaluation (M&E) frameworks of HIV/AIDS initiatives at global, national, and local levels do not specify the use of financial indicators to help track progress on health outcomes. Rather, the indicators focus on involvement of stakeholders (e.g., people living with HIV/AIDS, nongovernmental organizations) in the policy process and the inclusion of HIV program areas, such as provision of antiretroviral therapy (ART) and programs for orphans and vulnerable children. Financial analysis tends to be limited to budget commitments to HIV, or budget commitments to HIV prevention versus HIV care (Bertozzi et al., 2001). Also, the M&E frameworks lack the guidance needed to collect and analyze financial information that will appropriately track impact. For example, the World Health Organization's (WHO) 3X5 strategy discusses the need for guidelines to ensure equity in the scaling up of ART programs; however, it does not specify measuring equity through financial indicators. It is thus not surprising that to date there is limited use of NHA information to track progress of HIV/AIDS initiatives. Finally, HIV financial data are often collected independent of other exercises that gather expenditure information; therefore rigor in analysis remains limited. This is shown in Annex A, where global HIV/AIDS initiatives are highlighted, and their financial objectives and financial indicators are suggested.

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<sup>1</sup> E.g., the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), the U.S. government's President's Emergency Plan for AIDS Relief (PEPFAR), and the World Bank's Multi-Country HIV/AIDS Program (MAP).

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## 1.2 National Health Accounts

A growing number of countries have started to use the National Health Accounts (NHA) framework to track finances from sources to users in the general health system and to produce data to compute key financial indicators. Implemented in over 60 middle- and low-income countries, NHA is an internationally recognized framework for measuring total (public, private, and donor) health expenditures in a given country. NHA tracks the flow of funds through the national health system, from financing sources, through financial institutions, to providers and functions. More recently, the NHA methodology has been used to capture data on a specific disease area or health care intervention (i.e., HIV/AIDS, reproductive health) by conducting a subanalysis to break down those specific expenditures (such as HIV/AIDS interventions). The NHA HIV/AIDS subanalysis provides information to review overall HIV/AIDS-related expenditure patterns to improve resource planning, and to track out-of-pocket health expenditures by people affected by HIV/AIDS.

By presenting data in a form that can be easily understood by technical experts, policymakers, donors, and other stakeholders, NHA allows for a review of expenditure patterns and improved resource planning, thereby increasing the government's ability to effectively address health care concerns. To facilitate this process, an NHA report has to present a combination of indicators summarizing results that are relevant to the country's health policy context, and that contribute to the policy debate in a country and on an international level. Hence, it is not a particular indicator but a combination of them that is needed to analyze a problem and derive policy recommendations. Regular NHA reporting allows countries to report and compare financial information with health outcome achieved in order to secure continued funds from different payers. NHA is being institutionalized in many countries and conducted on a routine basis to provide meaningful baseline and trend data to assess progress toward national priorities as well as goals of various global initiatives.

Clearly, NHA provides information critical to assess the progress in meeting the financial objectives of the global HIV/AIDS initiatives listed in Annex A.

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## 1.3 Objective of This Report

Because NHA is relatively new in many middle- and low-income countries, NHA analysts, governments, and donors have asked for guidance on how to link NHA data with health policy objectives, and, in particular, on how to use NHA and HIV/AIDS subanalysis data to compute indicators that may serve in evidence-based decision making on health policy. This report seeks to respond to this request.

This report aims to inform the aftermentioned parties on how to better use and interpret their NHA results by focusing on three health policy goals: financial sustainability, efficiency, and equity; and by describing the related NHA indicators. The conceptual framework used describes the three health policy goals for the general health system and the HIV subsector. For each health policy goal, related NHA indicators are presented and explained, as well as the method and NHA data needed to compute them by referring to the relevant International Classification of Health Accounts (ICHA) codes. Examples from the NHA literature illustrate NHA indicators reported in different country health policy contexts.

The list of policy evidence does not aim to be exhaustive and for more information the reader is referred to two technical reports produced by the Partners for Health Reform *plus* (PHR *plus*) project: *Has Improved Availability of Health Expenditure Data Contributed to Evidenced-based Policymaking?* (De et al. 2003), which presents a detailed overview on country experience with NHA; and *Synthesis of Findings from NHA Studies in Twenty-Six Countries* (Nandakumar et al. 2004). Many country-level NHA reports



as well as reports by international organizations on health financing also present interesting experience on policy evidence that is recommended to interested readers.

Although this paper provides methodological guidance on constructing indicators based on NHA data, technical advice on “how to do an NHA,” on the technical differences between NHAs and OECD accounts,<sup>2</sup> etc. is beyond its scope. For such information, the analyst is referred to the many guides and handbooks on those topics, for example, *The guide to producing national health accounts* (WHO, World Bank, and U.S. Agency for International Development 2003); and OECD’s guide to the System of Health Accounts (OECD 2000).

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<sup>2</sup> For example, in NHA, the flow of funds is from financing sources to financing agents to providers/users of care. In the OECD System of Health Accounts, sources and financing agents are combined in one level.



## 2. Conceptual Framework

This chapter presents a conceptual framework that describes NHA indicators for three health policy goals: financial sustainability (2.1), efficiency (2.2), and equity (2.3). Indicators related to goals such as quality of care and institutional sustainability are not discussed, because NHA does not provide the detailed data needed to examine these dimensions. Also, as it is difficult to link health outcomes with health spending, NHA can say little about how much should be spent on health. For example, recent policy-oriented work suggests that a country spending less than an estimated threshold of US\$80 per capita per year would fail to achieve its potential of care compared to similar countries whose spending per capita is at or above this value (WHO 2000). Most NHA estimates done by low-income countries show that the countries are far from this level.

In this chapter, formulas describe how to construct each NHA indicator using NHA data and variables, identified by their ICHA code. Annex B contains the list of NHA variables and their ICHA codes for the general health system; Annex C does the same for the HIV/AIDS NHA subaccounts. Other financial information to compute indicators is described where needed. Showing these codes and variables should help NHA analysts to find the NHA information relevant to each indicator. The list of indicators discussed below is not complete, and NHA analysts are encouraged to review other NHA reports for further examples.

Results from NHA indicators are most useful when compared across time, and against clearly defined goals, countries in similar socio-economic contexts, or health subsectors within the same country (i.e., private versus public health sector). Making valid comparisons requires standardizing NHA by collecting similar data sets over several years in different countries; this, in turn, highlights the importance of institutionalizing the NHA exercise at the government level. To ensure the reliability of NHA indicators, results should be validated through triangulation of different information sources. Results from cross-country comparisons should be used with caution because health systems differ in how they define health care for accounting purposes and how they allocate costs across the various treatment categories.

The theoretical part of this chapter draws extensively from *Measuring Results of Health Sector Reform for System Performance: A Handbook of Indicators* (Knowles et al. 1997).

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### 2.1 Financial Sustainability

Sustainability refers to the capacity of a health system to continue its activities in the future and to expand activities to keep up with population growth and with the additional demands created by diseases such as HIV/AIDS. The term *financial sustainability* refers to the capacity of the health system to replace withdrawn donor funds with funds from domestic sources (Knowles, et al. 1997).

Financial sustainability is particularly relevant in low-income, high-HIV/AIDS prevalence countries given the growing commitment of the international community to providing antiretroviral therapy for as many people in need as possible. This commitment involves major long-term responsibilities. For example, WHO estimates that the long-term costs of lifetime ART for all those who need it could reach \$9 to \$10 billion annually for decades to come. This will have significant implications for development

strategies and assistance programs related to HIV/AIDS, especially in sub-Saharan Africa. Hence, critical issues in the concept of financial sustainability include substitution of domestic spending by donor funds in the health system.

However, in many low-income countries, domestic funding of health is a vulnerable source of financing, mainly because weak tax systems limit domestic revenue generation; economic volatility creates unpredictable fluctuations in total government revenues; and government budgets are subject to political decisions. Hence, alternative domestic sources, including user fees and health insurance, may be needed to reach a financially sustainable health system.

NHA data may serve to monitor and evaluate financial sustainability in a health system over time and by disease categories (e.g., HIV/AIDS, malaria), to respond to questions such as<sup>3</sup>: *Have donor funds replaced domestic sources? Does the HIV/AIDS focus in financing by donors and governments lead to them overlooking other important health needs such as malaria or reproductive health?*

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### 2.1.1 General NHA Indicators for Financial Sustainability

Following the NHA hierarchy from sources to users, this section presents NHA indicators to assess (i) financial sustainability of financing sources; (ii) additionality; (iii) financial sustainability broken down by public and private sectors; and (iv) financial sustainability with respect to the use of health funds.

The tables in this section show in the first column different financial sustainability indicators and in the second column the NHA table cell information and NHA ICHA code needed to compute the indicator. Annex B presents the classification schemes for the variables and ICHA codes included in the NHA matrices.

#### **Financial Sustainability Based on Financing Sources**

The financial sustainability indicators presented in Table 1 can be computed based on data from the NHA financing sources table (see Annex B, Table B-1 for of Financial Sources [FS] codes). These indicators respond to the question: *Who pays how much for health care? And more specifically: By how much would domestic funds have to be increased to replace donor funds?* Tracking these financial sustainability indicators over time allows identifying the degree of dependency of a health system on external sources, as well as changes in government health spending for gauging the system's future financial sustainability.

In calculating these indicators, donor funds (FS.3) are limited to grants, and private health expenditures (FS.2) include out-of-pocket (OOP) spending at the time of service use and insurance contributions of individuals and private firms. For some indicators the NHA analyst must obtain additional financial information from the Ministry of Finance; for example, the total government revenue from domestic taxes spent on health can be obtained from detailed information on the breakdown of the origin of total amount of government funds FS1.

The indicators presented in Table 1 can be linked to specific health policy questions. For example, the first three indicators show who pays for health care and the percent of total health expenditures financed by different sources. Knowing how much donors currently pay for health compared to domestic sources

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<sup>3</sup> See the *Guide to Producing NHA* (WHO, World Bank, and USAID 2003) on the use of deflators when comparing values from different years.

and comparing these percentages with the future anticipated health spending by different sources provides countries valuable information on the financial sustainability of their health system. These findings can then be compared with those of similar countries and with health outcome data.

The last three indicators in Table 1 describe how government health spending is financed with government sources. They respond to questions such as: how much is spent on health compared to the country's gross domestic product (GDP) and compared to total government spending? These are relevant indicators that are generally used in government statistics to compare the level of health spending with other countries. However, examining whether a country spends "enough" on health care will require comparison with health outcomes. Also, indicators such as total health expenditure in terms of GDP may fluctuate over time because of changes in a country's total GDP; hence, they need to be interpreted with caution.

**Table 1: Financial Sustainability Indicators, using NHA financing sources table**

Indicators	Computation using NHA data ICHA code
Percent of total health expenditures financed by government funds	$(\text{Total government health expenditures FS.1} / \text{Total health expenditures FS.1+2+3}) * 100$
Percent of total health expenditures financed by donors	$(\text{Total donor health expenditures FS.3} / \text{Total health expenditures}) * 100$
Percent of total health expenditures financed by private household spending	$(\text{Total private funds FS.2} / \text{Total health expenditures}) * 100$
Tax funded expenditure on health as percent of government health expenditure	$(\text{Tax funded health expenditures} / \text{Total government health expenditures FS.1}) * 100$
Total health expenditure as percent of GDP	$(\text{Total health expenditures} / \text{Total GDP}) * 100$
Government health expenditures as percent of total government expenditures	$(\text{Total government health expenditures FS.1} / \text{Total government expenditures}) * 100$

Note: The Ministry of Finance provides information on GDP and total government expenditures.

The indicators presented in Table 1 are expressed in percentage terms. Table 2 shows the same indicators in per capita values. Per capita values are computed by dividing expenditures by the total population; they are expressed in US \$ at the official exchange rate, for international comparison. For example, within a country, comparing per capita public health spending with per capita private health spending may reveal that private individuals spend considerably more on health per capita than the government. This result may serve as an argument to increase public spending on health to at least the same level as or to a higher level than private per capita health expenditures. Also, comparing these domestic per capita amounts with the donor per capita amount illustrates how domestic funding would have to be raised to compensate for donor funds in order to reach financial sustainability.

**Table 2: Per Capita Financial Sustainability Indicators, using NHA financing sources table**

Indicators	Computation using NHA data ICHA code
Total health expenditure per capita	$\text{Total health expenditures FS.1+2+3} / \text{Population}$
Government health expenditure per capita	$\text{Total government health expenditures FS.1} / \text{Population}$
Private health expenditures per capita	$\text{Total private funds FS.2} / \text{Population}$
Donor health expenditures per capita	$\text{Total donor funds FS.3} / \text{Population}$

Generally, NHA reports calculate and present all financial sustainability indicators presented in Tables 1 and 2. These indicators are easy to compute with information from the basic NHA financing sources table.

NHA findings like these do have real-world consequences, leading some countries to make health policy decisions intended to strengthen the financial sustainability of the health system. For example, the 1998 Rwanda NHA shows that the government contribution to the health system is only 10 percent of total health funds (Schneider et al. 2000). Based on this finding, the MOH negotiated a budget increase for health with the Ministry of Finance in 2002, leading to a doubling of the government health budget. Jordan spends 9.2 percent of its GDP on health care. Comparing this level of expenditure with health outcomes in Jordan, or with other countries in its socio-economic category, shows that this level of expenditure may be financially unsustainable for a country that is experiencing slow economic growth. This led to a policy recommendation of cost containment in the Jordanian health system to contribute to future financial sustainability (Bhawalkar et al. 2003).

### ***Additionality of Foreign Funds***

Additionality refers to the extent to which a government demonstrates to donors that grant funds had increased the level of government health expenditures. Additionality of foreign funds to existing health resources, compared to substitution, is a key facet of financial sustainability. Additionality is a fundamental principle of the Global Fund for AIDS, Tuberculosis and Malaria, which has clearly stated its intent to “make available and leverage additional financial resources” and to “only finance programs when it is assured that the GFATM assistance does not replace or reduce other sources of funding, either those for the fight against AIDS, tuberculosis and malaria or those that support public health more broadly.” This implies that the resources mobilized by the Global Fund must be in addition to existing resource streams. Additionality of foreign funds is a trend indicator; it must be thought of over time and cannot be captured in a single year.

Table 3 shows an additionality indicator based on the NHA financing sources table. Additionality exists if grant funds increase public funds for health, that is, the ratio of government in terms of total health funds is positive and increasing over time. It is important first, to observe this indicator over time to ensure that this year’s additionality is not financed by next year’s substitution; and second, to investigate where the additional government health funds come from. For example, does the government increase health funding by shifting monies from education to health, or from the defense sector to health?

**Table 3: Additionality Indicators, using NHA financing sources table**

<b>Indicators</b>	<b>Computation using NHA data ICHA code</b>
Ratio of government health expenditures in terms of total donor and government health funding	Total government funds FS.1 / (Total donor funds FS.3 + Total government funds FS.1)

The quest for additionality of external funds to existing health resources is relatively new in financial sustainability analysis. So far, the additionality indicator presented in Table 3 has not been identified in NHA reports, although it is easy to compute based on a country’s NHA financing sources table. Additionality should be tracked through analysis of the shares of total and discretionary government spending allocated to the health system (and to HIV/AIDS where a separate analysis is done) (shown in Table 1) and how these shares change over time. This may show that there is substitution instead of additionality because increasing donor funds replace government funds. It may even reveal an increase in out-of-pocket contributions (FS.2), which substitute for government funding, leading to concerns about equity in health financing. However, results on additionality need to be interpreted with caution given the fungibility of the different financing sources available to government. For example, the poor state of

health expenditure data in Zambia has not permitted any discussion of whether GFATM funds are in any sense additional, or indeed whether HIPC (Highly Indebted Poor Country) funding has added to the health budget since 2001 (Lake 2004).

### **Financial Sustainability of Private and Public Sources**

Public and private health expenditures can be further broken down to describe the extent to which these sources come from insurance, taxes and user fees. Such a breakdown identifies *the methods of health financing*. This is shown in Table 4. The three indicators presented in the first column can be computed based on the NHA table that describes the flow of funds from financing sources to financing agents (HF). They respond to the questions: *How is health being financed? Who contributes how much to private or public health funds? Which are the predominant financing methods?* The result will be related to the organizational and socio-economic situation of a country and health system, and it provides some indication on the future potential of the various financing sources.

**Table 4: Financial Sustainability of Public and Private Funds, using NHA FS to HF table**

Indicators	Computation using NHA data ICHA code
Social security expenditure on health as percent of government health expenditure	(Social security health expenditures HF1.2 / Total government health expenditures FS.1) * 100
Private insurance spending on health as percent of private household expenditure	(Private insurance health expenditures HF2.2 / Total private health expenditures FS2.2) * 100
Out-of-pocket (OOP) payments for health as percent of private household expenditure	(Private household OOP payments HF2.3 / Total private health expenditures FS2.2) * 100

Note: See Annex B, Table B-2 for financing agent variables and ICHA codes.

For example, an increasing percentage of *social security expenditures in terms of total government health spending* could indicate a growing formal sector or social health insurance, suggesting that private sources might become more important in future health financing. As a result the MOH may decide to adjust its health provision strategy to accommodate the changes in provider payment methods and in the demand for health care caused by health insurance. Growing *out-of-pocket payment ratios in term of total private spending* can be a sign of financial sustainability. However, this indicator should be viewed from an equity perspective, to evaluate whether out-of-pocket spending excludes low-income groups from access to care.

### **Financial Sustainability Based on Use of Funds**

The financial sustainability of future activities funded by different sources is affected by the extent to which these activities are currently paid by different sources. Hence, the indicators shown in Table 5 respond to the question: *Which source (donors, government, households) contributes how much for what kind of health care (e.g., hospitals, prevention, treatment abroad)?* Computing these indicators requires identifying the *cells* in the NHA table that connect two variables (connection point between a row and a column); as well as *column and row total amounts*. For example, the cell that connects row Health Provider (HP) 3.4 and column HF.1 can be found in the NHA financing agent to provider table. FS.1 is a column total in the NHA financing sources to financing agent table.

Table 5 shows examples with government sources only. These indicators can also be computed for each financing source, for example, for donor funds, to identify and compare *whether government focuses on tertiary care while donors concentrate on primary care*; or for households to identify *the extent of household contributions to primary, secondary, and tertiary health care*. Monitoring results over time from the first and second indicators in Table 5 may show that government funds have shifted from primary to tertiary health care. Findings may help respond to the question: *Who benefits how much from*

*health resources?* Equity concerns arise if the poor seek care predominately in underfunded primary care facilities where they pay user fees. Based on these results, governments may then, for example, change the way resources are distributed. It could derive a strategy for financial sustainability where the government starts to finance primary care activities previously financed by out-of-pocket payments.

**Table 5: Financial Sustainability Indicators, using all NHA tables**

Indicators	Computation using NHA data ICHA code
Percent of government health expenditures directed to primary care in outpatient centers	(Primary care HP.3.4 funded by public expenditures HF.1 / Total government health expenditures FS.1) * 100
Percent of government health expenditures directed to tertiary care in speciality hospitals	(Tertiary care HP.1.3 funded by public expenditures HF.1 / Total government health expenditures FS.1) * 100
Percent of government health expenditures directed to preventive care	(Prevention of communicable diseases HC.6.3 paid by public expenditures HF.1 / Total government health expenditures FS.1) * 100

Note: See Annex B, Table B-3 for Health Providers (HP) and Table B-4 for Health Functions (HF.).

To examine the financial sustainability in health subsectors Table 6 presents NHA indicators that respond to the question: *Where does the health money go?* Results can be compared with efficiency indicators to analyze whether most of the money goes to the more efficient sector, for example, the private health system. To add an equity component to this question, the socio-economic background of the population groups that seek care in the private and the public sector can be identified to respond to the question: *Who benefits? Do the poor seek care in the less efficient public sector, which receives relatively lower funding levels than the private sector?*

**Table 6: Financial Sustainability Indicators, using NHA financing sources and users tables**

Indicators	Computation using NHA data ICHA code
Percent of total health expenditures directed to private health sector	(Total spending in private health sector HP.1-HP.9 private only / Total government health expenditures FS.1) * 100
Percent of private health expenditures directed to private health sector	(Total spending in private health sector HP.1-HP.9 private only / Total private health expenditures FS.2) * 100

Note: To compute "Total spending in private health sector HP.1-HP.9 private only" the analyst needs to identify the ownership status (e.g., private or public) for each health provider included in the NHA provider table (see Annex B, Table B-3).

Addressing the indicators shown in Tables 5 and 6 is part of each NHA report and provides information that health policymakers can use to re-direct funds. For example, in the Philippines, NHA was used to evaluate the impact of health system decentralization. Prior to reforms, central and regional government funding for public health care was low, with central government funding actually decreasing. NHA studies conducted before and after decentralization showed that, after the reforms, government spending on public health care actually increased, from 25 percent to 35 percent of government health funding. However, this was largely due to increased funding from local governments, which after decentralization allocated more than half their health resources to public health care (Bhawalkar et al. 2003).

The above financial sustainability indicators can also be computed and shown for a specific disease (e.g., HIV/AIDS) or intervention category (e.g., reproductive health).



## 2.1.2 HIV/AIDS-Specific NHA Indicators

The purpose of the NHA HIV/AIDS subanalysis is to determine the financial sustainability of HIV/AIDS prevention and care programs given a country's HIV/AIDS financing sources.<sup>4</sup> This informs examination of the extent to which *domestic sources* ensure the provision of interventions and activities. Disease-specific NHA indicators help to answer this question.<sup>5</sup>

Like the preceding subsection, this section is structured by NHA HIV/AIDS subanalysis indicators to assess (i) financial sustainability of HIV financing sources; (ii) additionality of external HIV funding; and (iii) financial sustainability with respect to the use of HIV health funds, thereby contributing to the efficient use of limited HIV/AIDS resources in health facilities.

Annex C presents the NHA-HIV/AIDS subaccount classifications for financing sources, financing agents, providers, and functions, and relevant ICHA codes.

### **Financial Sustainability of HIV Financing Sources**

Table 7 shows the basic NHA HIV/AIDS subanalysis indicators that can be computed with information from the financing sources tables from the general and HIV-specific NHA. These indicators respond to the question: *Who pays how much for HIV/AIDS services? How are HIV/AIDS funds mobilized?* Results should be interpreted combined with the HIV prevalence rate and service use rate, and tracked regularly over time particularly if changes among funding sources (e.g., donors, government) occur. Identifying this trend will help examine whether the provision of HIV/AIDS care is *financially sustainable*, that is *the extent to which the country has the financial capacity to replace withdrawn donor funds for HIV/AIDS with funds from domestic sources.*

**Table 7: HIV Financial Sustainability Indicators, using HIV/AIDS tables**

Indicators	Computation using NHA data ICHA code
Percent of total health expenditure used for HIV/AIDS prevention and care	(Total HIV/AIDS sources S1+2+3 / Total financing sources FS.1+2+3) *100
Percent of total HIV/AIDS expenditures financed by government funds	(Public funds for HIV/AIDS S.1 / Total HIV/AIDS sources S.1+2+3) *100
Percent of total HIV/AIDS expenditures financed by donors	(Donor funds for HIV/AIDS S.3 / Total HIV/AIDS sources S.1+2+3) *100
Percent of total HIV/AIDS expenditures financed by private spending	(Private funds for HIV/AIDS S.2 / Total HIV/AIDS sources S.1+2+3) *100
Percent of government health expenditures allocated to HIV/AIDS	(Public funds for HIV/AIDS S.1 / Government health expenditures FS.1) *100
Percent of donor health expenditures allocated to HIV/AIDS	(Donor funds for HIV/AIDS S.3 / Donor health expenditures FS.3) *100
Percent of total private health spending allocated to HIV/AIDS	(Private funds for HIV/AIDS S.2 / Private health expenditures FS.2) *100

Note: See Annex B, Table B-1, and Annex C, Table C-1.

<sup>4</sup> As noted above, NHA indicators do not assess the performance of program interventions and activities, as this information is not part of NHA.

<sup>5</sup> Details on definitions of HIV activities and interventions can be found in the Tien and Ramos (2004) and Barnett et al. (2001).

Per capita indicators show the burden of health expenditures that are incurred by individuals and households that are affected by HIV/AIDS. Values are expressed in US \$ at the official exchange rate, for international comparison. They can be expressed by dividing HIV-related expenditures paid by households by the total number of individuals diagnosed with AIDS or tested as HIV-positive, or by the total number of HIV positive patients who sought care<sup>6</sup> (see Table 2 for comparison with general NHA); or total HIV prevention expenditures can be divided by the target population, only. For example, a country with a high HIV prevalence rate among intravenous drug users (IDUs) may want to know how much it spends on a needle exchange program per IDU. However, caution should be exercised in comparing per capita spending over time. The number of HIV-infected people between two time periods may change markedly due, for example, to changes in estimation techniques.

- ▲ *Private HIV expenditures per HIV-positive person (S.2 / HIV population)*
- ▲ *Private HIV expenditures per HIV-positive hospitalized patient (S.2 / HIV-positive hospitalized patients)*
- ▲ *Government expenditures for needle-exchange program per IDU*

To compare how much the population pays per HIV-positive person with how much the government or how much all donor sources pay per HIV-positive person, the HIV total amount spent by the population, the government, or donors is divided by the total HIV positive population.

- ▲ *Total HIV expenditure per HIV-positive person (S.1+2+3 / HIV population)*
- ▲ *Government HIV expenditure per HIV-positive person (S.1 / HIV population)*

Findings from these indicators may support HIV/AIDS policy making. If HIV/AIDS expenditures come mainly from private sources (paid by user fees), then equity in health care access may be an issue to be investigated using household survey data. So far, the number of HIV/AIDS-specific NHA reports is limited. The 1998 Rwanda NHA shows that only 10 percent of total health funds is used for HIV/AIDS and that more than 90 percent of total HIV/AIDS is paid by patient out-of-pocket payments (Schneider et al. 2000). This finding caused donors to substantially increase funding for HIV/AIDS (Secretary of State for HIV/AIDS, Rwanda 2003). Preliminary results from recent NHA subanalyses conducted in Kenya, Zambia, and Rwanda suggest that households and donors finance a large share of HIV/AIDS expenditures. For example, in Kenya, households finance 44 percent of HIV/AIDS expenditures, while in Zambia, donors finance 46 percent of HIV/AIDS expenditures (Muchiri et al. 2004). At the same time, the increasingly large share of donor spending targeted to HIV/AIDS raises important concerns about sustainability in the face of a long-term epidemic and questions regarding the role of the government as a steward of HIV/AIDS health care.

### ***Additionality of Foreign HIV/AIDS Funds***

The additionality indicator shown in Table 8 is similar to the one presented in Table 3. However, while the earlier indicator is computed based on NHA financing sources table, this HIV/AIDS additionality indicator uses data from the HIV subanalysis financing sources table only. The degree of additionality of donor funds for HIV/AIDS activities indicates *the extent to which increasing donor funds have caused governments to raise public funds for HIV/AIDS* instead of substituting donor funds for

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<sup>6</sup> Caution should be applied when choosing the subpopulation to calculate per capita expenditures. This can be the entire population, the symptomatic or HIV-infected population, the target groups for preventive measures, those entitled to services, the users or care, etc.

public funds. An increasing trend in this ratio indicates additionality of resources. A flat or negative trend indicates substitution, meaning that increasing donor HIV funds are used to replace government HIV funds. Eventually, decreasing government funds may lead to even higher private spending in the form of, for example, higher out-of-pocket contributions by HIV-positive patients.

**Table 8: HIV Additionality Indicators, using HIV/AIDS financing sources table**

Indicators	Computation using NHA data ICHA code
Ratio of government HIV/AIDS expenditures in terms of donor and government HIV/AIDS expenditures	Total government HIV/AIDS expenditures S.1 / (Total donor HIV expenditures S.3 + government HIV funds S.1)

Additionality of external HIV funds is a new principle that has been championed by the GFATM, and it must be monitored by analyzing financial data. To document whether external funds are additional to domestic funds, each country doing an HIV/AIDS NHA subanalysis would have to compute the above financial sustainability and additionality indicators by using its NHA and HIV subanalysis financing sources table.

### **Financial Sustainability Based on Use of HIV Funds**

Once the NHA analyst has constructed the NHA subanalysis tables (HIV financing sources to financing agents, and HIV financing agents to users/providers and to functions) (see Annex C, Tables C-3 and C-44), more specific financial sustainability indicators can be computed. These indicators respond to the questions: *For which HIV-related functions/services is HIV money used? How are resources distributed? What proportion of HIV money goes to HIV prevention compared to HIV treatment?* These indicators are shown in Table 9.

**Table 9: Financial Sustainability Indicators on Use of HIV Money, HIV/AIDS tables**

Indicators	Computation using NHA data ICHA code
Percent of total HIV/AIDS funds used for HIV/AIDS prevention	(HIV Prevention HC.6 / Total HIV/AIDS funds S.1+2+3) *100
Percent of total HIV/AIDS funds used for ART	(ART HC.5.1.1 / Total HIV/AIDS sources S.1+2+3) *100
Percent of total HIV/AIDS funds used for opportunistic infections of HIV/AIDS	(Opportunistic infection treatment HC.5.1.2 / Total HIV/AIDS sources S.1+2+3) *100

The above indicators are computed by using NHA subanalysis results from the financing agents and users matrices (see Annex C, Tables C-2 and C-4). They can be expressed for each financing source – donors, government, and private – to respond to the questions: *Who pays how much for the various activities? How are resources managed?* The following three indicators illustrate these questions in regard to government funding. Results reveal the *focus of the government HIV policy* – whether it is directed more to prevention, or to improving access to specific treatment – and can be used to compare government funding to funding from private or donor sources.

- ▲ *Percent of government HIV/AIDS expenditures directed to HIV prevention (HIV prevention HC.6 / HF.1.1)*
- ▲ *Percent of government HIV/AIDS expenditures directed to finance ART (HC.5.1.1. / HF.1.1)*
- ▲ *Percent of government HIV/AIDS expenditures directed to opportunistic infections (HC.5.1.2 / HF 1.1)*

At present, there is only limited NHA information available on the financial sustainability based on the use of HIV/AIDS funds. The 1998 Rwanda NHA exercise looked at all the indicators presented in Table 9 and found that 14 percent of all HIV/AIDS monies is used for treatment of HIV/AIDS, 79 percent for treatment of opportunistic infections, and the remaining 6.5 percent for non-treatment-related, preventive activities organized by the Ministry of Health (MOH) and local nongovernmental organizations (see Table 18 in Schneider et al. 2000). To identify how much HIV/AIDS patients pay for care, the Rwandan NHA analysts conducted a household survey of HIV-positive patients (Nandakumar et al. 2000) and reviewed patient registers of patients receiving ARV treatment and care for opportunistic infections (Schneider et al. 2000).

*Whether HIV/AIDS patients and their use of health care affect the operational capacity of the health system* is shown by comparing HIV-specific use with the total use of health care. For example, the following indicator shows the extent to which hospital beds are occupied by HIV-positive patients:

- ▲ *Percent of total occupied hospital beds used by HIV-positive patients per year.*

If this percentage and the country's HIV prevalence rate are high, then this could affect the financial sustainability of HIV funds. For example, the MOH may consider increasing the number of hospital beds, which requires financial resources, or it may first revisit treatment protocols to shorten average lengths of hospital stay while maintaining quality levels and number of beds.

The decline in prices for antiretroviral (ARV) drugs has had an enormous positive impact on the financial sustainability of many national HIV/AIDS budgets. For example, as a result of a decline in per-patient treatment costs, Brazil was able to provide antiretroviral therapy to an additional 14,500 patients while overall HIV/AIDS expenditures declined by 16 percent.

Vietnam, a country considering implementation of an NHA HIV/AIDS subanalysis, could focus on identifying who pays what portion of total HIV/AIDS funds for prevention and care of young, male intravenous drug users, the group that reports the country's highest HIV prevalence rates and constitutes 60 percent of HIV-positive individuals. Results may affect health policy. For example, the government and donors may conclude that it is more cost-effective to increase funding for measures to deter young men from becoming IDUs in the first place and thereby decrease the risk that they become HIV positive.

Countries that intend to measure financial sustainability indicators of HIV/AIDS care over time will have to invest into institutionalizing NHA exercises with the HIV-specific subanalysis.

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## 2.2 Efficiency

NHA indicator results can be used to examine efficiency in *health systems* over time and across countries that are socio-economically similar. Efficiency has three dimensions: *technical, economic, and allocative* efficiency, which are assessed by different indicators.

- ▲ Technical efficiency indicators allow comparing countries with respect to how much they get for what they invest in health. Technical efficiency addresses the question: *How much does country A spend on health per capita compared to country B to achieve a specific amount of health output (e.g. deliveries attended by medical personnel or HIV prevalence rate)?*
- ▲ Economic efficiency aims to respond to the resource management question: *At the current health spending level, with what combination of financial inputs to health (e.g. percent of*

*total health spending going to drugs versus to personnel) do we reach the current health outcome or output (e.g. percentage of AIDS patients receiving ARV treatment)? How does this combination differ from previous years?*

- ▲ *Allocative efficiency examines: What proportion of health funds is allocated to what mix of interventions to reach the current health outcome at current health spending level? How does this result compare to previous years and to neighboring countries?*

Two points should be noted here: First, NHA data address efficiency issues only to some extent, and detailed production and cost data would be needed to examine efficiency of a *health system*. Nevertheless, NHA is useful to analyze specific efficiency-related questions within a health system, and to compare those results internationally.

Second, efficiency indicators should be interpreted with caution, mainly because they are based on a society's underlying value judgment about the relative merit of different health services. This point is particularly relevant to allocative efficiency, where certain services may be funded, not due to efficiency per se, but to equity concerns or consumer demand, or because they are donor-driven.

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### 2.2.1 Technical Efficiency

The performance of a health system is *technically* efficient when it produces the maximum output (e.g., immunization rate, maternal mortality rate) for a given amount of input (e.g., total health spending per capita or government spending per capita)<sup>7</sup>. NHA data respond to the technical efficiency question: *How much money do we invest in health to reach the current health outcome or health output?* Results may indicate the changes that would be needed in health financing and the provision of care to increase technical efficiency, or to reach better health outcomes with current financing.

This section focuses on three technical efficiency indicators. It shows how to use NHA data to compare (i) labor and hospital efficiency in the public and private sectors; (ii) technical efficiency in the private and public sectors of the *health system*; and (iii) technical efficiency in the HIV/AIDS subsector. Results should be compared over time and with reference countries.

#### **Labor and Hospital Efficiency**

Indicators of *labor productivity* compare “outputs” per “labor input” and are easy to measure. These indicators respond to questions such as: *How much does a health system produce (e.g., occupied beds) with a given number of labor (e.g., physicians)?*

The following examples can be computed separately for the public and private health sectors and then used to compare the relative labor productivity in the two sectors, to respond to the question: *Which sector provides what output with what input?*

- ▲ *Number of occupied hospital beds divided by the total number of physicians (to be computed separately for public and private sectors)*
- ▲ *Number of outpatient visits divided by the total number of physicians*
- ▲ *Ratio of outpatient visits to personnel expenditures (total outpatient visits in public sector*

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<sup>7</sup> NHA data provide only a general indication of technical efficiency in a health system. Technical efficiency is commonly evaluated on a health facility level by examining economies of scale in an econometric cost function using detailed health facility data.

*divided by total personnel expenditures in public sector)*

- ▲ *Total hospital expenditures per occupied hospital bed*

To compute these indicators, the NHA analyst will need more detailed data from the MOH and private provider organizations on bed occupancy rates, average length of hospital stays, number of staff, etc. Low labor productivity may reflect technical inefficiency, for example, if health workers neglect their duties because of lack of incentives or poor supervision. Large variations in results between the public and private health sectors could signify inefficient allocation of human resources.

Indicators of *hospital sector efficiency* are widely used and can be constructed from MOH data sets containing information on the private and public sectors. Results will show *whether there is a difference in technical efficiency between public and private hospitals*.

- ▲ *Average length of hospital inpatient stay in private/public sector*
- ▲ *Hospital bed occupancy rate in private/public sector*

Results need to be interpreted by considering *how providers are financed and the resulting financial incentives set by the hospital payment mechanism*. High average lengths of stay may be due to inefficient budgeting or reimbursement systems. For example, hospitals budgets may be linked to occupancy rates, setting an incentive to increase average length of stays beyond what is medically needed. Low occupancy rates may indicate poor quality of care in hospitals or unaffordable user fees that limit patients' service use. Findings from the NHA table on how health providers and functions are financed will help interpreting results on technical efficiency.

Results of labor productivity and hospital sector efficiency should be read with caution, mainly because *health outputs such as visits and hospital stays are not uniform*. For example, the private sector may attract more severely ill patients and provide better quality care, which will require more staff time per stay or result in longer hospital stays. Also, high labor productivity in understaffed public facilities may be indicative of poor quality and poor allocation of human resources.

### **Technical Efficiency in Private and Public Subsectors**

The following two *technical efficiency* indicators are easy to compute and compare "health outcome" per "financial input" based on NHA and Demographic and Health Survey (DHS) data.

- ▲ *Maternal mortality rate (DHS) compared to per capita total health expenditures*
- ▲ *Infant mortality rate (DHS) compared to per capita health spending*

These indicators can serve on a country-level and for cross-country comparison. For example, findings may show that, although it spends the least per capita on health, country A achieves better maternal mortality results than countries B and C.

Indicators of *technical efficiency* in a health system include measures of the relative importance of the private sector in the provision of both inpatient and outpatient care compared to the public sector. Based on labor and hospital efficiency analysis, some countries may find private providers are more efficient than public providers. The resulting health policy goal would then be to increase the share of patients going to the private sector. Accordingly, the technical efficiency indicators presented in Table 10 respond to the question: *Do patients seek care in the more efficient private sector?* These indicators can be computed based on provider data received from the MOH. They should be interpreted jointly with NHA financial sustainability indicators on the private sector (see Table 6) and with findings on equity of health care delivery and financing.

**Table 10: Technical Efficiency Indicators, using provider data**

Indicators	Computation using provider data
Outpatient visits obtained from the private sector in percent of total outpatient visits	(Total outpatient visits in private sector / Total outpatient visits in private and public sector) * 100
Private hospital beds as a percent of total hospital beds	(Total hospital beds in private sector / Total hospital beds in private and public sector) * 100

Note: Data to compute these indicators need to be obtained from the ministry of health and private provider organizations.

Technical inefficiency is common in the health system, and tends to be related to poor drug storage in health facilities, inappropriate drug prescriptions, and staff inflexibility, leading to waste of resources and production below capacity. Findings that indicate technical inefficiency may help the MOH develop strategies to achieve more health outcome for the amount of money invested by improving efficiency in the production of care.

### **Technical Efficiency in the HIV/AIDS Subsector**

The above indicators can be computed for the HIV/AIDS subsector to respond to the question: *How much health outcome or output do we get in the HIV/AIDS subsector for the money invested in that subsector?*

Based on NHA data, the following *technical efficiency* indicators can be computed and compared across countries and time. They compare “HIV outcome” per “HIV resource input” assuming that a country’s HIV prevalence rate is linked to the amount of resources spent on HIV/AIDS:

- ▲ *Total number of people living with HIV/AIDS (PLWHA) / Total HIV/AIDS spending (S.1+2+3)*

Findings on HIV-specific *labor and hospital efficiencies* may serve to examine human resource and hospital capacity issues. In the HIV context, *labor efficiency* indicators respond to the questions: *How much HIV care (e.g., HIV occupied hospital beds) is produced with the current labor force (e.g., physicians working on HIV/AIDS)?* The following indicators provide some examples. The information needed to compute these indicators is not available through the common NHA exercise and requires additional HIV-specific provider data available from the MOH:

- ▲ *Number of occupied hospital beds for HIV/AIDS-related illness divided by the total number of physicians working on HIV/AIDS*
- ▲ *Number of outpatient visits for HIV-related illnesses divided by the total number of physicians*
- ▲ *Ratio of outpatient visits to personnel expenditures for HIV/AIDS-related illnesses (total outpatient visits in public sector divided by total personnel expenditures in public sector)*

Given the need to understand how best to leverage scale with resource investments, examining *technical efficiency in terms of economies of scale and the cost of producing HIV/AIDS care in health facilities* is key. The indicators above provide some cursory information on economies of scale in the HIV/AIDS subsector. For example, if the ratios that these indicators reveal an increase (for example, increased visits attended per physician), then the workforce may reach full capacity levels indicating the need to hire or train more staff to prevent diseconomies of scale. However, detailed cost and utilization health facility data would be needed for calculating economies of scales on a facility level, and NHA results may only provide some indications with respect to economies of scale.

In addition to looking at the entire HIV/AIDS subsector, these productivity indicators should be monitored over time for the public and private sectors, to examine *whether efficiency changes are related to staff moving from public to the private sector or vice versa*. Again, facility-level analysis on production and cost is needed to examine efficiency in production in health facilities.

*Hospital efficiency indicators* may serve to compare efficiency in private and public hospitals of providing HIV/AIDS care. Again, additional information from the MOH will be needed to compute these indicators.

- ▲ *Average length of hospital inpatient stay for HIV-related illnesses in private/public sector*
- ▲ *Hospital bed occupancy rate among HIV-positive patients in private/public sector*

For example, if HIV-positive patients report considerably higher average lengths of hospital stays and account for a higher occupancy rate in hospital beds, then the MOH may decide to increase the number of hospital beds if there is an increase in the HIV-prevalence rate.

Since efficiency contributes to financial sustainability (an inefficient system will not be financially sustainable), these efficiency indicators provide some indication the health system's sustainability (see Section 2.1.2).

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## 2.2.2 Economic Efficiency

### ***Economic Efficiency in Health Systems***

A health system is *economically* efficient if its input combinations (e.g., physicians, nurses, drugs) are used to produce a given level of services at the least cost.<sup>8</sup> NHA data may serve to respond to the economic efficiency question: *With what input combination in health do we reach current health outcome or output?* Results need to be compared to relevant output or outcome indicators (e.g., visit rates in health facilities and hospital occupancy rates) and over time, and with reference countries. Economic inefficiency is common in health systems that are centrally organized, where political interest have led to too many physicians per occupied hospital bed, or too many different health facilities in one target area.

Indicators of economic efficiency are used to examine different levels within a health system (e.g., private, public sector). The indicators presented in Table 11 can be used to compare economic efficiency in terms of *staff and drug expenditures* in the private and public sectors. They respond to the question: *What proportions of total health expenditures are made on staff and on drugs? Are there differences in private and the public sector with respect to these percentages on economic efficiency?*

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<sup>8</sup> NHA data provide only a general indication on economic efficiency in a health system. Economic efficiency is commonly evaluated on a health facility level by examining economies of scope in an econometric cost function and based on health facility data.



**Table 11: Economic Efficiency Indicators, using NHA functions table**

Indicators	Computation using NHA data ICHA code
Expenditures on <i>personnel</i> as a percent of total health expenditures	(Total personnel / Total health expenditures FS.1+2+3) * 100
Expenditures on <i>drugs and supplies</i> as a percent of total health expenditures	(Total drugs and supplies / Total health expenditures) * 100
Personnel expenditures as a percent of total health expenditures in <i>public</i> sector	(Total personnel expenditures in public sector / Total health expenditures in public sector) * 100
Personnel expenditures as a percent of total health expenditures in <i>private</i> sector	(Total personnel expenditures in private sector / Total health expenditures in private sector) * 100

Note: To compute these indicators, the NHA B-3 matrix needs to provide more detailed information by functions on personnel expenditures in public and private sector, and on total drug expenditures.

How can results from these indicators be used? Relatively *high staff expenditures in terms of total expenditures* often reflect the presence of MOH job protection mechanisms that result in staffing overcapacity, i.e., inputs are not used to minimize costs. *Low public sector staff expenditures* may also indicate that salaries in that sector are too low compared to the private sector, leading public employees to seek out work in the private sector. *Drug expenditures may be relatively high* because of inefficient procurement, because branded drugs are used instead of generic drugs, because drugs are “leaked” from the public to the private sector, or because of excessive prescription of drugs. These findings may help the MOH adjust personnel and drug strategies, for example, develop/adopt new resource management and financing mechanisms that offer financial incentives to providers to increase staff and drug efficiency.

The following “combination” indicators are computed based on standardized government data and should be interpreted in conjunction with expenditure information on overall personnel (shown in Table 11), and relevant outputs (e.g., visits). They respond to the question: *Can the same output level (e.g., percent of occupied hospital bed) be reached with a different combination of staff?*

- ▲ *Number of nurses per physician*
- ▲ *Number of nurses per occupied hospital bed*
- ▲ *Number of physicians per occupied hospital bed*

Especially high or low staff values relative to other countries, between the private and public sectors or urban and rural areas, or over time may signify economic inefficiency. As a result, the government may decide, for example, to change salary incentives to encourage physicians to leave urban hospitals and take up work in rural health facilities.

### **Economic Efficiency in HIV/AIDS Subsector**

Assessing economic efficiency in the HIV/AIDS-specific context aims to respond to the question: *With what input combination (e.g., staff, drugs) in HIV/AIDS do we reach current HIV/AIDS outcome or output, with the money invested in HIV/AIDS?* For example, an HIV service such as counseling might be reached at lower cost by using nurses instead of physicians, or health centers instead of hospitals.

The indicators presented above in Table 11 can be used in an HIV-specific context to compare economic efficiency in terms of *staff and drug expenditures* in the private and public sectors. This is shown in Table 12. They respond to the question: *What proportions of HIV/AIDS expenditures are spent on staff and on drugs? Are these proportions different in the private and public sectors?* To compute these indicators, the analyst will use information from the NHA HIV/AIDS subaccounts (see Annex C, Tables C-1-4). Results need to be compared with HIV-relevant output indicators (e.g., HIV visit rates in

health facilities, HIV counseling rates) and compared over time or across sectors to draw conclusions on relative economic efficiency.

**Table 12: Economic Efficiency Indicators, using NHA HIV/AIDS functions table**

Indicators	Computation using NHA data ICHA code
Expenditures on <i>HIV personnel</i> as a percent of total HIV/AIDS expenditures	(Total personnel working on HIV/AIDS / Total HIV/AIDS expenditures S.1+2+3) * 100
Expenditures on <i>HIV drugs and supplies</i> as a percent of total HIV/AIDS expenditures	(Total HIV drugs and supplies / Total HIV/AIDS expenditures) * 100
Personnel (working in HIV-care) expenditures as a percent of total HIV/AIDS expenditures in <i>public</i> sector	(Total HIV personnel expenditures in public sector / Total HIV/AIDS expenditures in public sector) * 100
Personnel (working in HIV-care) expenditures as a percent of total HIV/AIDS expenditures in <i>private</i> sector	(Total HIV personnel expenditures in private sector / Total HIV/AIDS expenditures in private sector) * 100

Note: To compute these indicators, the NHA C-3 table must distinguish between public and private sector expenses with respect to functions on personnel and drug expenditures.

### 2.2.3 Allocative Efficiency

Allocative efficiency evaluates how resources are allocated. A health system has *allocative efficiency* if resources are allocated to a mix of interventions such that the most health value for the most people is obtained for the cost incurred. In this context, NHA data respond to the question: *What proportion of health funds is allocated to what mix of interventions to research the current health outcome at current health spending level?*

Results need to be compared over time and with other countries with different allocation mixes. Allocative inefficiency exists in many countries where a high share of resources are spent on hospital care but the majority of the population seeks care in basic health care facilities. Hence, NHA findings may help the MOH to change its current allocation mix to eventually reach better health outcome.

Table 13 presents *allocative efficiency* indicators that are widely used and easy to construct based on NHA data. These indicators examine: *To what mix of interventions (e.g., prevention, curative, treatment abroad) are total health funds allocated?*

**Table 13: Allocative Efficiency Indicators, using NHA provider and care table**

Indicators	Computation using NHA data ICHA code
Percent of total health expenditures allocated to preventive care	(Preventive care expenditures HC.6 / Total health expenditures FS1+2+3) * 100
Percent of total health expenditures allocated to curative care	(Curative care expenditures HC.1 / Total health expenditures) * 100
Percent of total health expenditures allocated to treatment abroad	(Providers rest of world HP.9 / Total health expenditures) * 100
Percent of total government drug expenditures allocated to primary health care facilities	(Total government drug expenditures in primary health care facilities / Total government drug expenditures) * 100

Note: See Annex B, Tables B1-B4 for ICHA codes

Findings need to be compared with the health outcome or output achieved (e.g., mortality rates), and the per capita health expenditure level (see Table 1). For example, allocative *inefficiency* would exist where a country has relatively high percentages of total health expenditures on treatment abroad and curative care, and a low percentage on maternal health care – while at the same time having high maternal mortality rate and low use rates for maternal health care. The country’s MOH might change its funding strategies to achieve higher allocative efficiency by spending more on maternal health care and prevention to reach a lower maternal mortality rate. Overall, this could result in higher per capita spending on health by the government and contribute to financial sustainability.

Allocative efficiency and equity results can be combined. For example, if the government only pays a small percent of total drug expenditures in basic health facilities, leaving a large proportion to be paid out-of-pocket especially by the poor, who are the primary users of those facilities, then this would indicate an absence of pro-poor allocation of government drug funds.

### **Allocative Efficiency in HIV/AIDS Sub-Sector**

Allocative efficiency is particularly relevant in the HIV/AIDS context as it takes the mix of health interventions as inputs and the health outcome as output. In other words, it refers to the maximization of health output with the least costly mix of interventions.

Using NHA HIV/AIDS subanalysis data allocative efficiency addresses the question: *What proportion of HIV/AIDS funds is allocated to what mix of HIV/AIDS interventions (e.g., prevention, treatment) to reach the current HIV/AIDS outcome (e.g., HIV prevalence rate) at current HIV/AIDS spending level?*

Table 14 presents examples of indicators that assess allocative efficiency based on NHA HIV/AIDS subaccounts and specifically for the HIV/AIDS sector. These indicators are comparable to the indicators presented in Table 13 for the general health system. They show the various percentages of total HIV/AIDS funds used to pay for different interventions, namely prevention, hospitals, and outpatient care. Results should then be compared with an output measure, for example, the HIV prevalence rate. These indicators can be further broken down for each source of financing: government, donors, and households.

**Table 14: Allocative Efficiency Indicators, using NHA HIV/AIDS provider and care table**

<b>Indicators</b>	<b>Computation using NHA data ICHA code</b>
Percent of total HIV/AIDS expenditures allocated to HIV prevention	$(\text{Preventive care expenditures HC.6.3} / \text{Total HIV/AIDS expenditures S1+2+3}) * 100$
Percent of total HIV/AIDS expenditures allocated to HIV inpatient treatment	$(\text{Inpatient curative care HC.1.1} / \text{Total HIV/AIDS expenditures}) * 100$
Percent of total HIV/AIDS expenditures allocated to HIV outpatient treatment	$(\text{Outpatient curative care HC.1.2} / \text{Total HIV/AIDS expenditures}) * 100$

Note: See Annex C, Tables C-1–4 for ICHA codes

Results should be interpreted with caution, in particular when comparing across countries and considering the underlying value judgments about the relative merits of different health services within a country. For example, findings may show that country A and B have similar HIV prevalence rates but they report large differences in the proportion of HIV funds allocated to HIV prevention, and inpatient and outpatient care. Inefficient resource allocation would be indicative of funds going to less efficient interventions when more cost-effective interventions are available. For example, a country may decide to send HIV patients for treatment abroad although this service is available in the country, at lower costs.

While NHA data provide several indicators to address efficiency issues to some extent, detailed production and cost data from health facilities would be needed to evaluate efficiency levels in a health system. Nonetheless, NHA is useful to examine these three specific efficiency-related questions of a health system by comparing results with another health system or over time.

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## 2.3 Equity

Equity analysis focuses on two dimensions: equity in utilization and in financing of medical care. The egalitarian equity view considers a health system as equitable if it is financed according to individuals' income or ability to pay, and if medical treatment is distributed based on patients' need for care, as judged by providers and unrestricted by patients' income and wealth (Culyer and Wagstaff 1993). Equity indicators respond to the questions: *Who benefits from health resources? Who receives what kind of care and how much? Which socio-economic groups pay how much for care?*

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### 2.3.1 Equity in utilization of medical care

Equity in utilization of care means that individuals in equal need of care use care equally, independent of their socio-economic background, implying that health personnel provide care according to patients' health status (Young 1994). Analysis on equity in utilization based on NHA data aims to respond to the question: *Which socio-economic group receives how much and what kind of care when sick?*

Equity analysis requires micro-level household data describing individuals' socio-economic and demographic characteristics, health status, health-seeking behavior, and information on private health expenditures. NHA analysts have access to this kind of detailed household survey data, which were collected to calculate the private health expenditure category HF.2.1 (insurance premium) and HF.2.3 (out-of-pocket spending).

The indicators presented in Table 15 on equity in service use are computed based on household survey data. They show the average number of visits by income groups in hospitals and in basic health facilities, as well as for private and public sector facilities. Comparing results will respond to the question: *Do different socio-economic groups use care equally?* Adjustment by health status would be needed to examine whether individuals in equal health status and need for care use it equally, and independent of their socio-economic background.

**Table 15: Equity in Utilization Indicators, using household survey data**

Indicators	STATA command using household survey
Mean visit value by income group, for basic health center HC care	svymean Hcvisit, by (incomegroup)
Mean visit value by income group, for hospital care	svymean hospitalvisits, by (incomegroup)

Note: These indicators can also be computed in SPSS and other statistics programs.

If household survey data are not available, Health Information System (HIS) data may provide per capita visit rates that can be compared in health facilities in poor and richer areas to identify *whether service use differs across health facilities in different socio-economic areas* (e.g., comparing rich urban versus poor rural areas, and assuming that patients seek care in their neighborhood).

Inequity in utilization exists if service use correlates with individuals' socio-economic background, meaning that higher-income groups report higher visit values than the poor, who are in equal need for

care. The *reasons for inequitable service use may include* unaffordable user fees, informal payments, high transport costs, as well as non-financial barriers such as different information about the use of health care. Findings from equity analysis may assist the MOH in developing a strategy to improve access to care for low-income groups. For example, lower-income groups can be exempted from paying for health care in low-income areas, and the government may decide to target government subsidies and quality of care programs to these health facilities. An example of how to use NHA data to examine equity in financing and delivery of health services in Bangladesh, Nepal, and Sri Lanka was produced by Data International, Nepal Health Economics Association, and the Institute of Policy Studies (2001).

### **Equity in Utilization of HIV/AIDS Care**

As explained above, equity in utilization of HIV/AIDS care would mean that HIV-positive patients in equal need for treatment use care equally, independent of their socio-economic background. However, in reality this is not the case, and utilization of HIV/AIDS care is highly inequitable among uninsured individuals in low-income countries. For example, the poorest population groups in developing/transition countries are on average significantly less likely to have received counseling or testing for HIV/AIDS compared to groups who are economically better-off (Gwatkin, et al. 2004).

As outlined above for the use of overall health care, the NHA analyst can use the same two analytical approaches to respond to the “Who benefits” questions: *Which socio-economic group among HIV-positive individuals receives how much and what kind of HIV-care? Or: Which socio-economic group in the general population uses how much HIV prevention?*

Examining equity in utilization requires, first, to identify based on MOH supply data, whether different HIV/AIDS prevention and treatment is offered in areas and health facilities that target the poor and in facilities where the rich usually seek care (e.g., in public health centers compared to private hospitals). These data may help responding to the question: *Are the poor HIV-positive individuals less likely to receive equal treatment than the rich because they seek care in health facilities where less or no HIV care is available? Are the poor more exposed to HIV/AIDS because prevention programs do not reach them?* For example, if findings show that ARV drugs are offered predominantly in private hospitals that are unaffordable for the poor, whereas public health centers staffed by nurses prescribe painkillers to HIV-positive patients, this is indicative of inequitable utilization.

Second, to test the above proposition, a household or a patient survey would have to be conducted with people living with HIV/AIDS to identify their use of HIV care given their socio-economic background and health status. Detailed survey data allow addressing specific equity questions, such as: *Do the rich AIDS patients use ARV treatment more than poor AIDS patients? Do poor HIV-positive individuals use more basic care in health centers than hospital care?*

In HIV/AIDS, issues of equity are essential given that the lowest-income groups are the most impacted by the illness. Many policy initiatives focus on improving access to and utilization of services “for those who need them most,” yet NHA data analysis can reveal whether those policy statements are realistic.

Findings on equity in service use should be interpreted together with results on equity in financing of care.

## 2.3.2 Equity in Financing of Health Care

“Equitable” financing of health care implies *progressivity*, i.e., individuals with equal income make equal payments, independent of health status, and higher-income groups contribute a higher proportion of their income to health than do poorer-income groups. In contrast, where an increasing rate of household income is spent on health as household income decreases, health financing is *regressive* (Young 1994).

NHA data can be used in the analysis of equity in financing of care to respond to the question: *How does household spending on health care differ across socio-economic groups?*

If NHA analysts have access to household survey data, the following indicators on equity in health financing can be computed for comparison across socio-economic groups.

- ▲ *Percent of household income spent on health care by socio-economic group*
- ▲ *Per capita expenditure on health care by socio-economic group*

If detailed household survey data are not available, then NHA indicators may serve as proxies to identify whether health financing is equitable. They serve to examine: *Do public funds subsidize care in health facilities where poor or rich individuals seek care? Or: To what extent are health expenditures financed by public, private, and donor sources in facilities where the rich seek care and in facilities where the poor seek care?*

To respond to these equity questions, different financing sources (government, donors, households) need to be tracked through the NHA financing agent table to the users table. It allows the NHA analyst to identify in the NHA user table (B-3) whether, for example, public funds mainly serve to finance care in health facilities where the poor or the rich seek care.

Table 16 shows indicators on equity in financing that can be constructed based on NHA data. For example, if results show that the poor mainly seek care in basic health facilities and these facilities are mainly financed by out-of-pocket payments; and that the affluent groups benefit from treatment abroad, financed predominantly by government funds, then this would be indicative of a pro-rich government health spending strategy. The MOH may consider changing this situation in order to improve equity in utilization and financing of health care.

**Table 16: Proxies for Equity in Financing, using NHA provider and care table**

Indicators	Computation using NHA data ICHA code
Preventive health care expenditure in public facilities as a percent of total public funds	(Preventive care expenditures HC.6 / Public funds FS1) * 100
Percent of total health expenditures in basic health facilities paid by patient out-of-pocket (OOP) payments	(Total revenue from OOP in basic health facilities / Total health expenditures in basic facilities) * 100
Expenditure on treatment abroad as a percent of total public funds	(Providers rest of world HP.9 paid by public funds HF1.1.1 / Public funds FS.1) * 100
Percent of total government drug expenditures allocated to primary health care facilities	(Total government drug expenditures in primary health care facilities / Total government drug expenditures) * 100

Note: See Annex B, Tables B1-4 for ICHA codes.

NHA analysts need to interpret results on health financing in combination with findings on equity in service use. Looking only at health financing indicators could be misleading, for example, user fees may seem to be financially equitable but in fact this is due to the poor not seeking care and thus not incurring any out-of-pocket expenditures.

How NHA analysts may use equity results to reach equity objectives in health financing is demonstrated in the following example: In post-apartheid South Africa, the government used NHA results to address one of its major policy objectives: more equitable distribution of health resources. Findings showed that average general government health expenditure per person was 3.6 times higher in the country's richest districts than in the poorest ones. Poorer districts – which tend to be areas with the greatest health problems – had the worst geographical access to health workers, hospitals, and clinics. In response, the government enacted a moratorium on construction of private hospitals, which were usually built in the richest neighborhoods that already had the greatest access to health care. The moratorium was lifted only after policymakers developed regulations requiring an assessment of need when hospital construction is proposed, in an effort to reallocate health care resources (McIntyre 1998).

### **Equity in HIV/AIDS Financing**

Equitable financing of HIV/AIDS care implies that individuals with equal income make equal payments and that higher-income groups contribute a higher rate of their income to health than poorer-income groups, *independent of their HIV and health status*. The same equity analysis can be conducted as presented above for the general health system. Results will help addressing the question: *How does household spending on health, including HIV/AIDS care, differ across socio-economic groups? And: Do HIV-positive poor individuals contribute a higher rate of their income to health than those in higher socio-economic groups?*

To examine whether HIV/AIDS financing is equitable, analysis needs to be conducted with micro-level data that identify the HIV status of individuals for example in a household survey. The following indicators on equity in financing can be computed using household survey data:

- ▲ *Percent of household income spent on health care by income group, and by HIV status*
- ▲ *Per capita expenditure on health care by income group, and by HIV status*

HIV/AIDS financing is inequitable if poor HIV-positive individuals spend a higher rate of their income on care than rich HIV-positive individuals.

If detailed household survey data are not available, equity indicators constructed based on NHA HIV/AIDS subaccounts may serve as proxies to identify whether financing is equitable. For that purpose, different HIV/AIDS financing sources (government, donors, households) need to be tracked through the NHA HIV/AIDS financing agent table to the HIV/AIDS users table (see Annex C, Tables C-1–4). Then, the NHA analyst can identify, for example, whether HIV/AIDS funds mainly serve to finance care in health facilities where the poor or the rich HIV-positive individuals seek care.

Table 17 shows the same indicators as in Table 16, but applied to the context of equity in HIV/AIDS financing. The indicators focus on who pays for HIV prevention, HIV basic care, HIV hospital care, and ART.

**Table 17: Proxies for Equity in HIV/AIDS Financing, using NHA HIV/AIDS provider and care table**

<b>Indicators</b>	<b>Computation using NHA data ICHA code</b>
HIV preventive care expenditure in public facilities as a percent of total public HIV funds	(HIV prevention expenditures HC.6.3 / Public HIV/AIDS funds HF.1) * 100
Percent of total HIV expenditures in basic health facilities paid by HIV patient out-of-pocket (OOP) payments	(Total OOP revenue from HIV/AIDS patients in basic health facilities HF.2.3 / Total HIV/AIDS expenditures in basic facilities HP.3.4) * 100
Expenditure on HIV-care in public hospitals as a percent of total public HIV funds	(Public hospitals HP.1.1.1 / Public HIV/AIDS funds HF.1) * 100
Percent of total government drug expenditures allocated to ARV treatment	(Total ARV expenditures HC.5.1.1. paid by government HF.1 / Total government drug expenditures HF.1 spent on HC.5) * 100

Note: See Annex C, Tables C-1-4 for ICHA codes.

Again, results need to be interpreted in combination with findings on equity in service use. Health financing reform strategies may be derived to ensure equal access to care and equitable financing for all income groups, independent of their HIV status.

Equity concepts are less concerned about the poverty impact of health care payments, which is particularly relevant in the context of high-cost HIV care in low-income countries. Paying high out-of-pocket fees for care may affect the income, savings, and earning capacities of households with HIV-positive individuals, and push them into or further into poverty (Wagstaff 2001).

Applying this concept to NHA data would require micro-level data to compare to household income before and after health expenditures and the extent to which income drops below the poverty line due to health expenditures.



## 3. Conclusions and Recommendations

The purpose of this report is to inform NHA analysts and policymakers on how to better use and interpret results from NHA and HIV/AIDS subanalyses by linking them to three health policy goals: financial sustainability, efficiency, and equity. The conceptual framework used illustrates each of these three policy goals, and shows how the related indicators to assess these goals can be computed by using NHA data. Examples illustrate how NHA indicators can and have been used for health policy purpose. Three important conclusions can be drawn from the discussions in this report.

First, sound information is essential for tracking progress, evaluating impact, attributing change to different interventions, and guiding decisions on program scope and focus. Most NHA indicators presented in this document – and particularly those on financial sustainability – are routine indicators presented in standardized NHA reports. In addition, and depending on the relevant health policy issues, a government may require specific indicators to monitor and evaluate specific efficiency and equity issues, for example, in the context of HIV/AIDS. The MOH may also wish to monitor specific indicators to receive initial health information that serves to derive policy questions for more detailed disease- or intervention-specific analysis.

Second, regular analysis of NHA indicators and their interpretation to derive policy recommendations for the general health system and specific diseases such as HIV/AIDS require institutionalizing NHA reporting in a country.

Third, institutionalizing NHA contributes to validity and reliability of data and reporting and allows analyzing the impact of major financing changes (e.g., massive increases in HIV/AIDS donor funds) on health objectives such as equity in financing and use of HIV/AIDS services over time.

It is recommended that NHA analysts compute and report the NHA indicators described in this document. Then, analysts in collaboration with policymakers should interpret indicator results by presenting them in the context of a country's health policy and strategy. Findings should be discussed with relevant stakeholders to strengthen the validity of results. This discussion will inform the policy process and help deriving evidence-based recommendations for strategies that aim to reach overall health and HIV/AIDS related policy goals in a country. Tracking indicator results will provide important performance information to government and donors who are monitoring and evaluating the effectiveness of health financing, and who need information to plan and implement programs that reach national health objectives.



# Annex A: Global HIV/AIDS Initiatives

**Table A-1: Global HIV/AIDS Initiatives and Financial Indicators**

<b>Global HIV/AIDS Initiative</b>	<b>Financial Objective</b>	<b>Indicator Suggested</b>	<b>Health Policy Area of Concern</b>
GFATM performance-based funding guide	Statement of sources and uses of funds	Actual expenditures vs budget	Additionality
US President's Emergency Plan for AIDS Relief (PEPFAR)	Strategic information Sustainability	People trained in strategic information	Sustainability
UNAIDS International Partnership for AIDS in Africa (IPAA)	Increased financial resources allocated to HIV/AIDS (commitments)	Annual government funds allocated to HIV/AIDS International funds allocated to HIV/AIDS	Resource availability
	Increased geographic coverage	% national HIV funds allocated to districts %national budget expenditure at district level	Allocative efficiency
	Efficient utilization of financial resources	% national HIV expenditure against budget	Efficiency
World Bank OME AIDS Loan Evaluations	Disbursement efficiency Local resource availability	Amount of Bank funds Amount of government contribution	Allocative Efficiency Sustainability Resource Availability
UNAIDS National Guidelines for M&E	Increase capacity of national AIDS committee	Line ministries with budget for HIV workplan including staff	Resource Availability
	Increase civil society services	% of overall HIV funding granted to civil society programs	Allocative Efficiency
WHO 3X5 Strategy	Partnership and advocacy	New budget and appropriate resources at WHO with 75% allocated to regional and country levels	
	Country-level support	Additional funding received by countries for 3X5	Additionality
		Increased national financial commitment to ART	Additionality Resource availability
		Average price per person per year for first-line ART	
United Nations General Assembly Special Session on HIV/AIDS	Global and national commitment To monitor flow of international/national funding for HIV/AIDS	Amount of funds spent by international donors/national governments on HIV/AIDS in developing countries by HIV program area	Allocative efficiency Resource availability



## Annex B. ICHA Code List

The following ICHA classification tables are compiled from the *NHA Producers' Guide* (WHO, World Bank, USAID 2003). Note that entries in italics are extensions to or expansions of the ICHA schedule that appears in the System of Health Accounts version 1.0 manual (OECD 2000).

**Table B-1: Financing Sources (FS)**

Table 4.5 Proposed classification scheme for financing sources (FS)

Code	Description
FS.1	Public funds
FS.1.1	Territorial government funds
FS.1.1.1	Central government revenue
FS.1.1.2	Regional and municipal government revenue
FS.1.2	Other public funds
FS.1.2.1	Return on assets held by a public entity
FS.1.2.2	Other
FS.2	Private funds
FS.2.1	Employer funds
FS.2.2	Household funds
FS.2.3	Non-profit institutions serving individuals
FS.2.4	Other private funds
FS.2.4.1	Return on assets held by a private entity
FS.2.4.2	Other
FS.3	Rest of the world funds

**Table B-2. Financing Agents (HF)**

Code	Description
<i>HF.A</i>	<i>Public sector</i>
HF.1.1	Territorial government
HF.1.1.1	Central government
HF.1.1.2	State/provincial government
HF.1.1.3	Local/municipal government
HF.1.2.	Social security funds
<i>HF.2.1.1</i>	<i>Government employee insurance programmes</i>
<i>HF.2.5.1</i>	<i>Parastatal companies</i>
<i>HF.B</i>	<i>Nonpublic sector</i>
<i>HF.2.1.2</i>	<i>Private employer insurance programmes</i>
HF.2.2	Private insurance enterprises (other than social insurance)
HF.2.3	Private households' out-of-pocket payment
HF.2.4	Non-profit institutions serving households (other than social insurance)
<i>HF.2.5.2</i>	<i>Private nonparastatal firms and corporations (other than health insurance)</i>
HF.3	Rest of the world

Note: Entries in italics are extensions to or expansions of the ICHA-HF schedule in the SHA version 1.0 manual.

**Table B-3. Health Care Provider (HP)**

Table 4.3 Classification scheme for providers based on the OECD International Classification for Health Accounts classification scheme for providers (ICHA-HP)

Code	Description
HP.1	Hospitals
HP.1.1	General hospitals
HP.1.2	Mental health and substance abuse hospitals
HP.1.3	Specialty (other than mental health and substance abuse) hospitals
HP.1.4	<i>Hospitals of non-allopathic systems of medicine (such as Chinese, Ayurveda, etc.)</i>
HP.2	Nursing and residential care facilities
HP.2.1	Nursing care facilities
HP.2.2	Residential mental retardation, mental health and substance abuse facilities
HP.2.3	Community care facilities for the elderly
HP.2.9	All other residential care facilities
HP.3	Providers of ambulatory health care
HP.3.1	Offices of physicians
HP.3.2	Offices of dentists
HP.3.3	Offices of other health practitioners
HP.3.4	Outpatient care centres
HP.3.4.1	Family planning centres
HP.3.4.2	Outpatient mental health and substance abuse centres
HP.3.4.3	Free-standing ambulatory surgery centres
HP.3.4.4	Dialysis care centres
HP.3.4.5	All other outpatient multi-specialty and cooperative service centres
HP.3.4.9	All other outpatient community and other integrated care centres
HP.3.5	Medical and diagnostic laboratories
HP.3.6	Providers of home health care services
HP.3.9	Other providers of ambulatory health care
HP.3.9.1	Ambulance services
HP.3.9.2	Blood and organ banks
HP.3.9.3	<i>Alternative or traditional practitioners</i>
HP.3.9.9	All other ambulatory health care services
HP.4	Retail sale and other providers of medical goods
HP.4.1	Dispensing chemists
HP.4.2	Retail sale and other suppliers of optical glasses and other vision products
HP.4.3	Retail sale and other suppliers of hearing aids
HP.4.4	Retail sale and other suppliers of medical appliances (other than optical glasses and hearing aids)
HP.4.9	All other miscellaneous sale and other suppliers of pharmaceuticals and medical goods
HP.5	Provision and administration of public health programmes

Table 4.3 Classification scheme for providers based on the OECD International Classification for Health Accounts classification scheme for providers (ICHA-HP) (continued)

Code	Description
HP.6	General health administration and insurance
HP.6.1	Government administration of health
HP.6.2	Social security funds
HP.6.3	Other social insurance
HP.6.4	Other (private) insurance
HP.6.9	All other providers of health administration
HP.7	All other industries (rest of the economy)
HP.7.1	Establishments as providers of occupational health care services
HP.7.2	Private households as providers of home care
HP.7.3	All other industries as secondary producers of health care
<i>HP.8</i>	<i>Institutions providing health-related services</i>
<i>HP.8.1</i>	<i>Research institutions</i>
<i>HP.8.2</i>	<i>Education and training institutions</i>
<i>HP.8.3</i>	<i>Other institutions providing health-related services</i>
HP.9	Rest of the world
<i>HP.nsk</i>	<i>Provider not specified by kind</i>

Note: Entries in italics are extensions to or expansions of the ICHA-HP schedule in the SHA version 1.0 manual.



**Table B-4. Health Care Functions (HF)**

Table 3.2 International Classification for Health Accounts scheme for health care functions (ICHA-HC)

ICHA code	Description
HC.1	Services of curative care
HC.1.1	Inpatient curative care
HC.1.2	Day cases of curative care
HC.1.3	Outpatient curative care
HC.1.3.1	Basic medical and diagnostic services
HC.1.3.2	Outpatient dental care
HC.1.3.3	All other specialized medical services
HC.1.3.4	All other outpatient curative care
HC.1.4	Services of curative home care
HC.2	Services of rehabilitative care
HC.2.1	Inpatient rehabilitative care
HC.2.2	Day cases of rehabilitative care
HC.2.3	Outpatient rehabilitative care
HC.2.4	Services of rehabilitative home care
HC.3	Services of long-term nursing care
HC.3.1	Inpatient long-term nursing care
HC.3.2	Day cases of long-term nursing care
HC.3.3	Long-term nursing care: home care
HC.4	Ancillary services to medical care
HC.4.1	Clinical laboratory
HC.4.2	Diagnostic imaging
HC.4.3	Patient transport and emergency rescue
HC.4.9	All other miscellaneous ancillary services
HC.5	Medical goods dispensed to outpatients
HC.5.1	Pharmaceuticals and other medical nondurables
HC.5.1.1	Prescribed medicines
HC.5.1.2	Over-the-counter medicines
HC.5.1.3	Other medical nondurables
HC.5.2	Therapeutic appliances and other medical durables
HC.5.2.1	Glasses and other vision products
HC.5.2.2	Orthopaedic appliances and other prosthetics
HC.5.2.3	Hearing aids
HC.5.2.4	Medico-technical devices, including wheelchairs
HC.5.2.9	All other miscellaneous medical goods
HC.6	Prevention and public health services
HC.6.1	Maternal and child health; family planning and counselling
HC.6.2	School health services
HC.6.3	Prevention of communicable diseases
HC.6.4	Prevention of noncommunicable diseases
HC.6.5	Occupational health care
HC.6.9	All other miscellaneous public health services
HC.7	Health administration and health insurance
HC.7.1	General government administration of health
HC.7.1.1	General government administration of health (except social security)
HC.7.1.2	Administration, operation and support of social security funds
HC.7.2	Health administration and health insurance: private
HC.7.2.1	Health administration and health insurance: social insurance
HC.7.2.2	Health administration and health insurance: other private
<i>HC.n.s.k</i>	<i>HC expenditure not specified by kind</i>
HCR.1-5	Health related functions
HC.R.1	Capital formation for health care provider institutions
HC.R.2	Education and training of health personnel
HC.R.3	Research and development in health
HC.R.4	"Food, hygiene and drinking water control"
HC.R.5	Environmental health
<i>HC.R.n.s.k.</i>	<i>HC.R expenditure not specified by kind</i>



# Annex C. Classifications for NHA HIV/AIDS and TB Subanalyses

Notes in italics are explanatory

**Table C-1: List of Sources of Funds for HIV/AIDS and TB**

<b>S.1</b>	<b>Public funds</b>
S.1.1	Central government revenue
S.1.2	Regional and municipal government revenue
<b>S.2</b>	<b>Private funds</b>
S.2.1	Employer funds
S.2.2	Household funds
S.2.3	Non-profit institutions serving individuals grants and donations
S.2.4	Other private funds
<b>S.3</b>	<b>Rest of the world (<i>Donor and Bilateral funds</i>)</b>

**Table C-2. List of Financing Agents for HIV/AIDS and TB**

<b>HF.1</b>	<b>General government</b>
HF.1.1	Government excluding social security funds
HF.1.1.1	Central government
	<i>HF.1.1.1.1 Ministry of Health (MOH)</i>
	<i>HF.1.1.1.2 National AIDS Control Program</i>
	<i>HF.1.1.1.3 National TB Control Program</i>
	<i>HF.1.1.1.4 Other ministries</i>
	HF.1.2.1 State/provincial government
	HF.1.3.1 Local/municipal government
HF.1.2.	Social security funds
<b>HF.2</b>	<b>Private sector</b>
HF.2.1	Private social insurance (including Mutuelles)
HF.2.2	Private insurance enterprises (other than social insurance)
HF.2.3	Private households' out-of-pocket payment
HF.2.4	Non-profit institutions serving households (other than social insurance)
HF.2.5	Private firms and corporations (other than health insurance)
<b>HF.3</b>	<b>Rest of the world</b>

**Table C-3. List of Health Care Providers for HIV/AIDS and TB**

**HP.1 Hospitals**

- HP.1.1 General Hospital
  - HP.1.1.1 Public hospital*
  - HP.1.1.2 Private hospital*
- HP.1.2 NGO/Church owned hospital
- HP.1.3 Specialty Hospital
  - HP.1.3.1 University hospital*
  - HP.1.3.2 Teaching hospital*
  - HP.1.3.3 Maternity*

**HP.2 Nursing and residential care facilities**

- HP. 2.9 All residential facilities (*for palliative care*) including hospice

**HP.3 Providers of ambulatory care**

- HP.3.1 Physicians offices *or clinics*
- HP.3.3 Other health practitioners' clinics
- HP.3.4 Outpatient care centers
  - HP.3.4.5 All outpatient multi-specialty and cooperative service centers*
  - HP.3.4.5.1 STI Clinics*
  - HP.3.4.5.2 Counseling Centers (Outreach Voluntary Counseling–OVC centers for TB)*
  - HP.3.4.5.3 Antenatal Clinics (specific to HIV/AIDS)*
- HP.3.5 Medical and diagnostic labs
- HP.3.9 Other providers of ambulatory care
  - HP.3.9.2 Blood banks*
  - HP.3.9.3 Alternative or traditional practitioners*
  - HP.3.9.3.2 Volunteer community health worker*

**HP.4 Retail sale and other providers of medical goods**

- HP.4.1 Dispensing chemists/pharmacies

**HP.5 Provision and administration of public health programs**

**HP.6 General health administration and insurance**

Add in subcategories

**HP.7 All other industries (rest of the economy)<sup>9</sup>**

- HP.7.1 Private households as providers of home care
- HP.7.2 All other industries as secondary producers of health care

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<sup>9</sup> These expenses are difficult to capture but are important for conceptualizing the full range of services and health expenditures relating to HIV/AIDS and TB.

**Table C-4. List of Health Care Functions for HIV/AIDS and TB**

**HC.1 Services of curative care<sup>10</sup>**

HC.1.1	Inpatient curative care
HC.1.2	Outpatient curative care
<i>HC.1.2.1</i>	<i>Basic medical and diagnostic services</i>
<i>HC.1.2.2</i>	<i>Outpatient dental care</i>
<i>HC.1.2.3</i>	<i>All other specialized medical services</i>
<i>HC.1.2.4</i>	<i>All other outpatient curative care</i>
HC.1.3	Services of curative home care

**HC.2 Services of rehabilitative care (Specific to TB only)**

HC.2.1	Inpatient rehabilitative care
HC.2.2	Outpatient rehabilitative care
HC.2.3	Services of rehabilitative home care

**HC.3 Services of long-term nursing care**

HC.3.1	Inpatient long-term nursing care
HC.3.2	Home care

**HC.4 Ancillary services to medical care**

HC.4.1	Clinical laboratory
HC.4.2	Diagnostic imaging
HC.4.3	Patient transport and emergency rescue
HC.4.9	All other miscellaneous ancillary services

**HC.5 Medical goods dispensed to outpatients**

HC.5.1	Pharmaceuticals and other medical non-durables
<i>HC.5.1.1</i>	<i>Prescribed medicines ( such as ARV drugs)</i>
<i>HC.5.1.2</i>	<i>Over-the-counter medicines</i>
<i>HC.5.1.3</i>	<i>Other medical non-durables</i>

**HC.6 Prevention and public health services**

HC.6.1	Maternal and child health; family planning and counseling
HC.6.2	School health services
HC.6.3	Prevention of communicable diseases
HC.6.4	Vaccination and Immunization <b>(Specific to TB only)</b>
HC.6.9	All other miscellaneous public health services

**HC.7 Health administration and health insurance**

HC.7.1	General government administration of health
<i>HC.7.1.1</i>	<i>General government administration of health (except social security)</i>
<i>HC.7.1.2</i>	<i>Administration, operation and support of social security funds</i>
HC.7.2	Health administration and health insurance: private
HC.7.2.1	Health administration and health insurance: social insurance
HC.7.2.2	Health administration and health insurance: other private

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<sup>10</sup> The ICHA uses the term “curative”; HIV/AIDS and TB analyses often use “treatment” in recognition of the fact that there is no existing medical cure for HIV/AIDS.

**HCR.1-5 Health-related functions**

HCR.1	Capital formation for health care provider institutions
HCR.2	Education and training of health personnel
HCR.3	Research and development in health
HCR.4	Drinking water control

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