

# How are Health Services, Financing and Status Evaluated?

## An Analysis of Implementation Completion Reports of World Bank Assistance in Health

Savitha Subramanian, David Peters, and Jeffrey Willis

November 2006





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## Health, Nutrition and Population (HNP) Discussion Paper

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# Health, Nutrition and Population (HNP) Discussion Paper

## How are Health Services, Financing and Status Evaluated?

### *An Analysis of Implementation Completion Reports of World Bank Assistance in Health*

Savitha Subramanian<sup>a</sup> David Peters<sup>b</sup> Jeffrey Willis<sup>c</sup>

<sup>a</sup> Junior Professional Associate, Health, Nutrition and Population, Human Development Network, The World Bank, Washington, DC, USA

<sup>b</sup> Senior Public Health Specialist, Health, Nutrition and Population, Human Development Network, The World Bank, Washington, DC, USA

<sup>c</sup> Consultant, Health, Nutrition and Population, Human Development Network, The World Bank, Washington, DC, USA

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**Abstract:** This paper reports on an analysis of how World Bank assistance at the country level has influenced health services, health financing, and status on peoples' health. The Implementation Completion Reports used to evaluate all 118 projects involving health services completed between fiscal years 2003-2005 were systematically analyzed to determine how they measured changes in health services, health financing, and health status outcomes.

The results showed that few Bank-assisted projects in the health sector evaluated changes in health services (42%), health financing (17%), or health status (33%), with nearly all those measuring change demonstrating improvements. In multivariate models including the type of project organization (e.g. disease program, sector wide approach), project inputs, key project activities, and contextual factors including per capita income level, geographic region, and Country Policy and Institutional Assessment ratings, there was a statistically significant association between use of a sector-wide approach (SWAp) and measurement of improvements in health services and improvements in health status. Projects that used contracting mechanisms were also more likely to show an improvement in health services. No other type of organization of project support, project input or project activity was statistically associated with measurement of improvements in health services in the multivariate analysis.

The results from this analysis show that the three strategic priorities outlined in the 1997 HNP Strategy-- (i) to improve health, nutrition, and population outcomes of the poor; (ii) to enhance the performance of health care systems; and to (iii) secure sustainable health care financing, were not well measured in the evaluation frameworks of Bank assistance in health. With the development of the new HNP Strategy, the World Bank should

encourage policy makers to demand more rigorous monitoring and evaluation of health sector investments with Bank funds.

**Keywords:** Health services delivery; Health status; Implementation Completion Reports

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**Correspondence Details:** David Peters, Mail Stop G7-701, 1818 H Street, N.W. Washington, DC 20433; Tel: (202) 458-8113; Email: [dpeters1@worldbank.org](mailto:dpeters1@worldbank.org)

## Table of Contents

<b>ACKNOWLEDGEMENTS</b> .....	<b>vii</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>ix</b>
<b>INTRODUCTION</b> .....	<b>1</b>
BACKGROUND AND METHODOLOGY .....	1
<b>RESULTS</b> .....	<b>8</b>
A. DESCRIPTIVE STATISTICS.....	8
B. FACTORS ASSOCIATED WITH IMPROVEMENTS IN HEALTH SERVICES, HEALTH FINANCING, AND HEALTH STATUS .....	12
C. ORGANIZATIONAL APPROACHES .....	14
D. PROJECT INPUTS & ACTIVITIES.....	15
E. COUNTRY CONTEXT .....	15
F. MULTIVARIATE ANALYSIS .....	15
<b>DISCUSSION AND CONCLUSIONS</b> .....	<b>17</b>
<b>ANNEX 1</b> .....	<b>20</b>
<b>ANNEX 2</b> .....	<b>23</b>
<b>ANNEX 3</b> .....	<b>24</b>

## List of Figures

Figure 1: Most Common Health Services Indicators Used in Project ICRs.....	8
Figure 2: Most Common Health Financing Indicators Used in Project ICRs .....	9
Figure 3: Most Common Health Status Indicators Used in Project ICRs .....	10
Figure 4: Percent of HNP Project ICRs Showing Improvements in Health Services, Health Financing, or Health Status According to Primary Organizational Approach .....	14

## List of Tables

Table 1: Definition of Study Outcome Variables .....	3
Table 2: Definitions of Approaches to Organizing Development Assistance in the Health Sector .....	5
Table 3: Types of Project Inputs and Activities Identified.....	6
Table 4: Project Characteristics According to World Bank Region (Percent) .....	11
Table 5: Crude Association between Project Characteristics and Improvement in Health Services, Health Financing, and Health Status.....	13
Table 6: Logistic Regression Results for Improvement in Health Services and Health Status .....	16



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## EXECUTIVE SUMMARY

The question of how to improve the delivery of health services in developing countries is of central importance to the achievement of the Millennium Development Goals, and to the World Bank's assistance to the health sector. In 1997, the Bank wrote a Health, Nutrition, and Population (HNP) Strategy<sup>1</sup> that identified three priorities to guide the direction of the Bank's work in the HNP Sector, specifically to work with client countries to: (i) improve health, nutrition, and population outcomes of the poor; (ii) enhance the performance of health care systems; and (iii) secure sustainable health care financing. Although the Bank's HNP strategy did not provide metrics for how it would pursue its strategy, it is still pertinent to ask how well Bank assistance has contributed to these objectives. This paper reports on an analysis of how World Bank assistance at the country level has influenced health services, health financing, and status on peoples' health.

The Implementation Completion Reports used to evaluate all 118 projects involving health services completed between fiscal years 2003-2005 were systematically analyzed to determine how they measured changes in health services, health financing, and health status outcomes. In this study, measurements of health services involve any change in quality, efficiency or use of health services; health financing indicators include any measure of the financing of health services; and health status includes any measurement of the health, nutrition, or fertility status of people. Key characteristics of the country context and project design were also assessed to identify their relationships to improvements in health services, financing, and health status. This study is primarily interested in how projects measured change in the three priority areas of the Bank's HNP strategy, so unlike other evaluations, it did not evaluate each project based on their individual development objectives, nor of the relevance of the indicators used to the project's development objectives.

The results showed that few Bank-assisted projects in the health sector evaluated changes in health services (42%), health financing (17%), or health status (33%), with nearly all those measuring change demonstrating improvements. Projects measuring any improvements in health services delivery were five times more likely to measure improvements in health status than those that did not demonstrate improvements. In multivariate models including the type of project organization (e.g. disease program, sector wide approach), project inputs, key project activities, and contextual factors including per capita income level, geographic region, and Country Policy and Institutional Assessment ratings, there was a statistically significant association between use of a sector-wide approach (SWAp) and measurement of improvements in health services (Adjusted Odds Ratio 14.3; 95% Confidence Interval 1.6-130.0) and improvements in health status (Adjusted OR 8.9, 95% CI 1.2-65.4). Projects that used contracting mechanisms were also more likely to measure an improvement in health

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<sup>1</sup> The World Bank. (1997) Health Nutrition, & Population Sector Strategy. Washington:, The World Bank.

services (Adjusted OR 4.1, 95% CI 1.1-15.9). No other type of organization of project support, project input or project activity was statistically associated with improvements in health services in the multivariate analysis. Projects that had activities involving logistics systems were also statistically associated with measurement of improvement in health status, though no particular type of project input was significantly associated with improvements in health status. None of the contextual factors examined were statistically associated with improvements in health services or status in these projects.

The results from this analysis show that the three strategic priorities outlined in the 1997 HNP Strategy were not well measured in the evaluation frameworks of Bank assistance in health. With the development of the new HNP Strategy, the World Bank should encourage policy makers to demand more rigorous monitoring and evaluation of health sector investments with Bank funds. Bank management should also find incentives for better measurement of health services, financing, and status in their operational work. One option is to establish a dedicated unit to enhance monitoring and evaluation, similar to what is being done with the Global AIDS Monitoring and Evaluation Team (GAMET). Without better use of information on health services, financing, and status, it will remain difficult to determine which strategies are most effective in improving health services and health status across the countries where the World Bank is providing assistance.

# INTRODUCTION

## BACKGROUND AND METHODOLOGY

It is widely recognized in the international community that weak health systems are a critical barrier to the achievement of the health related Millennium Development Goals (MDGs). Yet relatively few systematic attempts have been made to evaluate health systems performance across countries. The most recent Operations Evaluation Department evaluation (now called the Independent Evaluation Group) of World Bank assistance in 1999 recognized the positive contributions of the World Bank in health, nutrition, and population policies and services, but noted that “the Bank typically focuses on providing inputs rather than on clearly defining and monitoring progress toward HNP development objectives”.<sup>2</sup> The World Bank’s 1997 HNP Sector Strategy focused on assisting client countries to improve HNP outcomes, enhance performance of health care systems, and secure sustainable health care financing, but did not provide metrics for evaluation or benchmarking progress towards these objectives. This study provides one way to look at the question of how well World Bank assistance at the country level has measured performance in the three priority areas of health services, health financing, and impact on peoples’ health status. It is part of a larger set of sector work intended to better understand how to improve health services in developing countries.

Much of the debate concerning international assistance in health over the last few decades has been characterized by tension over whether to concentrate on priority programs for specific diseases or on strengthening health systems.<sup>3</sup> Although sustained success using either organizational approach is clearly dependent on the other, practical and ideological considerations have led program designers and politicians to favor one or the other. Yet there is remarkably little evidence to suggest one type of approach works better than another.<sup>4</sup> Aside from limited numbers of case studies, there has not been a systematic analysis of the organizational approaches taken, or of the influence of the types of project investments. This study hopes to contribute to the debate by examining how health services, health financing, and health status have been measured and evaluated in World Bank projects, and how these are related to the organizational approach and types of investments made.

This evaluation is limited in scope, with the evidence coming from an inventory and systematic review of results that are measured and reported in the official project evaluation reports of completed Bank-assisted projects, the Implementation Completion

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<sup>2</sup> Johnston T, Stout S. (1999) Investing in Health: Development Effectiveness in the Health, Nutrition, and Population Sector. Washington: The World Bank.

<sup>3</sup> Mills A. (2005) Mass Campaigns versus General Health Services: What Have We Learnt in 40 Years about Vertical versus Horizontal Approaches. Bulletin of the World Health Organization 83(4) 325-30.

<sup>4</sup> Ovretveit J. (2006) Strengthening Health Services in Low Income Countries: A review of research on implementation and results. Karolinska Institutet Medical Management Centre, Draft paper, June 1, 2006.

Reports (ICRs), and should be considered in the context of other evaluations of Bank assistance. The specific aims of this study are to:

1. Identify how World Bank HNP projects measured changes in health services, health financing, and impact on peoples' health
2. Identify project characteristics associated with improvements in health services, health financing, and health status.

## **Methods:**

### *Sample*

The study reviewed all World Bank projects, containing a health component and completed during the period of three fiscal years: FY03-FY05. Project information was extracted from the ICRs, which are prepared by the units of the Bank responsible for designing and supervising the projects, with input from the Borrower, to document their achievements. The Bank's "Business Warehouse" was used to obtain a list of all projects with health themes both managed by HNP and non-HNP Sector Boards from FY03-FY05. There are eight relevant themes under Human Development which were chosen as selection values: Child Health, Health System Performance, Nutrition and Food Security, Population and Reproductive Health, HIV/AIDS, Other Communicable Diseases, Injuries and Non-communicable diseases, and Other Human Development. Of the 119 projects initially identified, four projects were excluded because they had health codes as a secondary theme but did not have identifiable health, nutrition, population (HNP) inputs or activities. There was also one project in India that was comprised of three separate state projects (Karnataka, Punjab, and West Bengal), and another project in India comprised of two state projects (Bihar and Orissa). Given that these were large projects (ranging \$80 to \$130 million per state) that were treated as separate state projects with their own project logical frameworks, we also assessed them as separate projects, so that the final sample included 118 projects. A complete list of the projects reviewed is shown in Appendix 1.

### *Data Collection*

In gathering data for this study, each project ICR was reviewed in full using a checklist to assess what indicators were used for measuring health services, health financing, and health outcomes, as well as the primary organizational approach and types of inputs and activities involved. Three data collectors were trained on the checklist and definitions of health services, financing, and health outcomes indicators. In order to achieve consistency in the data entry process between data collectors, data were double-entered. When data was inconsistent between two entries, the cause was investigated and the problem was resolved through discussion between the two data collectors. Two other reviewers were used to assess the data entered, and reconcile any remaining discrepancies between the different reviewers.

### *Definition of Study Outcome Variables*

The three main outcome variables used in this study were indicators of change in health services, health financing, and health status indicators (Table 1). Health services outcomes included only those indicators that measured aspects of the delivery or use of health services. Many projects report physical outputs (e.g. supply of drugs, construction of materials), capacity building outputs (e.g. numbers of people trained), or institutional outputs (e.g. development of new organizations, new rules) that are useful indicators of project accomplishments, but are not considered in this analysis. Health financing indicators were similarly restricted to changes in level or type of financing of health. Health status measures are those assessing changes in health, nutrition, or fertility status of people.

**Table 1: Definition of Study Outcome Variables**

<b>Study Outcome Variable</b>	<b>Description</b>
Health Services	Any measurement of an indicator that measures the utilization, coverage, quality, efficiency, or distribution of health services, including changes in health behaviors of individuals. These types of indicators are usually defined as project outcomes, but may also be defined as health service outputs in the evaluation frameworks.
Health Financing	Any measurement of an indicator that describes the financing dimensions of health, whether for individuals, government, or other organizations. Health financing indicators can be impact level measures (e.g. income protection for individuals), or output and outcome levels (e.g. enrollment levels in health financing schemes, contributions by government or individuals, cost of services).
Health Status	Any measurement of an indicator that describes the long-term effect on the health, nutrition, and population status of the population. Mortality rates, disease incidence and prevalence rates, case fatality rates, cure rates, and rates of malnutrition and fertility are all examples of health status measures. These indicators can be considered as project outcomes, though they tended to be identified as project impact or project goal level indicators.

Note: The study examined any measurement of health services, health financing, and health status in the projects, and focused on those projects demonstrating any change in these indicators taken from at least two measurements at different points in time.

To determine whether there was a change in any of the study variables, the data collectors first assessed whether the project reported any indicators measuring health services, health financing, or health status. Each indicator where a measurement was made was recorded. Each indicator was then assessed for the number of measurements made, and whether any positive change occurred during the life of the project. A minimum of two measurements was required to demonstrate a change. If three or more measurements were taken, then a linear slope was estimated. Indicators for health services, health financing, and health status were assessed individually, and then as a group for each type of outcome. In cases where there were multiple indicators for one of

the groups, the indicators were combined to assess the proportion that demonstrated any positive change. When this proportion was greater than or equal to 50%, the project was recorded as demonstrating a positive change. In doing this we made the general assumption of weighting each of the indicators equally and did not look specifically at the individual effect of each indicator. Estimates for the indicators were taken as recorded in the ICR, and no attempt was made to assess whether the reported change in each indicator was statistically significant.<sup>5</sup> If there were no health services, health financing or health status indicators with actual measurement levels reported, the project was recorded as not demonstrating a measured change in that outcome.

### *Definitions of Explanatory Variables*

In order to identify factors associated with any positive changes in health services, financing, or status, the study examined the organizational approaches taken. Table 2 describes the approaches to organizing development assistance that were considered, which consisted of budgetary support and a set of sector specific approaches including disease control priorities and sector wide approaches (SWAs). Projects were classified under the dominant/primary organizational approach that was used in each project and this judgment was made based on how the majority of health funding was used as a guide. Where this was not possible, the assessment was made based on the majority of activities.

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<sup>5</sup> Estimating whether the reported changes were statistically significant would not have been possible from the ICRs, as they rarely reported the source, sample size, or standard errors of the estimates.

**Table 2: Definitions of Approaches to Organizing Development Assistance in the Health Sector**

Approach	Descriptions
<b>A. General Budget Support</b>	Development assistance provided as general support to the government which are not targeted to the health sector, sometimes considered an extra-sectoral approach. These projects rely on government systems to manage the funds based on policy agreements to achieve broad objectives that include the health sector. These projects provide general budget support without earmarking of funds to a sector (e.g. Poverty Reduction Support Credits, Structural Adjustment Loans).
<b>B. Health Sector Approaches</b>	
Disease Program	Strengthening a priority program organized around control of a disease (e.g. HIV/AIDS, tuberculosis, malaria) or specific set of health services and conditions (e.g. immunization, family planning)
Geographic Priority	Strengthening management and delivery systems in a particular geographic area of a country, often chosen because of characteristics of a particular population.
Management Support System	Focus on a particular management support system (e.g. systems to provide key inputs such as essential drugs, buildings, or equipment).
Sector Wide Approach (SWAp)	Investments and actions based on common sectoral policy and objectives, expenditure framework, and systems for implementation and review. In some cases, funding is provided as budget support but with specified allocation to the health sector, and in some cases, the projects were labeled Adaptable Program loans.
Others	Projects organized around other approaches, such as health providers, financing mechanism, community engagement approaches, or accountability approaches

Table 3 outlines another set of project inputs and activities that were identified in each of the ICRs. Types of project inputs were largely identified from ICR tables on project expenditures and supplemented by the text of the ICRs, whereas the project activities were largely derived from text description of the ICR.

**Table 3: Types of Project Inputs and Activities Identified**

<b>Variable</b>	<b>Description</b>
<b>Project Inputs</b>	
Salaries	Whether the project provided funding for salaries of health workers
Training Inputs	Whether the project provided funding for training of health workers
Technical Assistance Inputs	Whether the project provided funding for technical assistance
Pharmaceuticals Inputs	Whether the project provided funding for pharmaceuticals, including vaccines and contraceptives
Equipment Inputs	Whether the project provided funding for the purchase, repair or maintenance of equipment
Buildings Inputs	Whether the project provided funding for the building or repair and maintenance of buildings
Software Inputs	Whether the project provided funding for software, such as computer information systems
<b>Project Activities</b>	
Human Resources Systems	Project activities that involved changing human resource systems, including increasing the number of health workers, improving health worker capacity, or systems to manage human resources (e.g. performance review, development of career structures, staff recruitment procedures, etc.)
Health Services Management Systems	Project activities concerned with management of health services, including quality of care approaches, health management information systems, etc.
Logistics Systems	Project activities involved in supply chain management (i.e., selection, procurement, distribution, rational use of drugs, commodities, etc.).
Regulation of Health Providers	Whether policies or activities to regulate health providers was reported
Contracting of Health Providers	Whether explicit contracts were made with health organizations to deliver services
Public Planning Involvement	Whether civil society organizations or members of the public were involved in planning of the project

Three types of variables were used to describe the country context. Geographic region was assigned according to the World Bank regional classification. Countries were also categorized into low income, lower middle income, and upper middle income according to the Bank's classification of the gross national income during the project period based on data from the World Development Indicators.<sup>6</sup> To consider how the policy and governance environment of each country is related to changes in health services, financing, and status, the Country Policy and Institutional Assessment (CPIA) cumulative ranking was used for each country from 1995-2004, using the six point scale as assessed by World Bank staff. CPIA ratings prior to 2000 were reported on a five point scale, and so were converted to a six point scale by multiplying the rating by 6/5. For each project,

<sup>6</sup> The one exception is Slovenia, a high income country that was coded with the upper middle income countries for this analysis.

the average CPIA rating was determined from project effectiveness to project closing dates. For those projects starting before 1995 or extending into 2004, the fullest set of years was used.

### *Analytical Methods*

The study initially used exploratory data analysis to describe central tendencies, ranges and distributions of each of the variables. Subsequently, the study looked at the statistical association between the outcome and explanatory variables. The magnitude of the statistical association was first explored through the calculation of unadjusted odds ratios (UOR). The statistical significance of the association was guided by use of p-values  $<0.05$  and 95% confidence intervals (95% C.I.). Fisher's exact test was utilized to calculate p-values when there were very small sample sizes in the bivariate analysis (i.e. less than 5 measurements in a cell).

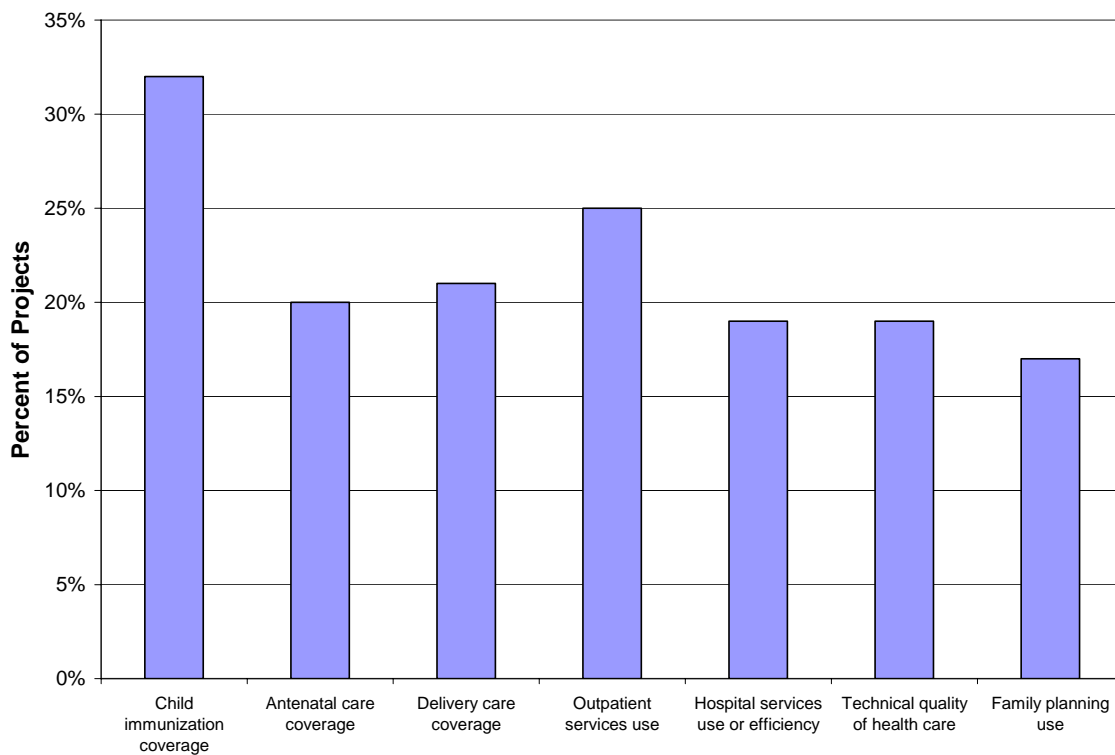
Multiple logistic regression analysis was used to control for potentially confounding variables and derive adjusted odds ratios (AOR) for two outcome variables: improvements in health services and improvements in health status. The number of projects measuring health financing outcomes was too small ( $n=20$ ) to conduct meaningful multivariate analysis. Measurement of health services and health status are likely endogenous, but the data limitations did not warrant more sophisticated modeling to simultaneously assess these outcomes. Inclusion of some or all of the contextual variables did not substantively change the results, so we show the model with the full set of variables. Collinearity of the independent variables was tested through the variance inflation factor, and found insignificant for the models used. Since general budget support projects were qualitatively different from other projects (i.e. they tended to be shorter operations and were less likely to have the types of project inputs and activities identified), analysis was conducted for the full set of projects as well as separately for the 88 projects that did not involve general budget support. Since the results of the multivariate models were similar, the full sample is shown here.

# RESULTS

## A. DESCRIPTIVE STATISTICS

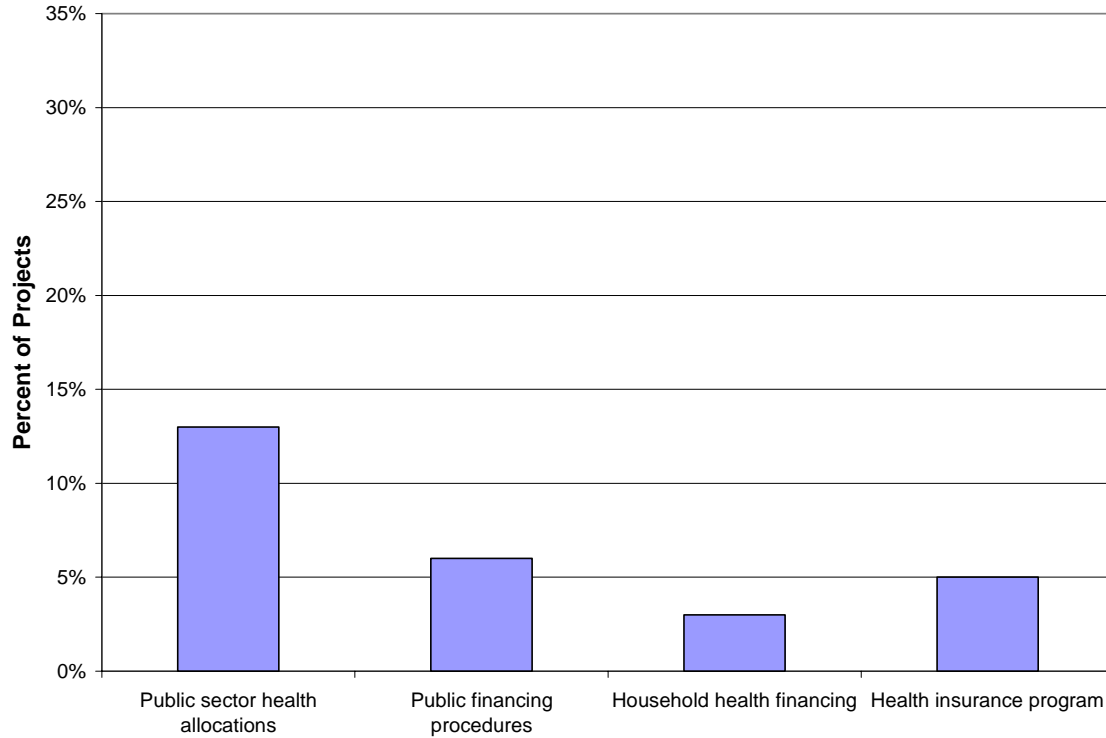
A wide variety of indicators relevant to this study were used in the evaluation of World Bank assisted projects (see Annex 2 for details). Figure 1 shows that immunization coverage indicators were the most common types of health services indicators used (32% of all projects), followed by measures outpatient utilization (25%) and delivery care coverage (21%). There were no measures of the equity of health services use.

**Figure 1: Most Common Health Services Indicators Used in Project ICRs**



The most common health financing indicator used in the evaluations involved public sector allocation (13% of all projects), followed by indicators about financial processes (6%).

**Figure 2: Most Common Health Financing Indicators Used in Project ICRs**



Among the health status indicators used in project ICRs, disease prevalence or incidence measures were the most commonly used set of indicators (25% of all projects), followed by rates of infant or neonatal mortality (20%) and maternal mortality ratios (16%).

**Figure 3: Most Common Health Status Indicators Used in Project ICRs**

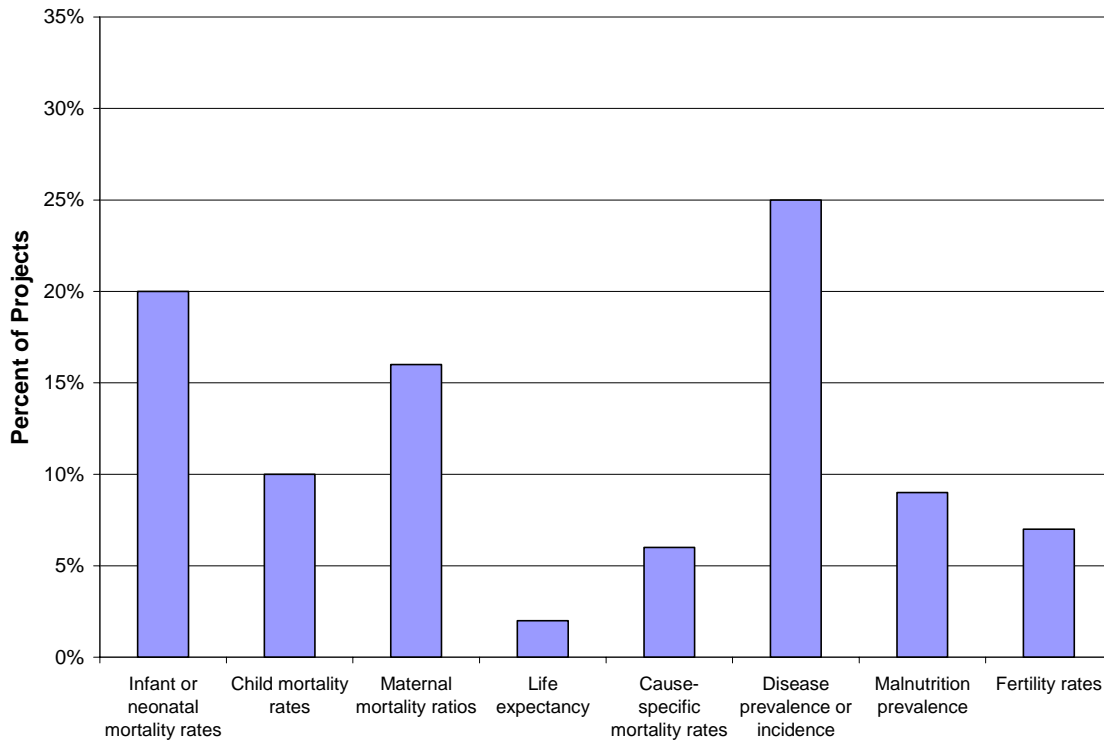


Table 4 outlines the project characteristics according to their World Bank region. Across all regions, 75% (89/118) of the projects had any measurement of a health service indicator. Measurement of health service indicators ranged from a low of 60% in Europe and Central Asia (ECA) to a high of 91% in the South Asia Region (SAR). There was not a statistically significant difference between regions in any measurement of health service indicators in the bivariate analysis ( $\chi^2= 5.92, p=0.31$ ). Only a minority of projects 42% took more than one measurement of any health services indicator. However, of those projects that measured any change in health services, all demonstrated an improvement. The proportion of projects showing improvement in health services was lowest in MENA (17%) and highest in South Asia (55%), though there was no statistically significant variation across regions ( $\chi^2=9.55, p=0.09$ ). There was less measurement of health financing indicators in the projects reviewed. Only 21% of projects measured any kind of health financing indicator, most of which were in the Latin America & Caribbean (LAC) Region (9 projects).

**Table 4: Project Characteristics According to World Bank Region (Percent)**

	AFR (N=38 )	EAP (N=10)	ECA (N=20 )	LAC (N=27)	MENA (N=12 )	SAR (N=11 )	Total (N=118)
<b>Main Outcomes</b>							
Health Services Indicator – Any Measurement	76.3	90.0	60.0	70.4	83.3	90.9	75.4
Health Services Indicator(s) – Improvement Shown	50.0	50.0	20.0	48.2	16.7	54.6	41.5
Health Financing Indicator – Any Measurement	21.1	0.0	20.0	33.3	8.3	45.5	21.2
Health Financing Indicator(s) – Improvement Shown	18.4	0.0	10.0	22.2	0.0	36.4	17.0
Health Status Indicator – Any Measurement	50.0	70.0	30.0	37.0	41.7	63.6	45.8
Health Status Indicator – Improvement Shown	44.7	40.0	20.0	33.3	16.7	18.2	32.2
<b>Type of Development Assistance</b>							
Budget Support (Extra-sectoral)	42.1	10.0	25.0	25.9	0.0	27.3	27.1
Health Sector Approach	57.9	90.0	75.0	74.1	100	72.7	72.8
<b>Organizational Approach</b>							
Disease Program	29.0	30.0	5.0	22.2	25.0	27.3	22.9
Geographic Priority	5.3	10.0	20.0	7.4	16.7	36.4	12.7
Management Support System	7.9	30.0	20.0	14.8	58.3	0.0	17.8
Sector Wide Approach	10.5	10.0	0.0	7.4	0.0	9.1	6.8
Other Approaches	5.3	10.0	30.0	22.2	0.0	0.0	12.7
<b>Project Inputs</b>							
Salaries	26.3	20.0	20.0	11.1	8.3	45.5	21.2
Training	71.1	90.0	70.0	70.4	83.3	90.9	75.4
Technical Assistance	84.2	90.0	90.0	81.5	100	100	88.1
Pharmaceuticals	68.4	80.0	45.0	44.4	58.3	81.8	60.2
Equipment	60.5	90.0	60.0	59.3	91.7	63.6	66.1
Buildings	60.5	60.0	55.0	40.7	91.7	63.6	58.5
Software	36.8	50.0	60.0	59.3	50.0	45.5	49.2
<b>Project Activities</b>							
Human Resources Systems	79.0	90.0	75.0	77.8	83.3	90.9	80.5
Health Services Management Systems	63.2	90.0	80.0	70.4	58.3	90.9	72.0
Logistics Systems	76.3	80.0	70.0	59.3	75.0	36.4	67.8
Contracting with Organizations	34.2	40.0	5.0	25.9	16.7	45.5	27.1
Regulation of health providers	31.6	30.0	65.0	44.4	16.7	36.4	39.0
Public involvement in planning	15.8	0.0	10.0	22.2	16.7	27.3	16.1

Note: Improvement is based on a positive change from at least two measurements

Measurement of any health status indicator occurred in about one-half of all projects (46%). The lowest rate of any measurement of health status was in East and Central Asia (ECA) (30%), and the highest in South Asia Region (SAR) (64%). There was no statistically significant difference across the regions ( $\chi^2= 6.97$ ,  $p=0.22$ ). Positive changes in health status measurement were found in only 32% of all projects, ranging from 17% in Middle East North Africa Region (MENA) to 45% in the Africa Region (AFR), with the difference across regions not reaching statistical significance ( $\chi^2= 6.71$ ,  $p=0.24$ ). Nearly all projects (97%) that had at least two measurements of any health status indicator showed a positive change.

About one quarter of the projects evaluated involved general budget support, with the remainder focusing their assistance to the health sector. Out of the projects that focused on health sector approaches, 23% of projects primarily focused on programmatic priorities, 13% of projects were organized around geographic areas, 18% of projects focused on management support systems, 7% of projects used a SWAp, and 13% of the projects used other organizational approaches as their primary approach.

The vast majority of projects provided technical assistance (88%) and training (75%), whereas salary support was provided in only about one-fifth of all projects, mostly in SAR. About two-thirds of projects provided equipment, most commonly in the MENA (92%) and EAP (90%) regions, whereas provision of pharmaceuticals was more common in SAR (82%) and EAP (80%) compared to a Bank average of 60%.

Most of the projects involved activities supporting human resources (81%) and management of health services (72%), while about two-thirds supported logistics systems. More than one third of the projects involved regulatory interventions with health providers, an approach particularly common in ECA (65%), and least common in MENA (17%). Contracting was found in about one-quarter of the projects, most commonly in EAP and SAR, whereas engagement of the public in planning was found in only 16% of the projects.

## **B. FACTORS ASSOCIATED WITH IMPROVEMENTS IN HEALTH SERVICES, HEALTH FINANCING, AND HEALTH STATUS**

Table 6 demonstrates the relationship between project variables and improvements in health services, health financing, and health status measurements. In this analysis, projects are considered to have failed to demonstrate an improvement if they did not measure change or did not show improvement when two or more measurements were made. There are several large and statistically significant associations. Notably, projects showing improvements in health services were five times more likely to show improvements in health status (UOR 4.56, 95% C.I. 1.97-10.5) and three times more likely to show improvements in health financing (UOR 3.2, 95% CI 1.18-8.75).

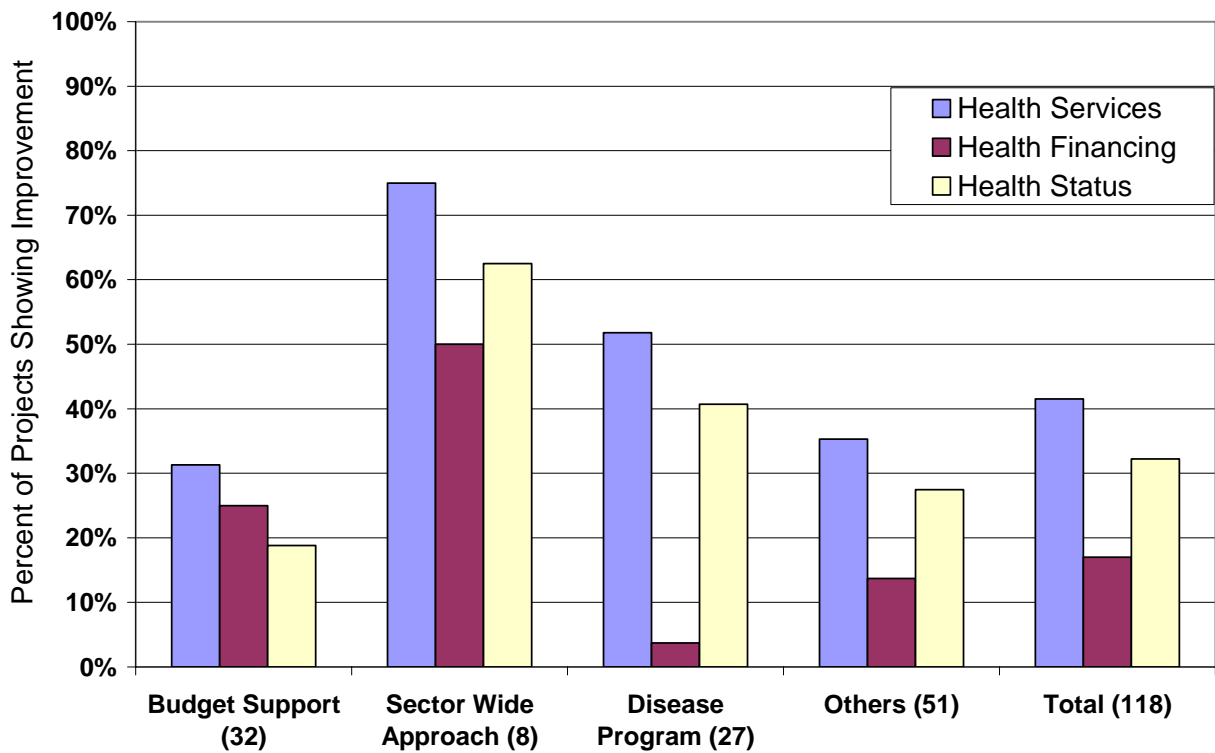
**Table 5: Crude Association between Project Characteristics and Improvement in Health Services, Health Financing, and Health Status**

	N	Improvements in Health Services		Improvements in Health Financing		Improvements in Health Status	
		Frequency (%)	Unadjusted OR (95% CI)	Frequency (%)	Unadjusted OR (95% CI)	Frequency (%)	Unadjusted OR (95% CI)
<b>Project Outcomes</b>							
Measurement of Health Service	89	-	-	19.1	2.05 (0.55-7.56)	39.3	18.1 (2.4-139.5)
Improvement in Health Services	49	-	-	26.5	3.20 (1.17-8.75)	49.0	4.56 (1.97-10.5)
Measurement of Health Financing	25	44.0	1.14 (0.47-2.77)	-	-	40.0	1.72 (0.69-4.31)
Improvement in Health Financing	20	65.0	3.20 (1.17-8.75)	-	-	45.0	2.15 (0.80-5.77)
<b>Type of Development Assistance</b>							
General Budget Support	32	31.3	0.55 (0.23-1.29)	25.0	2.06 (0.75-5.62)	18.8	0.43 (0.16-1.16)
Health Sector Support	86	45.4	1.83 (0.77-4.31)	14.0	0.49 (0.18-1.33)	34.9	2.32 (0.86-6.26)
<b>Organizational Approach</b>							
Disease Program	27	51.8	1.72 (0.72-4.09)	3.7	0.15 (0.02-1.14)	40.7	1.82 (0.74-4.44)
Geographic Priority	15	46.7	1.27 (0.43-3.77)	26.7	1.98 (0.56-6.99)	20	0.53 (0.14-2.01)
Management Support System	21	28.6	0.50 (0.18-1.40)	9.52	0.46 (0.1-2.16)	28.6	0.89 (0.32-2.53)
Sector Wide Approach	8	75.0	7.31 (1.4-38.2)	50.0	5.88 (1.3-25.9)	62.5	4.25 (0.96-18.85)
Other Approaches	15	33.3	0.67 (0.21-2.10)	6.67	0.32 (0.04-2.55)	33.3	1.16 (0.37-3.68)
<b>Project Inputs</b>							
Salaries	25	52.0	1.72 (0.71-4.17)	24.0	1.78 (0.61-5.24)	48.0	2.65 (1.07-6.60)
Training	89	47.2	2.81 (1.09-7.24)	15.7	0.72 (0.25-2.07)	34.8	2.57 (0.89-7.39)
Technical Assistance	104	43.3	1.91 (0.56-6.48)	16.4	0.72 (0.18-2.84)	31.7	1.70 (0.45-6.52)
Pharmaceuticals	71	47.9	1.96 (0.91-4.23)	18.3	1.28 (0.47-3.49)	35.2	1.78 (0.77-4.09)
Equipment	78	46.2	1.78 (0.80-3.95)	15.4	0.72 (0.27-1.96)	38.5	3.54 (1.33-9.14)
Buildings	69	47.8	1.89 (0.88-4.05)	15.9	0.84 (0.32-2.22)	40.6	3.50 (1.43-8.58)
Software	58	53.5	2.68 (1.26-5.70)	22.4	2.19 (0.80-5.95)	39.7	2.38 (1.06-5.33)
<b>Project Activities</b>							
Human Resources Systems	95	45.3	2.34 (0.85-6.46)	11.6	0.20 (0.07-0.58)	34.7	3.55 (0.98-12.82)
Health Services Management Systems	85	48.2	2.91 (1.18-7.18)	17.7	1.20 (0.40-3.62)	38.8	6.35 (1.79-22.47)
Logistics Systems	80	42.5	1.13 (0.52-2.49)	13.8	0.51 (0.19-1.37)	37.5	3.2 (1.20-8.55)
Contracting with Organizations	32	59.4	2.73 (1.19-6.28)	21.9	1.57 (0.56-4.38)	37.5	1.55 (0.66-3.65)
Regulation of health providers	46	50.0	1.76 (0.83-3.75)	23.9	2.20 (0.83-5.82)	37.0	1.64 (0.74-3.62)
Public involvement in planning	19	42.1	1.03 (0.38-2.78)	10.5	0.53 (0.11-2.50)	36.8	1.41 (0.50-3.94)
<b>Country Context</b>							
Country Policy & Inst. Assessment							
Low: <3	18	33.3	Reference	0	N/A	33.3	Reference
Moderate: 3-3.5	37	24.3	0.64 (0.19-2.21)	18.9	Reference	24.3	0.64 (0.19-2.21)
High: >3.5	63	54	2.34 (0.78-7.03)	20.6	1.11 (0.40-3.10)	33.3	1.0 (0.33-3.04)
Gross National Income							
Low income	64	50	Reference	21.9	Reference	37.5	Reference
Lower middle income	40	22.5	0.29 (0.12-0.71)	15	0.63 (0.22-1.80)	22.5	0.48 (0.20-1.19)
Upper middle income	14	57.1	1.33 (0.42-4.28)	0	N/A	21.4	0.45 (0.12-1.79)

### C. ORGANIZATIONAL APPROACHES

General budget support projects were statistically no different from projects that took a sectoral approach in terms of improvements in health services, health financing, or health status. However, when examining specific types of health sector approaches, there was a clear association between SWAPs and all three study outcomes. Projects that were primarily organized as SWAPs were significantly more likely to show improvements in health services (UOR: 7.3, 95% C.I. 1.4- 38.2), health financing (UOR: 5.9, 95% CI 1.3- 25.9), though associated improvements in health status did not quite reach statistical significance at  $p < 0.05$  in the bivariate analysis (UOR: 4.25, 95% C.I. 0.96-18.85). Disease program, geographic priority, and management support systems approaches were not significantly associated with improvements in health services, health financing, or health status (see Figure 4).

**Figure 4: Percent of HNP Project ICRs Showing Improvements in Health Services, Health Financing, or Health Status According to Primary Organizational Approach**



Note: Parenthesis indicates number of projects

## **D. PROJECT INPUTS & ACTIVITIES**

In the bivariate analysis (Table 6), project inputs involving training and software appeared to be statistically related to improvements in health services, whereas equipment, buildings and software appear associated with improvements in health status. None of the inputs examined were statistically associated with improvements in health financing. Project activities involving strengthening health management systems and contracting with organizations were also associated with improvements in health services. Activities involving human resource systems, health services management, and logistics systems appeared statistically associated with health status in the bivariate analysis.

## **E. COUNTRY CONTEXT**

The level of per capita gross national income did not appear related to improvements in health services, financing, or outcomes in the bivariate analysis (Table 6). Similarly, the average levels of the CPIA did not appear to be statistically associated with improvements in any of the project outcomes, either when treated as a continuous variable or when treated as a categorical variable. There was also no obvious trend in the association with health services improvements (the middle level of CPIA had the higher UOR), though it was noted that none of the lowest level of CPIA had measures of improving health financing (Table 6).

## **F. MULTIVARIATE ANALYSIS**

Table 7 reports the results of the multivariate logistic regression models for improvements in health services and health status using the full sets of variables. These analyses confirm the statistically significant association between SWAps and improvements in health services (AOR 14.3, 95% CI 1.6-130.0) and health status (AOR 8.89, 95% CI 1.21-65.42). In the full model, only one other variable was statistically associated with improved health services: contracting (AOR 4.1, 95% CI 1.1-15.9). When examining health status improvements, no particular type of project input was associated with health status improvements. However, project activities involving support for logistics systems was associated with improved health status (AOR 3.7, 95% ACI 1.02-13.41), and those involving health services management systems nearly reached statistical significance (AOR 4.6, 95% CI 0.93-22.7).

**Table 6: Logistic Regression Results for Improvement in Health Services and Health Status**

Variable	Health Services Improvement			Health Status Improvement		
	Odds Ratio	P-value	95% Confidence Interval	Odds Ratio	P-value	95% Confidence Interval
<b>Organizational Approach</b>						
(Other)	1.0	-	-	1.0	-	-
General Budget Support	1.49	0.69	0.21-10.50	1.45	0.77	0.12-16.93
Disease Program	2.49	0.19	0.65-9.61	2.38	0.22	0.60-9.38
Sector Wide Approach	14.30	0.02	1.57-130.01	8.89	0.03	1.21-65.42
<b>Project Inputs</b>						
Salaries (none)	0.88	0.84	0.24-3.15	2.01	0.25	0.61-6.60
Training (none)	1.60	0.63	0.23-11.21	0.54	0.60	0.05-5.39
Technical Assistance (none)	2.45	0.39	0.32-18.92	0.69	0.76	0.07-6.93
Pharmaceuticals (none)	1.39	0.63	0.37-5.18	0.54	0.39	0.14-2.17
Equipment (none)	0.50	0.42	0.09-2.68	1.20	0.86	0.16-9.06
Buildings (none)	1.97	0.34	0.50-7.82	3.69	0.10	0.79-17.29
Software (none)	2.63	0.14	0.73-9.52	1.27	0.71	0.36-4.45
<b>Project Activities</b>						
Human Resource Systems (none)	0.22	0.17	0.02-1.96	0.62	0.69	0.06-6.50
Health Services Management (none)	1.25	0.76	0.29-5.40	4.59	0.06	0.93-22.69
Logistics Systems (none)	0.62	0.42	0.19-2.00	3.69	0.05	1.02-13.41
Contracting (none)	4.12	0.04	1.07-15.94	1.03	0.97	0.31-3.42
Regulations (none)	1.23	0.72	0.39-3.84	0.57	0.34	0.18-1.79
Public Involvement in Planning (none)	1.59	0.50	0.42-6.08	1.37	0.66	0.34-5.49
<b>Country Policy &amp; Inst. Assessment</b>						
(Low: <3)	1.0	-	-	1.0	-	-
Moderate: 3-3.5	0.28	0.17	0.04-1.75	0.92	0.92	0.17-4.99
High: >3.5	2.00	0.39	0.41-9.62	1.76	0.47	0.37-8.25
<b>Region</b>						
(AFR)	1.0	-	-	1.0	-	-
EAP	1.56	0.66	0.22-11.17	1.21	0.84	0.19-7.65
ECA	4.01	0.20	0.47-34.19	0.29	0.32	0.03-3.28
LAC	1.98	0.55	0.21-18.46	0.46	0.49	0.05-4.18
MENA	2.37	0.53	0.16-34.31	0.65	0.75	0.05-8.64
SAR	0.89	0.90	0.15-5.22	3.21	0.20	0.54-19.02
<b>Economy</b>						
(Low income)	1.0	-	-	1.0	-	-
Lower middle income	0.14	0.07	0.02-1.19	1.83	0.56	0.24-14.05
Upper middle income	1.17	0.90	0.12-11.58	1.27	0.84	0.12-13.54
N	118			118		
Pseudo R <sup>2</sup>	0.274			0.226		

Note: Parenthesis indicates reference group

## DISCUSSION AND CONCLUSIONS

These findings show that there has been very little measurement of health services, health financing, and health status in the Implementation Completion Reports of most Bank-assisted projects. Given the central importance of achieving the MDGs and related results in health, nutrition, and population, these findings are worrisome. It is a wake-up call that more needs to be done in measuring results in health services, financing, and health status. The good news from this study is that it seems that those projects that pay attention to measurement are associated with better health services and health status.

One advantage of the approach taken in this study, in contrast to the evaluation formally used in ICRs and IEG project reviews, is that the evaluation criteria are objective and not dependent on subjective ratings. Only reported measurements in health services, financing, and health outcomes were used in this analysis, with the indicators defined by the projects. The requirements needed to demonstrate change were minimal: only two measurements were needed to demonstrate any kind of quantitative improvement of any relevant indicator defined by the project. One disadvantage of this approach is that other important effects of a project that are not captured by these types of measurements are not considered. A large range of project outputs related to development of physical, human, and institutional capital were not considered in this study. For example, establishing new institutions or improving processes were not assessed by this study unless they could be assessed through the type of outcomes measured. Construction of health facilities, provision of drugs, equipment, and training of health workers were treated as independent variables, but were not treated as evaluation outcomes. Furthermore, many other useful activities may not be captured by quantitative measurements of health services, health financing, or health outcomes. For example, about 48% of the projects involved pilot testing of new schemes in a country. However, in most instances, it was not clear what became of the pilot study, and it was not possible in this review of ICRs to fairly assess their status. Finally, it is also likely that important improvements in health services, financing, or health outcomes actually did occur through Bank assistance, but that they were not incorporated into the evaluation framework or were never measured or reported in the ICR. Although it is standard practice in medicine and public health to base an assessment on what is documented, the analysis used in this report should not be considered a definitive evaluation of project performance because it was not designed to assess individual project performance, and did not consider other types of outcomes or activities or documentation outside the ICRs. It can be considered an objective evaluation of the degree to which quantitative measurements in health services, health financing, and health status have been reported in the self evaluation of Bank-assisted projects.

There are many reasons why measurement of health services, financing and health status in HNP is poorly done. This could be attributed to logistical difficulties in obtaining the necessary data, reporting bias (i.e. not wanting to report negative results), a lack of resources to conduct monitoring and evaluation, and particularly a lack of incentives to use project resources for proper monitoring and evaluation. Regardless of the reason, it is imperative for policy makers to encourage and support project managers to focus on

measuring and reporting results in health services, health financing, and health status. When such activities are consistently promoted and taken up, policy makers will be better able to identify more effective ways to improve health services, health financing, and the health of their populations.

What can we learn about what approaches are more likely to be associated with better outcomes? Crude analysis from this study showed that measured improvements in health services were significantly associated with positive changes in health status. This association may simply imply that projects measuring health services were generally better organized, making them more likely to achieve health gains. It is hoped that when people are better able to access higher quality health services, premature disability and death should decline. When specific health targets were developed, project managers could have allocated resources more effectively towards improving a health condition. That is, more attention to results could have contributed to better strategies to achieve the result. Yet more attention to measurement may have biased the results upwards through a Hawthorne effect (i.e. if workers knew they were being observed, they may have worked harder to achieve their objectives).

This study also suggests that certain types of organizational approaches may be associated with better health services and health status in low and middle income countries. The significantly higher odds of improving health services, financing and health status for programs using SWAps compared to others is potentially important, though the sample size was quite small. It is possible that the emphasis on regular review of performance that is part of most SWAps means that they are more likely to measure and report on health services, health financing and health status. Whether SWAps are actually more effective at achieving improvements is not clear, largely because of poor reporting of performance by most projects, and weak evaluation designs. However, the multivariate analysis reinforced the association of SWAps with measurement of improved outcomes, along with use of contracting and attention to management of health services and logistics.

The main limitation of this study is that it is not clear if the relationships described above are causal or merely associated with better outcomes. Since measuring improvement is endogenous to measuring change, these associations could be demonstrating the likelihood of measuring outcomes rather than causing the improvement. The primary project approaches and other characteristics were not randomly assigned, and there are a multitude of factors outside the control of a project that may have influenced the outcomes. We tried to control for the influence of country context through the CPIA ratings, income levels, and geographic regions, but this is unlikely to be a full control of confounding variables. We note that the analysis was not sensitive to changes in CPIA and income levels, and only the levels were used in the analysis. There is also a possible reporting bias: improvements in health services and status may be biased upwards because the health indicators that show improvement were more likely to be measured and reported. Because of the lack of control groups, non-random allocation of the project sites, and unavailability of time series data, most of the project ICRs would not qualify as scientifically robust ways to demonstrate attribution to changes in health services,

financing, or status to the projects. For this reason, we restrict our interpretation to detecting associations between the project factors and these measuring these outcomes.

Another important limitation of the study is that the sample size was relatively small, restricting the ability to detect statistically significant differences that may actually exist. On the other hand, the study may have overestimated the contribution of projects because positive changes in the services, financing and status were not assessed as to whether those changes were statistically significant. The study definitions may have categorized some indicators as having a positive change when in fact the changes were not statistically significant.

Despite its limitations, there is clearly room for improving the measurement of results in health projects and ICRs. It will be difficult to focus on any kind of “Results Agenda” without more attention to measuring results. Providing better incentives for staff to undertake robust evaluations and embed the use of these results into management decision-making would help. One such option is to establish a dedicated unit to enhance monitoring and evaluation, similar to what is being done with the Global AIDS Monitoring and Evaluation Team (GAMET). If such expertise were provided with independent funding and be available to Bank team and client country requests, better monitoring and evaluation is likely to occur. Other helpful steps would be to find ways to ensure that sufficient project funds are committed for monitoring and evaluation, perhaps through benchmarking the proportion of funding used for these activities. Providing better guidelines, tools, and training to staff to define quantifiable outcome measures and to at least include baseline and follow-up data would also help. Much more could be done to improve the body of evidence around what Bank assistance in health sector is achieving at the country level. Incorporating evaluation designs that have comparison groups, particularly if they can be randomly allocated, would provide a much stronger basis for understanding results. Indicators should be selected that are relevant and can be measured more than once during the life of a project. Monitoring and evaluation designs should employ sample sizes that will have the statistical power to detect important changes, and use techniques able to minimize biases for potentially confounding variables. If randomization of interventions cannot occur, at least some consideration and measurement of factors that determine program placement should be incorporated into the analysis framework.

In summary, in order to understand the factors that influence health services, health financing, health status, it is important for future World Bank projects be more consistent and rigorous in monitoring and evaluation. When projects are able to consistently do this, policy makers will be better informed in deciding what strategies are most effective and efficient in achieving the MDGs and other important outcomes.

## ANNEX1

### List of Project Implementation Completion Reports Reviewed

REGION	PROJECT ID	COUNTRY	PROJECT TITLE
AFR	P000118	Benin	Population and Health
AFR	P001214	Cote d'Ivoire	Integrated Health Services Development
AFR	P001331	Kenya	Arid Lands Resource Management Project
AFR	P001564	Madagascar	Rural Water Supply and Sanitation Pilot
AFR	P001792	Mozambique	Health Sector Recovery
AFR	P001999	Niger	Health Sector Development Program
AFR	P002369	Senegal	Integrated Health Sector Development
AFR	P002422	Sierra Leone	Integrated Health Sector Investment Project
AFR	P002957	Uganda	Small towns water and sanitation project
AFR	P002963	Uganda	A sexually transmitted infections project
AFR	P002971	Uganda	District Health Project
AFR	P034180	Kenya	Early Childhood Development
AFR	P035689	Mauritania	Health Sector Investment Project
AFR	P036038	Malawi	Population and Family Planning Project
AFR	P041567	Senegal	Endemic Disease Control Project
AFR	P041568	Guinea	Population & Reproductive Health Project
AFR	P043124	Eritrea	Health Project
AFR	P050619	Ghana	Third Economic Reform Support Operation Credit
AFR	P052887	Comoros	Health Project
AFR	P053200	Lesotho	Health Sector Reform Project
AFR	P055003	Mauritania	Nutrition, Food Security and Social Mobilization Project
AFR	P058627	Tanzania	Health Sector Development Program
AFR	P064556	Burundi	Emergency Economic Recovery Credit
AFR	P065725	Guinea-Bissau	Economic Rehabilitation and Recovery Credit
AFR	P066385	Rwanda	Institutional Reform Credit
AFR	P066571	Nigeria	Second Primary Education Project
AFR	P069570	Niger	Second Public Expenditure Adjustment Credit
AFR	P070999	Madagascar	First Poverty Reduction Support Operation
AFR	P071375	Cote d'Ivoire	Economic Recovery Credit
AFR	P073832	Malawi	TA-Adjustment (FRDP III) or the Third Fiscal Restructuring and Deregulation Program Technical Assistance Project
AFR	P074081	Uganda	Poverty Reduction Support Credits (PRSCs 1-3)
AFR	P076908	Burkina Faso	Poverty Reduction Support Operation (3)
AFR	P077781	Chad	Chad Fifth Structural Adjustment Credit
AFR	P078994	Burkina Faso	Poverty Reduction Support Credit 4
AFR	P080345	Madagascar	Emergency Economic Recovery Credit
AFR	P080368	Malawi	Emergency Drought Recovery Project
AFR	P080612	Zambia	Emergency Drought Recovery Project
AFR	P083246	Ghana	Second Poverty Reduction Support Credit
EAP	P004399	Papua New Guinea	Population Project
EAP	P003589	China	Disease Prevention Project
EAP	P003967	Indonesia	ID-Fifth Health Project
EAP	P004034	Cambodia	P004034
EAP	P004200	Lao	Health Systems Reform and Malaria Control Project
EAP	P004841	Vietnam	Population and Family Health Project
EAP	P036956	Indonesia	Safe Motherhood Project
EAP	P042540	Indonesia	Intensified Iodine Deficiency Control Project
EAP	P070294	Timor-Leste	Health Sector Rehabilitation and Development Project
EAP	P073911	Timor-Leste	Second Agriculture Rehabilitation Project
ECA	P008414	Georgia	Health Project

REGION	PROJECT ID	COUNTRY	PROJECT TITLE
ECA	P008797	Romania	Health Sector Reform
ECA	P008814	Russian Federation	Health Reform Pilot Project
ECA	P008867	Turkmenistan	Water supply and sanitation project
ECA	P009076	Turkey	Second Health Project
ECA	P009125	Uzbekistan	First Health
ECA	P034807	Latvia	Welfare Reform
ECA	P035761	Russian Federation	Community Social Infrastructure Project
ECA	P044523	Bosnia and Herzegovina	Basic Health Project
ECA	P045312	Albania	Health System Recovery and Development Project
ECA	P049894	Tajikistan	Primary Health Care Project
ECA	P050140	Armenia	Health Financing and Primary Health Care Development Project
ECA	P051026	Armenia	Second Structural Adjustment Technical Assistance Credit
ECA	P051418	Slovenia	Health Sector Management Project
ECA	P058520	Latvia	Health Reform Project
ECA	P069516	Kosovo	Education and Health Project
ECA	P074586	Yugoslavia	Structural Adjustment Credit
ECA	P074893	Macedonia	Public Sector Management Adjustment Loan 2
ECA	P075758	Armenia	Fifth Structural Adjustment Credit
ECA	P078390	Serbia and Montenegro	SOSAC (SERBIA)
LAC	P006196	Bolivia	Integrated Child Development Project
LAC	P006522	Brazil	Esprito Santo Water and Coastal Pollution Management Project
LAC	P006554	Brazil	BR- Health Sector Reform- Reforsus
LAC	P006854	Colombia	Municipal Health Services Project
LAC	P006954	Costa Rica	Health Sector Reform Project
LAC	P007015	Dominican	Provincial Health Services Project
LAC	P007720	Mexico	Health System Reform
LAC	P007832	Panama	Basic Education Project
LAC	P007837	Panama	Social Investment Project
LAC	P007846	Panama	Rural Health Project
LAC	P007927	Paraguay	Maternal Health and Child Development
LAC	P035753	Nicaragua	NI Health Sect II
LAC	P040179	Panama	PA Health Pilot
LAC	P043418	Argentina	AR-AIDS and STD Control
LAC	P043874	Brazil	BR-Disease Surveillance- Vigisus
LAC	P054120	Brazil	Second AIDS and STD control project
LAC	P055061	Mexico	Health Systems Reform Technical Assistance Loans
LAC	P055480	Chile	Municipal Development Project II
LAC	P060392	Bolivia	BO-Health Reform APL I
LAC	P069861	Colombia, Republic of	Social Sector Adjustment Loan
LAC	P073572	Colombia	Structural Fiscal Adjustment Loan
LAC	P073817	Peru	PE-Programmatic Social Reform Loan II
LAC	P074760	Nicaragua	Programmatic Structural Adjustment Credit
LAC	P079060	Colombia	Programmatic labor Reform and Social Structural Adjustment Loan
LAC	P082700	Bolivia	Social Safety Net SAC
LAC	P083074	Argentina	Argentina Economic and Social Transition Structural Adjustment Loan
LAC	P087841	Bolivia	BO-Social Sectors Programmatic Structural Adjustment Credit
MENA	P005152	Egypt	National Schistosomiasis Control Project
MENA	P005163	Egypt	Population project
MENA	P005521	Morocco	Water resources management project

REGION	PROJECT ID	COUNTRY	PROJECT TITLE
MENA	P005746	Tunisia	TN-Health Sector Loan
MENA	P005910	Yemen	Family Health Project
MENA	P034004	Lebanese	Health Project
MENA	P039749	Jordan	Health Sector Reform
MENA	P040556	Morocco	Rural Water Supply & Sanitation Project
MENA	P042415	Morocco	Social Priorities Program
MENA	P053892	West Bank and Gaza	Health System Development Project
MENA	P075984	West Bank and Gaza	Emergency Services Support Project
MENA	P078136	West Bank and Gaza	Emergency Services Support Project II
SAR	P009977	India (Bihar)	Second Integrated Child Development Project
SAR	P009977	India (MP)	Second Integrated Child Development Project
SAR	P010531	India	Reproductive and Child Health
SAR	P035825	India (Karnataka)	State Health Systems II
SAR	P035825	India (Punjab)	State Health Systems II
SAR	P035825	India (West Bengal)	State Health Systems II
SAR	P037857	Bangladesh	Health and Population Program Project
SAR	P067543	India	Second National Leprosy Elimination Project
SAR	P077834	Pakistan	NWFP Structural Adjustment Credit
SAR	P078806	Pakistan	Pakistan Poverty Reduction Support Credit (PRSC) I
SAR	P079635	Pakistan	NWFP SAC II

## ANNEX 2

### Types of Health Services, Health Financing and Health Status Indicators Used in Implementation Completion Reports of Health Projects (FY 2003-2005)

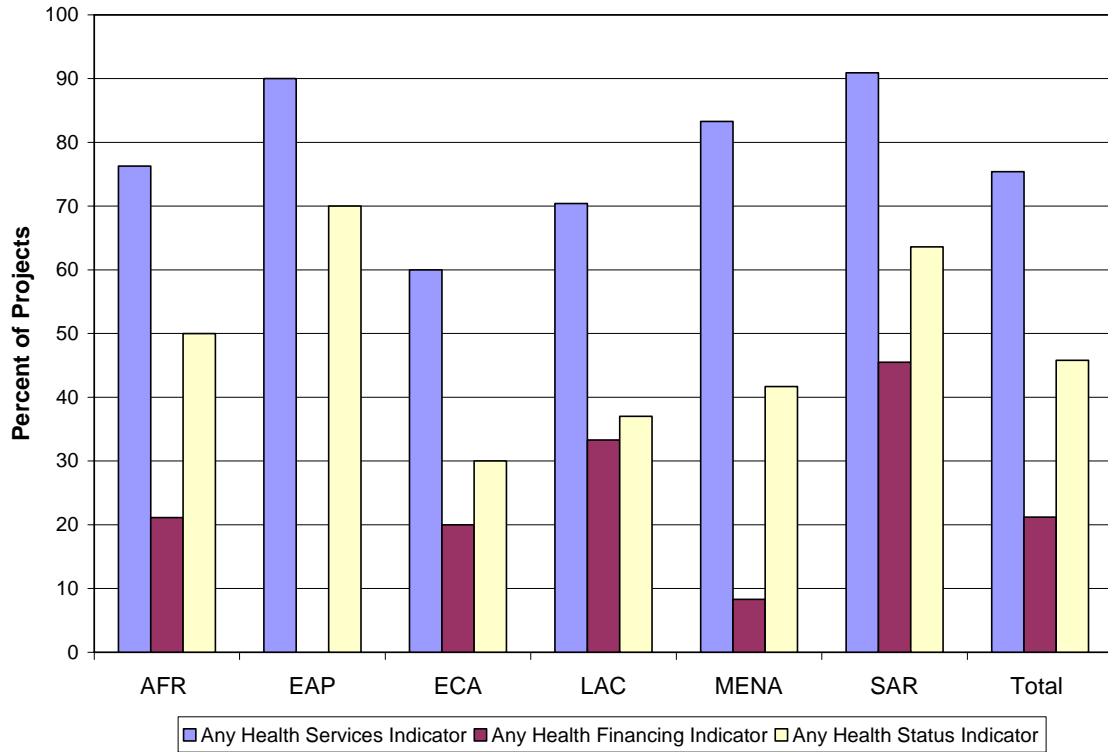
Type of Indicator	Frequency	Percent of Indicators	Percent of Projects with Indicator
<b>Health Services Indicators</b>			
Child immunization coverage	66	17%	32%
Maternal immunization coverage	2	1%	2%
Antenatal care coverage	25	6%	20%
Delivery care coverage	32	8%	21%
Post-natal care coverage	5	1%	3%
Outpatient services use	30	8%	25%
Hospital services use or efficiency	39	10%	19%
Technical quality of health care	53	14%	19%
Patient/client satisfaction	8	2%	7%
Equity in health services	0	0%	0%
Family planning use	50	13%	17%
Sexual health behavior	18	5%	4%
Other health behavior (e.g. breastfeeding)	6	2%	5%
Water quality or use	21	5%	9%
Sanitation use	3	1%	2%
Other public health services (e.g. surveillance)	29	7%	18%
<b>Total Number of Service Indicators</b>	<b>387</b>	<b>100%</b>	<b>75%</b>
<b>Health Financing Indicators</b>			
Public sector health allocations	28	60%	13%
Public financing procedures	10	21%	6%
Household health financing	4	9%	3%
Health insurance program	5	11%	5%
<b>Total Number of Financing Indicators</b>	<b>47</b>	<b>100%</b>	<b>21%</b>
<b>Health Status Indicators</b>			
Infant or neonatal mortality rates	30	16%	20%
Child mortality rates	14	8%	10%
Maternal mortality ratios	17	9%	16%
Life expectancy	2	1%	2%
Cause-specific mortality rates	12	7%	6%
Disease prevalence or incidence	68	37%	25%
Malnutrition prevalence	29	16%	9%
Fertility rates	10	5%	7%
<b>Total Number of Health Status Indicators</b>	<b>182</b>	<b>100%</b>	<b>46%</b>
<b>Total Number of Projects</b>			<b>118</b>

Note: Projects may use more than one indicator of each type in its evaluation framework

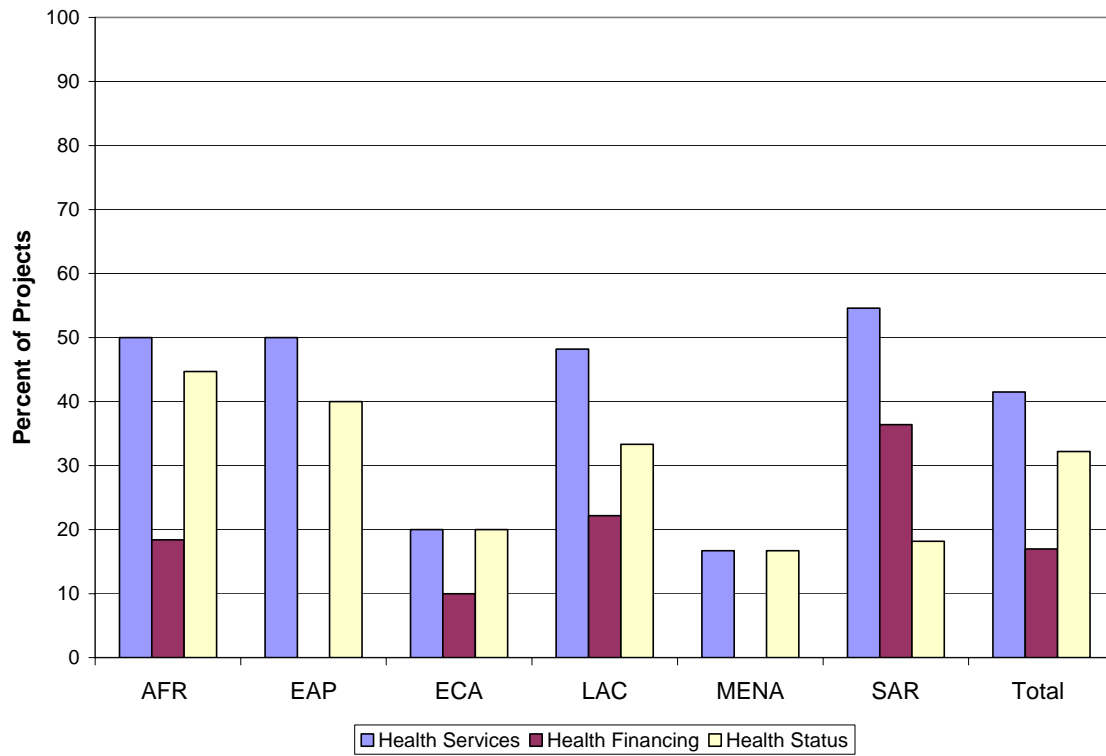
## ANNEX 3

### Graphical Representation of results

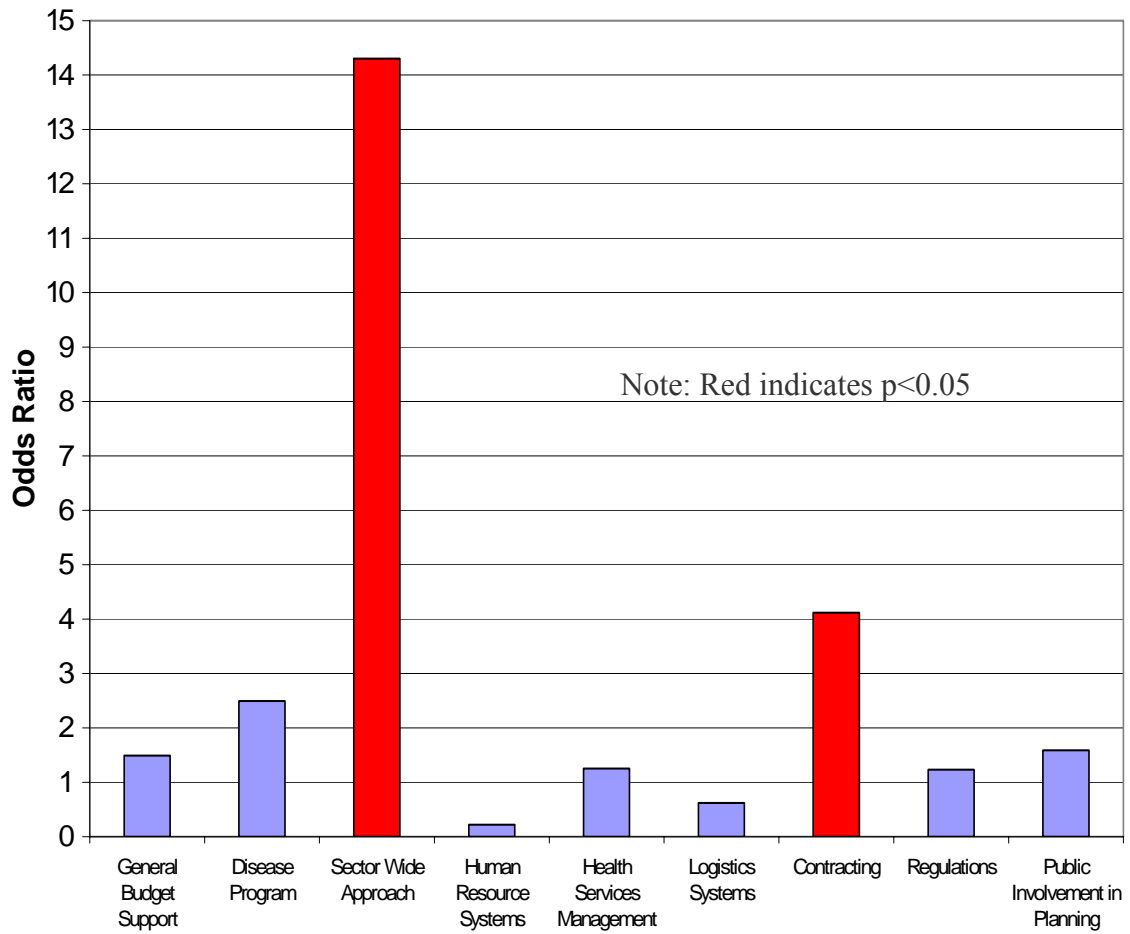
#### 1. HNP Projects With At Least One Measurement of Services, Financing or Status



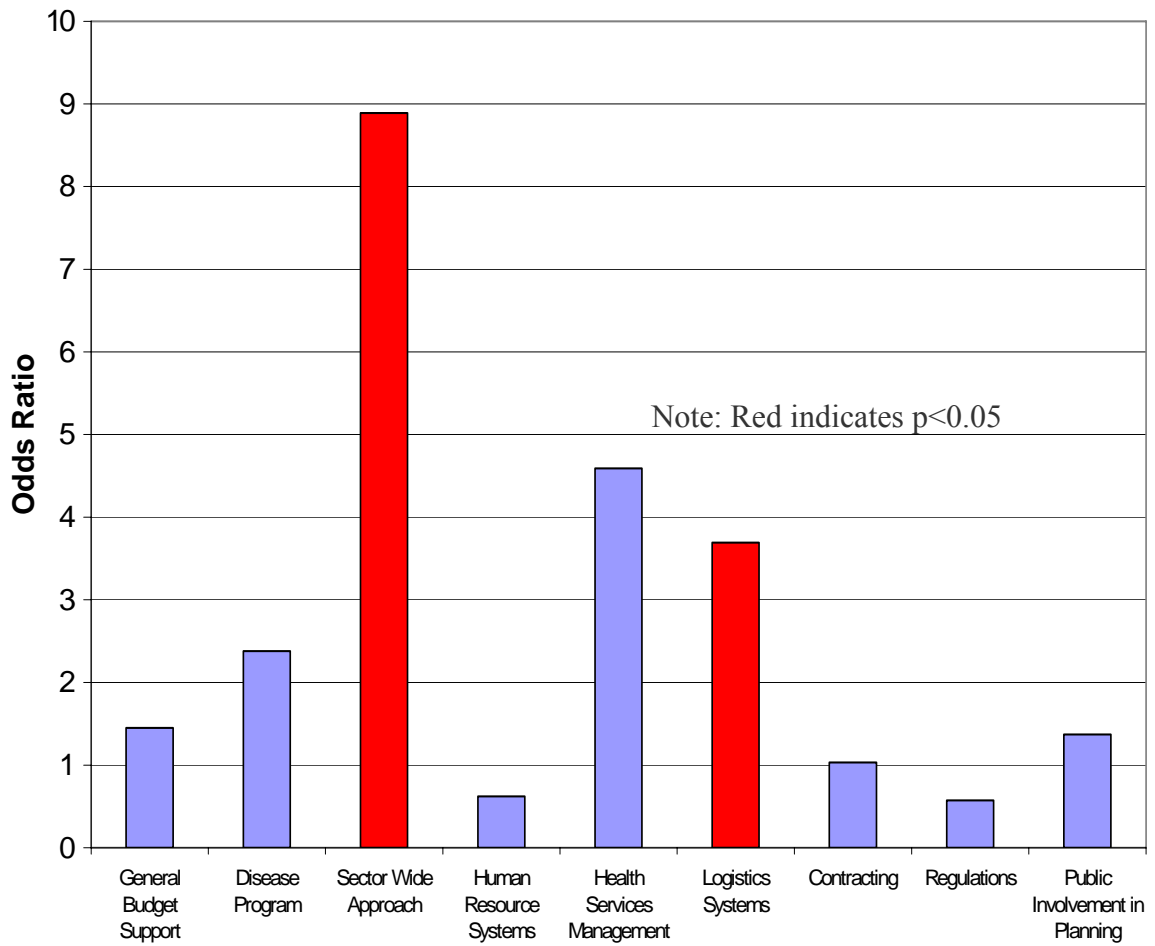
## 2. HNP Projects Measuring an Improvement in Health Services, Financing, or Status



### 3. Odds Ratio For Improving Health Services According to Organizational Design & Project Activity



#### 4. Odds Ratio For Improving Health Status According to Organizational Design & Project Activity





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**THE WORLD BANK**

1818 H Street, NW  
Washington, DC USA 20433  
Telephone: 202 473 1000  
Facsimile: 202 477 6391  
Internet: [www.worldbank.org](http://www.worldbank.org)  
E-mail: [feedback@worldbank.org](mailto:feedback@worldbank.org)