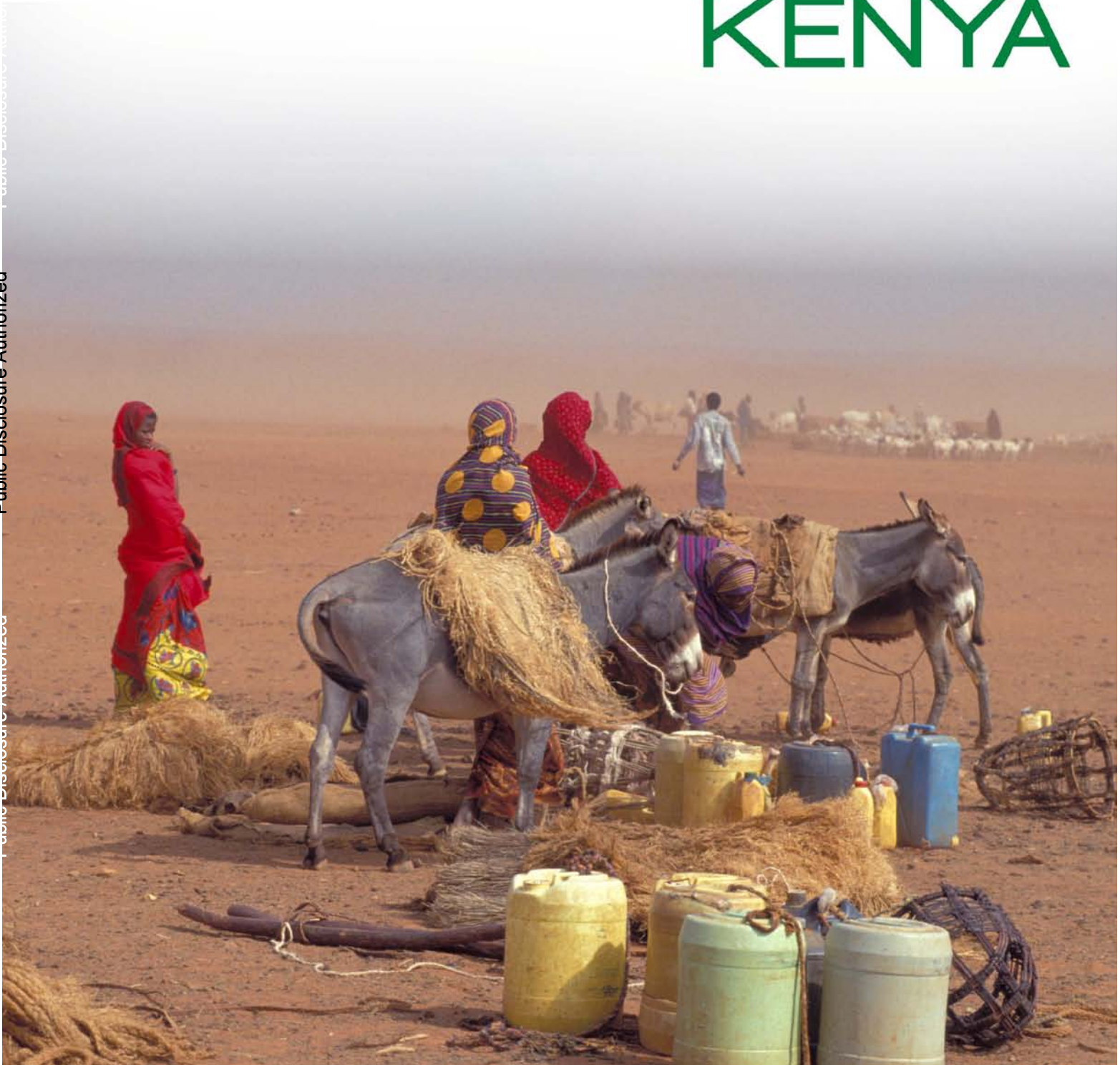**THE WORLD BANK**

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HEALTH EQUITY AND FINANCIAL PROTECTION REPORT

KENYA

About the Health Equity and Financial Protection Reports

The Health Equity and Financial Protection reports are short country-specific volumes that provide a picture of equity and financial protection in the health sectors of low- and middle-income countries. Topics covered include: inequalities in health outcomes, health behavior and health care utilization; benefit incidence analysis; financial protection; and the progressivity of health care financing. Data are drawn from the Demographic and Health Surveys, World Health Surveys, Multiple Indicator Cluster Surveys, Living Standards and Measurement Surveys, as well as other household surveys, and use a common set of health indicators for all countries in the series. All analyses are conducted using the health modules of the ADePT software. Also available are Health Equity and Financial Protection datasheets that summarize key measures of equity and financial protection.

The most recent versions of the Health Equity and Financial Protection reports and datasheets can be downloaded at **www.worldbank.org/povertyandhealth**.

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Acknowledgements

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List of Abbreviations and Acronyms

ARI	Acute respiratory infection
BIA	Benefit-incidence analysis
CPI	Consumer price index
DHS	Demographic and Health Survey
GDP	Gross domestic product
GHE	Government health expenditures
LCU	Local currency units
MCH	Maternal and child health
NHA	National Health Accounts
NHIF	National Health Insurance Fund
NHS	National Health Survey
NHSSP	National Health Sector Strategic Plan
PPP	Purchasing power parity
VAT	Value added tax
VCT	Voluntary counseling and testing
WHO	World Health Organization
WHS	World Health Survey

HEALTH EQUITY AND FINANCIAL PROTECTION IN KENYA

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Executive Summary

This report analyses equity and financial protection in the health sector of Kenya. In particular, it examines inequalities in health outcomes, health behavior and health care utilization; benefit incidence analysis; and financial protection. Data are drawn from the 2008-09 Kenya Demographic and Health Survey, the 2004 Kenya World Health Survey and the 2005-06 Kenya National Health Accounts. All analyses are conducted using original survey data and employ the health modules of the ADePT software.

Is ill health more concentrated among the poor?

Yes. In general, ill health is more concentrated among the poor in Kenya. This includes most of the indicators of *child health*: under-five and infant mortality rates, stunting, underweight, diarrhea, acute respiratory infection (ARI), and malaria. Incidence of fever, although suggestive of a disproportionate burden on the poor, is not statistically significant. With respect to measures of *adult health*, some conditions are concentrated among the poor (such as tuberculosis, arthritis, measures of difficulty with work and household activities, and poor self-assessed health status) whereas obesity among non-pregnant women, diabetes, and HIV prevalence are more common among the better-off. Results of inequality among all other indicators are not statistically significant. With respect to *risky health behaviors*, the results suggest that the poor are likelier to smoke, while the better-off are likelier to be involved in concurrent partnerships (putting them at an increased risk for sexually transmitted infections). However, wealthy women are also more likely to use condoms during concurrent partnerships. The majority of the risk factors are not statistically significant; the results are inconclusive as to whether the behavior is predominant among the wealthy or poor.

Do the poor use health services less than the rich?

Yes, when it comes to maternal and child health (MCH) interventions and inpatient care, but not for other services. Of the selected MCH interventions, antenatal care take-up, skilled birth attendance and contraceptive prevalence are more concentrated among the better-off of the population. Among adult preventive services, the results are uncertain because none of the indicators are significant at any level. For adult curative care, only the indicator of inpatient utilization in the preceding 5 years is statistically significant and suggests that the wealthy are slightly more likely to utilize these services. Utilization of outpatient care appears pretty evenly distributed, but the results are not statistically significant.

Is the distribution of government spending on health pro-rich or pro-poor?

Neither pro-rich nor pro-poor. Overall, government subsidies to all public facilities do not appear to be particularly pro-rich or particularly pro-poor when using two of the three methods of conducting benefit-incidence analysis. There is an indication that subsidies to outpatient facilities are mildly pro-poor, but the results are not statistically significant. When the third (alternative) assumption of proportional cost is invoked, government spending on inpatient hospital care becomes significantly pro-

rich, outpatient care remains pro-poor but not significantly so. Regardless of the method, total subsidies are not significantly pro-rich or pro-poor.

What is the effect of out-of-pocket payments on household financial well-being?

Modest. Less than 20 per cent of households spend more than 10 per cent of total household consumption on out-of-pocket health payments and only around 3 per cent spend more than 40 per cent. Using the alternative nonfood measure, approximately one third (35.3 per cent) of households spend more than 10 per cent of *nonfood* consumption on out-of-pocket payments and around 17 per cent spend more than 40 per cent. Catastrophic payments are (slightly) concentrated among the poor for all nonfood thresholds and concentrated among the rich at the higher levels of the total household consumption; the results at lower total consumption thresholds are not significant. Health spending contributes to impoverishment, but the effect is moderate. Out-of-pocket payments are responsible for an increase in the poverty rate equivalent to 2.4 per cent, when using the US$2.00 a day measure, and 5.0 per cent, when using the US$1.25 a day measure, as well as an increase in the depth of poverty (i.e. the poverty gap) of between 5 and 8 per cent (depending on the poverty line).

1 Kenya's health system

This section provides a brief overview of Kenya's health system, focusing on features that are likely to be especially salient for equity and financial protection.

1.1 Equity and financial protection as policy goals

Kenya's government is committed to improving equity and financial protection in health by implementing the National Health Sector Strategic Plan II (NHSSP II). The opening paragraph of the strategic plan illustrates this commitment:

> *Reducing inequalities in health care and reversing the downward trend in health related impact and outcome indicators are the twin goals of NHSSP II. Six separate but interlinked policy objectives aim towards the realization of this goal:*
>
> - *Increase equitable access to health services.*
> - *Improve the quality and responsiveness of services in the sector.*
> - *Enhance the regulatory capacity of the Ministry of Health.*
> - *Foster partnerships in improving health and delivering services.*
> - *Improve the financing of the health sector.*
>
> *(Government of Kenya 2005)*

1.2 Health financing system

<u>Health expenditure</u>

Kenya spends 4.3 per cent (2009) of its gross domestic product (GDP) on health. This is lower than the average spending levels in other lower income countries in Africa, which spent an average of 6.5 per cent (2009) of their GDP on health[1]. In the past five years, government spending on health has decreased as a percentage of total government expenditures. In 2005, 7.6 per cent of Kenya's total government expenditures were spent on health. This has steadily declined to just 5.4 per cent in 2009 (World Health Organization 2009). As a result, government expenditures accounted for only 33.8 per cent of total health expenditures while private sources were responsible for two thirds of total health expenditures in 2009. The largest source of private funding for health was household out-of-pocket payments, which accounted for 77.4 per cent of private health expenditures. Though this distribution of sources is typical of other lower-income countries in Sub-Saharan Africa, it raises serious concerns about the potential equity of the current health financing system.

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[1] Non-weighted average of: Benin, Burkina Faso, Burundi, Central African Republic, Chad, Democratic Republic of Congo, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Sierra Leone, Togo, Uganda, and Tanzania

Table 1.1: Health expenditure data, 2009

Indicator	
Health expenditure as share of GDP	4.3%
Government expenditure as share of GDP	27.2%
Government expenditure on health as share of total government expenditure	7.6%
Government health expenditure, per capita	US$ 11.24 (current), US$ 23.04 (PPP-adjusted)
Government expenditure on health as share of total health expenditure	33.8%
Out-of-pocket expenditure on health as share of total health expenditure	51.2%

Source: WHO National Health Accounts database (2009)

Decentralization and centralization

The functions of the health system in Kenya have historically been centralized through top-down decision-making and resource allocations. However, in the past decade Kenya has committed to decentralization of certain core functions to the district level. These include managing the health management system, making resource allocation decisions, and delivering health services. Additionally, district health management boards and district health management teams have taken over the responsibility of running health facilities within their respective districts (Ndavi et al. 2009). The central government maintains control over the majority of the key functions of the health system including staffing, contracting, and maintaining the national health information system.

Revenue-raising/sources of funds

Government spending accounts for 33.8 per cent (2009) of the total health spending as shown in Figure 1.1. Nevertheless, it is important to note that a substantial proportion of those funds came from donors in the form of direct budget support, sector support, and project base funding. In fact, 31.0 per cent of total health expenditures reported in 2006 originated from donors (Government of Kenya and Health Systems 20/20 Project 2009). The majority of the money channeled through the Kenyan Ministry of Health was used to pay for supply-side subsidies of curative care at hospitals and clinics. According to the 2005/2006 NHA, 53.8 per cent of government funds paid for in-patient services, 24.8 per cent for out-patient services, and 16.9 per cent for public health programs (Government of Kenya and Health Systems 20/20 Project 2009). As is the case in other countries in Sub-Saharan Africa, household out-of-pocket payments accounted for the majority of health expenditures. In 2009, out-of-pocket payments financed 51.2 per cent of all health care expenditures. Out-of-pocket payments are typically used to finance curative services at hospitals with private facilities accounting for 38.0 per cent of total out-of-pocket expenditures and government hospitals accounting for 30.0 per cent (Figure 1.2).

Figure 1.1: Health care financing mix, 2005-2009
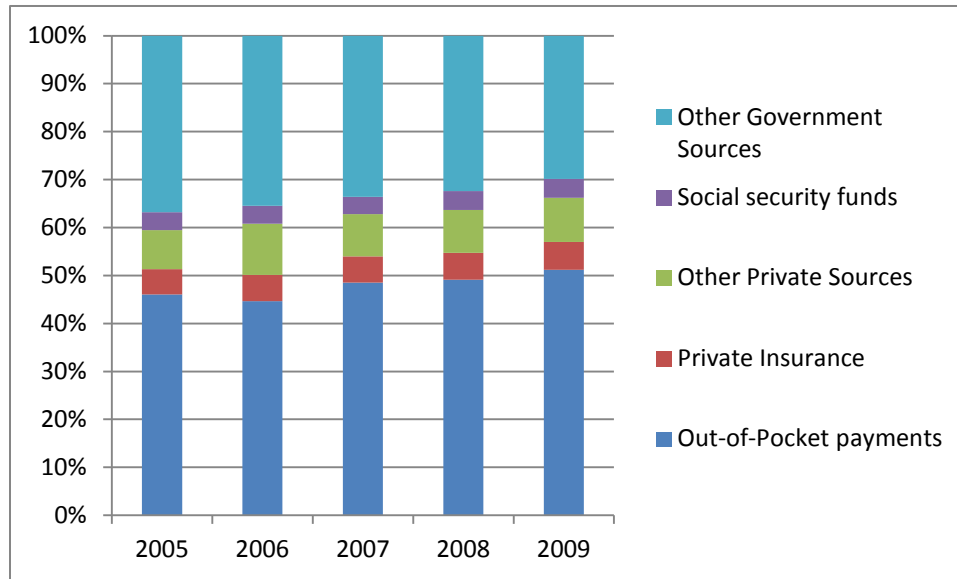
Source: World Health Organization (2009)

Figure 1.2: Composition of out-of-pocket health spending
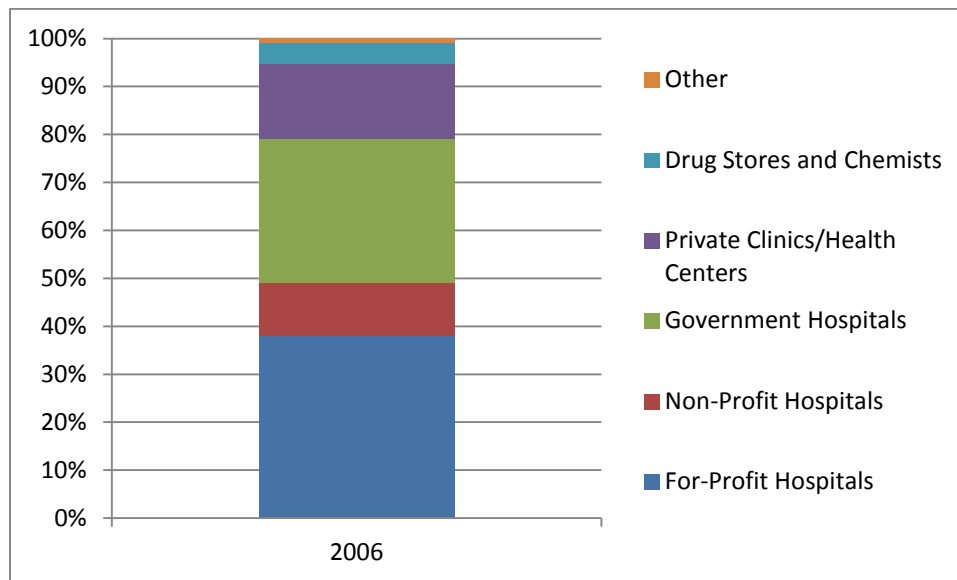
Source: World Health Organization (2009)

Kenya has a form of social insurance through the 40 year-old National Hospital Insurance Fund (NHIF). Employees in the formal sector are compulsorily insured and must make monthly contributions from their wages. Workers in the information sector are allowed to participate and can voluntarily contribute to the scheme. The NHIF covers inpatient costs based on pre-approved rates. However, the NHIF does not cover diagnostic, treatment, or pharmaceutical costs above these rate and individuals must pay out-of-pocket for any additional costs. Further, outpatient services are not covered. Thus, the NHIF confers a relatively weak form of financial protection especially for those who seek care in the private sector. As of 2007, the NHIF insured approximately 7.1 per cent of the population (Government of Kenya 2009). Private insurance is still in its infancy stage, covering only 1.6 per cent of the population in 2007 and paying for 5.8 per cent of total health expenditures in 2006 (Government of Kenya 2009; Government of Kenya and Health Systems 20/20 Project 2009).

1.3 Health care delivery system

Provider organization

In Kenya, service delivery is structured around six levels. These levels represent the function of the unit of service provision and are meant to improve the continuity of care throughout the system (Luoma et al. 2010). The six levels of are: 1) community, 2) dispensaries and clinics, 3) health centers, 4) primary hospitals, 5) secondary hospitals, and 6) tertiary hospitals (Government of Kenya 2005). The Ministry of Public Health and Sanitation is responsible for primary care vis-à-vis levels one to three. The Ministry of Medical Services is responsible for providing medical services at levels four to six. Level five and six hospitals are all public facilities. However the private sector is a major provider of health care throughout the country, as they own roughly half of the facilities at levels two to four. In 2009, a memorandum of understanding was established between the Government of Kenya and faith-based providers. This memorandum ensures the inclusion of faith-based health facilities into the government's joint annual planning and monitoring and evaluation procedures. It also initiated a framework for regulation of the private sector to ensure that minimum standards of quality are met.

Payment mechanisms and provider autonomy

The majority of the costs related to providing health care at public facilities are subsidized by government and donor funds (Government of Kenya and Health Systems 20/20 Project 2009). However, user fees, which were introduced in 1989, also pay for a portion of health services at public facilities. Exemptions for children under the age of five and people with special ailments were put in place. In 2004, the Ministry of Health reduced user fees at health centers to 10 Kenyan shillings at dispensaries and 20 Kenyan shillings at health centers. In total, user fees raised an estimated 1.8 billion Kenyan shillings in 2009 (Luoma et al. 2010). Health facilities are allowed to retain 100 per cent of the revenue collected via user fees. In general, the money is used to buy medical supplies and hire non-clinical staff. Clinical staff are hired through the central Ministry of Health and are not paid with user fee revenue.

Resource availability and utilization

Kenya had 1.4 physicians per 10,000 persons in 2004 and 11 hospital beds per 10,000 persons in 2009. In addition to the lack of health care workers, their uneven distribution poses a challenge to the provision of quality care to all the population. In 2006, only 15 per cent of the health workforce worked in health centers while 70 per cent worked in hospitals. In fact, two national hospitals employ 42 per cent of all the doctors in Kenya and 13 per cent of the nurses (Ministry of Health 2006). This uneven distribution of health workers disproportionately affects the rural poor who do not have access to urban hospitals due to financial or geographical barriers.

2 Inequalities in health

Most policymakers regard large inequalities in health outcomes between poor and rich as undesirable. This section reports inequalities in child and adult health outcomes, as well as in health behaviors.

2.1 Data availability

A Demographic and Health Survey (DHS) was fielded in Kenya in 2008-2009 and a World health Survey (WHS) was fielded in 2004. Although the DHS has rich information for many health outcomes, particularly in relation to child health outcomes, the WHS has fuller data availability with regard to many adult health outcomes. The DHS excludes consumption or income measures, but one can construct an "asset index" using principal components analysis (see Filmer and Pritchett 2001). The WHS contains information on both consumption and assets, but this section uses the asset information for consistency.

2.2 Inequalities in health

The tables in this section show how health outcomes vary across asset (wealth) quintiles. The tables show the mean values of the indicator for each quintile, as well as for the sample as a whole. Also shown are the concentration indices, which capture the direction and degree of inequality. A negative value indicates that the indicator takes higher values among the poor, while a positive index indicates that the indicator takes higher values among the better-off. The larger the index in absolute size, the more inequality there is.

Table 2.1 shows that, according to the 2008-09 DHS, the prevalence of diarrhea and the prevalence acute respiratory infection (ARI) are more concentrated among the poor, while results for fever are not significant. The DHS anthropometric data indicate that stunting and underweight are more common in poorer households as well. Both infant and under-five mortality rates are also higher among the worse off. The 2004 WHS data show higher prevalence of malaria among the poor.

Table 2.2 shows that, according to the 2004 WHS, tuberculosis, arthritis, difficulty with work and household activities, and poor self-assessed health status are more prevalent among the poor. In contrast, the better-off are more likely to be diagnosed with diabetes and exhibit a higher prevalence of HIV. According to 2008-09 DHS, obesity rates among non-pregnant women are higher among the better-off as well. Indicators of non-road and road traffic accidents, angina, asthma and depression are not statistically significant.

Table 2.1 : Inequalities in child health

	Lowest quintile	Q2	Q3	Q4	Highest quintile	Total	Concentration index
Infant mortality rate[1]	7.3%	7.8%	6.9%	4.5%	6.1%	6.6%	-0.063**
Under-five mortality rate[1]	9.7%	11.3%	9.8%	6.0%	6.8%	8.9%	-0.096***
Stunting[1]	45.1%	40.0%	33.8%	28.9%	24.1%	35.5%	-0.126***
Underweight[1]	24.6%	18.0%	13.7%	12.0%	9.1%	16.3%	-0.221***
Diarrhea[1]	19.4%	16.1%	15.3%	20.2%	12.3%	16.8%	-0.057***
Acute respiratory infection[1]	15.5%	13.6%	12.0%	12.2%	9.9%	12.9%	-0.084***
Fever[1]	26.0%	21.3%	25.5%	26.1%	21.4%	24.1%	-0.025
Malaria[2]	66.1%	69.9%	59.9%	67.4%	48.8%	63.0%	-0.050**

Source: Authors' estimates using ADePT and data from 2008-09 Kenya DHS[1] and 2004 Kenya WHS[2].
Note: *CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

Table 2.2 : Inequalities in adult health

	Lowest quintile	Q2	Q3	Q4	Highest quintile	Total	Concentration index
Tuberculosis[2]	10.3%	11.1%	6.5%	4.7%	4.1%	7.3%	-0.222***
HIV Positive[1]	4.8%	6.9%	5.8%	6.8%	7.8%	6.5%	0.071**
Obesity among non-pregnant women[1]	1.6%	2.8%	6.1%	8.9%	13.3%	7.3%	0.349***
Road traffic accident[2]	1.7%	2.1%	2.0%	3.1%	2.2%	2.3%	0.096
Non-road traffic accident[2]	12.4%	12.1%	13.3%	9.6%	12.6%	12.0%	-0.013
Angina[2]	2.9%	4.9%	1.2%	2.2%	3.3%	2.9%	-0.047
Arthritis[2]	8.0%	6.4%	3.1%	5.1%	2.6%	5.0%	-0.212***
Asthma[2]	3.7%	3.0%	1.6%	3.9%	2.4%	2.9%	-0.030
Depression[2]	4.3%	7.2%	4.9%	4.8%	5.1%	5.3%	-0.033
Diabetes[2]	0.1%	0.0%	1.0%	0.8%	3.8%	1.1%	0.531***
Difficulty with work and household activities[2]	9.2%	6.6%	4.4%	4.4%	2.6%	5.4%	-0.205***
Poor self-assessed health status	12.4%	6.5%	4.4%	3.0%	2.6%	5.8%	-0.336***

Source: Authors' estimates using ADePT and data from 2008-09 Kenya DHS[1] and 2004 Kenya WHS[2].
Note: *CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

Table 2.3 shows inequalities in health behaviors that place individuals at risk for developing poor health. Only the prevalence of smoking (among all respondents) is higher among the poor. Wealthy women are more likely to have sexual intercourse with more than one partner (concurrent partnerships), but also more likely to use a condom during concurrent partnerships. Other indicators of health behavior are not significant.

Table 2.3: Inequalities in health behaviors

	Lowest quintile	Q2	Q3	Q4	Highest quintile	Total	Concentration index
Smoking (all)[2]	15.1%	14.3%	16.5%	14.6%	10.9%	14.3%	-0.059***
Smoking (women)[1]	5.4%	1.0%	0.6%	1.0%	0.8%	1.6%	-0.445
Insufficient intake of fruit and vegetables[2]	86.7%	84.0%	85.8%	88.1%	85.3%	86.0%	-0.001
Insufficient physical activity[2]	5.2%	5.0%	6.6%	6.5%	7.3%	6.1%	0.056
Drinking[2]	3.6%	4.7%	4.6%	5.2%	7.0%	5.0%	0.141
Concurrent partnerships[1]	9.6%	10.9%	11.0%	12.9%	17.5%	12.8%	0.131***
Condom usage (more than one partner)[1]	13.9%	35.3%	29.7%	38.7%	39.3%	33.7%	0.109***
Mosquito net use by children[1]	38.4%	45.2%	50.8%	50.7%	59.9%	48.0%	0.088
Mosquito net use by pregnant women[1]	49.1%	52.1%	48.6%	62.4%	45.9%	50.8%	0.004

Source: Authors' estimates using ADePT and data from 2008-09 Kenya DHS[1] and 2004 Kenya WHS[2].
Note: * CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

In sum, the tables in this section indicate that children and adults from poor households in Kenya are disproportionately affected by ill health. All significant child health outcomes and the majority of adverse adult health outcomes are concentrated among the worse off.

3   Inequalities in health care utilization

In many countries, for a variety of possible reasons, health care utilization tends to be distributed very unequally across income groups, even after taking into account differences in medical needs. This section reports on inequalities in utilization of health care in Kenya for different types of care, and for different types of health care provider.

3.1   Data availability

A Demographic and Health Survey (DHS) was fielded in country in 2008-2009 and a World Health Survey (WHS) was fielded in 2004. Although the DHS has rich information for maternal and child health (MCH) interventions, the WHS has fuller data with regard to adult preventive care and general utilization. The DHS excluded consumption or income measures, but one can construct an "asset index" using principal components analysis (see Filmer and Pritchett 2001). The WHS contains information on both consumption and assets, but this section uses the asset information for consistency.

3.2   Inequalities in health care utilization

The tables in this section show how health care utilization varies across consumption or asset quintiles. The tables show the mean values of the indicator for each quintile, as well as for the sample as a whole. Also shown are the concentration indices, which capture the direction and degree of inequality. A negative value indicates that utilization is higher among the poor, while a positive index indicates higher utilization rates among the better-off. The larger the index in absolute size, the more inequality in utilization there is.

Table 3.1 shows coverage of key MCH interventions and treatment of childhood illness using data from the 2008-09 Kenya DHS. Approximately 68 per cent of children under the age of five are fully immunized, 48 per cent of expectant women received at least four skilled antenatal care visits and 44 per cent have had their baby delivered by a skilled birth attendant. Rates of both types of obstetric care, as well as modern contraception use, are higher among the better-off. Inequality measures for childhood immunization and treatment of diarrhea and ARI were not found to be significant.

Table 3.2 shows inequalities in preventive care among adults. None of the indicators –tuberculosis screening, HIV testing, and breast cancer screening – were significant at any level.

Table 3.3 shows the inequalities in adult curative care in Kenya according to the 2004 WHS. Only inpatient health care utilization measured over five years is statistically significant. Total health care utilization (inpatient and outpatient), outpatient care, and inpatient care at 12 months did not show a significant disproportion in use.

Table 3.1: Inequalities in maternal and child health interventions

	Lowest quintile	Q2	Q3	Q4	Highest quintile	Total	Concentration index
Full immunization	62.1%	66.8%	75.8%	69.8%	69.2%	68.3%	0.020
Treatment of diarrhea	75.3%	70.8%	78.7%	62.3%	73.5%	72.0%	-0.019
Medical treatment of ARI	54.2%	45.9%	56.4%	50.1%	54.3%	52.1%	-0.004
Skilled antenatal care (4+ visits)	35.5%	38.2%	42.1%	56.8%	65.3%	47.5%	0.140***
Skilled birth attendance	21.3%	30.9%	43.6%	54.0%	81.8%	44.2%	0.275***
Contraceptive prevalence among women	44.2%	46.7%	54.3%	57.9%	51.8%	52.2%	0.027**

Source: Authors' estimates using ADePT and data from 2008-09 Kenya DHS.
Note: * CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

Table 3.2: Inequalities in adult preventive care

	Lowest quintile	Q2	Q3	Q4	Highest quintile	Total	Concentration index
TB screening	1.5%	1.4%	1.0%	2.0%	0.6%	1.3%	-0.087
Voluntary counseling and testing for HIV	84.9%	97.9%	90.3%	91.4%	96.7%	93.1%	0.012
Breast cancer screening	1.3%	2.0%	3.0%	0.4%	0.4%	1.5%	-0.147

Source: Authors' estimates using ADePT and data from 2004 Kenya WHS.
Note: *CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

Table 3.3: Inequalities in adult curative care

	Lowest quintile	Q2	Q3	Q4	Highest quintile	Total	Concentration index
Inpatient or outpatient (12 months)	51.4%	58.2%	48.9%	58.9%	54.7%	54.4%	0.013
Inpatient (12 months)	6.2%	6.9%	5.3%	6.9%	5.5%	6.1%	0.005
Inpatient (5 years)	13.1%	12.8%	14.1%	15.3%	15.8%	14.2%	0.057*
Outpatient (12 months)	53.0%	59.1%	50.7%	57.8%	56.9%	55.5%	0.008

Source: Authors' estimates using ADePT and data from 2004 Kenya WHS.
Note: *CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

In sum, the tables in this section indicate that, in Kenya, those who are worse off seem to utilize health interventions and health care at lower rates than the wealthy, putting them at greater risk for ill health, but many of the results are not significant. Uptake of MCH interventions appears to be largely biased towards those who are better-off. With regard to adult preventive care and adult curative care, the results are largely inconclusive.

4 Benefit incidence of government spending

Policymakers typically take the view that government health expenditure (GHE) ought not to disproportionately benefit the better-off, and if anything ought to favor the poor more than the better-off. Benefit-incidence analysis (BIA) shows whether and how far GHE disproportionately benefits the poor. This section reports BIA results for Kenya, using three different methods for allocating GHE to households, namely the constant unit cost assumption, the constant unit subsidy assumption, and the proportional unit cost assumption. The first is arguably the least plausible of the three, since it implies that higher fees do not translate into more costly care. But it does have the attraction of not needing to be modified if part of (general) GHE goes on demand-side subsidies through, for example, a subsidized health insurance program. Where the results presented below are obtained using the constant-unit-subsidy and proportional-unit-cost assumptions, it is assumed implicitly that supply- and demand-side subsidies have the same distributional impact.

4.1 Data availability

The World Health Survey (WHS) that was conducted in Kenya in 2004 records the utilization of inpatient and outpatient care. It allows us to determine whether the individual had at least one inpatient stay and at least one outpatient visit during the year preceding the survey[2]. The WHS clearly distinguishes between public and private outpatient care, documents the name of the facility visited, and records the fees paid by the individual during the last inpatient stay or outpatient visit. Household ranking for the WHS for this section is based on consumption.

A BIA also needs data on GHE (i.e. subsidies) by level of service. Kenya conducted three National Health Accounts (NHA) exercises during the 1994-2006 period and the 2005-2006 results are used in this section as they are the closest match to the 2004 WHS[3]. Government spending on public health centers and dispensaries (item HP.3.4.5.1 in the NHA report) is measured as the contributions made by the Ministry of Health (HF.1.1.1.1), state and provincial governments (HF.1.1.1.2), and parastatal companies (HF.2.5.1). Government spending on public hospitals is computed as the sum of the contributions made by the three above public entities to government hospitals (HP.1.1.1), mental health and substance abuse hospitals (HP.1.2) and government specialty hospitals (HP.1.3.1). Furthermore, we distinguish between inpatient (HC.1.1) and outpatient (HC.1.3) services by using the NHA matrix that places health providers in relation to the health function they provide. Finally, we also take into account that the government allocates subsidies to private employer insurance companies (HF2.1.2), which in turn finances various public health providers. In Kenya, government subsidies also directly finance private providers, but considering the small fraction of total public subsidies this represents, we do not analyze its incidence. Public subsidies for inpatient care that is provided in ambulatory facilities are also left out of the analysis as the utilization of this type of health services is not recorded in the WHS.

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[2] Ideally, one would like to observe the actual number of days spent at the hospital and the number of outpatient visits. However, this limitation is offset by the fact that more frequent users are also more likely to have used care during the WHS one-year recall period, thus reducing this potential bias. This approach was also validated by performing a BIA analysis using survey data (from Vietnam) that contained both a binary indicator of utilization and the actual number of inpatient days and doctor visits, and finding that there were not considerable differences between the corresponding BIA results.

[3] See http://www.who.int/nha/country/ken/en/.

4.2 Inequalities in benefit incidence

The tables in this section show the distribution across consumption quintiles of utilization for government facilities, fees paid to these facilities, and estimated subsidies to the health sector. The latter depend on the assumptions made to allocate subsidies to households; results are presented for three sets of assumptions. The tables show the shares of fees or shares of subsidies that go to each quintile. Also shown are the concentration indices, which capture the direction and degree of inequality. A negative value indicates that the variable in question is higher among the poor, while a positive index indicates higher values among the better-off. The larger the index in absolute size, the more inequality in the indicator there is.

Table 4.1 shows the utilization of health centers and dispensaries, and of outpatient and inpatient services in public hospitals. It can be seen that use of health centers and dispensaries decreases with income, from 18.8 per cent on average in the lowest quintile to 8.6 per cent in the richest. This translates into a negative concentration index (-0.161) that reflects the pro-poor utilization of this type of public health services. On the other hand, the utilization of outpatient and inpatient care appears to mildly favor the rich. However, their respective concentration indexes (0.040 and 0.097) are not statistically significant and, therefore, it is not possible to draw the conclusion of a pro-rich bias.

Table 4.1: Inequalities in use of publicly financed facilities

	Outpatient basic health unit and health center	Outpatient hospital	Inpatient hospital
Lowest quintile	18.8%	6.5%	2.6%
2	17.4%	8.5%	3.3%
3	15.7%	8.8%	5.6%
4	11.6%	8.3%	5.6%
Highest quintile	8.6%	8.4%	3.3%
Total	14.4%	8.1%	4.1%
Concentration index	-0.161	0.040	0.097

Source: Authors' estimates using ADePT and data from 2004 Kenya WHS.
Note: The utilization data refer to the last year in all cases.
*CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

Table 4.2 describes inequalities in health fees for the public services mentioned above. Strikingly, the two poorest income quintiles contribute together to as much as half of all the fees paid to health centers and dispensaries. The corresponding concentration index (-0.129) confirms the greater concentration of fees among poorer individuals – statistically significant at the 10 per cent level. This result is explained by the greater utilization of this type of (public) health service by poorer individuals. By contrast, fees paid to hospitals are more concentrated among the rich. This is especially true for inpatient care where the two poorest quintiles only contribute respectively 7.9 per cent and 6.2 per cent to total fees. The corresponding concentration index (0.235) is markedly pro-rich and is statistically significant at the 5 per cent level.

Table 4.2: Distribution of fees paid

	Outpatient basic health unit and health center	Outpatient hospital	Inpatient hospital
Lowest quintile	25.0	10.1	7.9
2	25.2	24.2	6.2
3	16.9	29.5	38.5
4	18.3	15.4	21.9
Highest quintile	14.5	20.7	25.6
Total	100.0	100.0	100.0
Concentration index	-0.129	0.078	0.235**

Source: Authors' estimates using ADePT and data from Kenya 2003-04 WHS.
Note: *CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

Table 4.3 shows the incidence of government spending on health. The first two lines indicate that more than half (57 per cent) of the government subsidies are spent on outpatient care in public hospitals, 34.3 per cent is spent on inpatient care in these hospitals, and 8.6 per cent on health centers and dispensaries. The first two sets of results (based on the constant unit cost and subsidy assumptions) are very similar. The concentration indices of the subsidies to health centers and dispensaries are negative, which indicates that the poor benefit more than the non-poor from government spending on this type of health services. On the other hand, government subsidies to hospitals appear to slightly favor the rich, but one has to be cautious about this interpretation, as the concentration indices are not statistically significant. Overall, the large share of total government subsidies that represent hospital care negates the pro-poorness of the subsidies allocated to health centers and dispensaries. As a result total government subsidies are slightly pro-rich, but not statistically significantly so. The results obtained with the third assumption (i.e. that unit costs are proportional to the amount spent out-of-pocket) roughly tells us the same story with the only difference being that public subsidies are found to be more pro-rich. This is especially true of subsidies to inpatient care, which are shown to strongly and statistically significantly favor the rich, resulting from the pro-rich bias of the corresponding fees. Overall, total government spending on (public) health services seems mildly pro-rich, but this result lacks statistical significance. Taken together, these benefit incidence analyses suggest that government spending on health is neither particular pro-rich or pro-poor. However, the most important issue is that the poor, although they visiting health centers and dispensaries more often, use considerably less hospital services than the rich.

Table 4.3: Inequality in the incidence of government health spending

	Outpatient basic health unit, health center	Outpatient hospital	Inpatient hospital	Total subsidies
Total subsidies (in million Kenyan shillings)	1,445	9,528	5,752	16,725
Share of total subsidy	8.6%	57.0%	34.4%	100.0%
Constant unit cost assumption				
Lowest quintile	26.1	16.4	13.7	16.3
2	23.8	20.8	17.6	20.0
3	22.6	21.2	25.8	22.9
4	16.0	20.8	27.6	22.7
Highest quintile	11.5	20.7	15.3	18.1
Total	100.0	100.0	100.0	100.0
Concentration index	-0.164	0.036	0.081	0.034
Constant unit subsidy assumption				
Lowest quintile	26.0	16.1	13.0	15.9
2	24.0	20.9	16.0	19.5
3	21.9	21.7	27.7	23.8
4	16.1	20.4	27.2	22.4
Highest quintile	11.9	20.8	16.1	18.4
Total	100.0	100.0	100.0	100.0
Concentration index	-0.161	0.040	0.097	0.042
Proportional cost assumption				
Lowest quintile	25.0	10.1	7.9	10.6
2	25.2	24.2	6.2	18.1
3	16.9	29.5	38.5	31.5
4	18.3	15.4	21.9	17.9
Highest quintile	14.5	20.7	25.6	21.8
Total	100.0	100.0	100.0	100.0
Concentration index	-0.129	0.078	0.235**	0.114

Source: Authors' calculations using ADePT data from Kenya 2004 WHS.
Note: With the constant cost assumption imposed, grossed-up survey data for fees have been used rather than NHA data on fees, and negative imputed subsidies have been set to zero.
* CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

5   Financial protection in health

Countries finance their health care through a mix of out-of-pocket payments, private and social insurance, general revenues, and international development assistance. All except the latter ultimately come from the pockets of households in the country. Therefore, health systems are not just about improving health but also about ensuring that people are protected from the financial consequences of illness and death, or at least from the financial consequences of having to obtain medical care. This section presents data on two alternative measures of financial protection, one that asks whether out-of-pocket spending is 'catastrophic', and another that asks if it is 'impoverishing'. Neither captures the income losses associated with illness, and both therefore underestimate the full financial impact of ill health on households. The section also explains the institutional arrangements used in Kenya to provide financial protection in the health sector, and presents data on levels of inequalities in coverage.

5.1   Data availability

A World Health Survey (WHS) was fielded in Kenya in 2004. The WHS has information on health expenditure and household consumption, but less detailed information on health insurance coverage. In order to facilitate international comparisons on catastrophic payments and impoverishment, the majority of the tables below use data from the WHS. For all the following analyses, households are ranked by per capita consumption.

5.2   Catastrophic out-of-pocket payments

This subsection provides information on 'catastrophic' health payments. Catastrophic payments are defined as health care payments in excess of a predetermined percentage of their total household or nonfood spending.

The columns of Table 5.1 give different thresholds above which health payment "budget shares" might be deemed catastrophic. The first line of the table displays the catastrophic payment "headcount", i.e. the proportion of households with a health payment budget share greater than the given threshold. The second line relates the catastrophic payment headcount to the household consumption distribution, and shows the concentration index of the incidence of catastrophic payments. A positive value of the concentration index indicates a greater tendency for the better-off to exhibit out-of-pocket spending in excess of the payment threshold, whereas a negative value indicates that the worse off are more likely to have out-of-pocket spending exceeding the threshold.

The information in Table 5.1 on catastrophic payments is for the 2004 WHS. The table shows that when the threshold is raised from 5 to 40 per cent of total household expenditure the estimate of catastrophic payments falls from 28.1 to 3.4 per cent. However, using nonfood expenditure, the estimate of the incidence of catastrophic payments falls from 41.8 to 17.0 per cent.

Table 5.1 also shows the concentration index for all thresholds and measures of consumption. Catastrophic payments are clearly, but mildly, concentrated among the poor for all nonfood thresholds. When it comes to the total consumption thresholds, catastrophic payments are found to be significantly concentrated only at the 40 per cent threshold, where they are concentrated among the rich.

Table 5.1: Incidence of catastrophic out-of-pocket spending

	Threshold share of total consumption				
	5%	10%	15%	25%	40%
Headcount	28.1%	18.8%	13.8%	7.4%	3.4%
Concentration index	0.006	-0.016	0.014	0.089	0.226***

	Threshold share of nonfood consumption				
	5%	10%	15%	25%	40%
Headcount	41.8%	35.3%	30.6%	23.4%	17.0%
Concentration index	-0.033*	-0.051***	-0.069***	-0.116***	-0.145***

Source: Authors' estimates using ADePT and data from 2004 Kenya WHS.
* CI is significant at 10%, **CI is significant at 5%, ***CI is significant at 1%.

5.3 Impoverishing out-of-pocket payments

This subsection presents poverty measures corresponding to household consumption gross and net of out-of-pocket health spending. A comparison of the two shows the scale of impoverishment due to health payments. The idea is that a health problem necessitating out-of-pocket medical spending may be serious enough to push a household from being above the poverty line 'before' the health problem to being below the poverty line 'after' the health problem. Adding out-of-pocket spending to the household's nonmedical consumption ('consumption including – or gross of – health payments') gives us a sense of what its standard of living would have been *without* the health problem. Its nonmedical spending ('consumption excluding health payments') gives us a sense of what its standard of living looks like *with* the health problem. The assumption here is that out-of-pocket spending is involuntary and caused by health "shocks"; health spending is assumed to be financed by reducing current consumption.

The first line of Table 5.2 shows the poverty "headcount" which represents the proportion of individuals living below the poverty line. Two poverty lines are used: the lower line corresponds to $1.25 a day at purchasing power parities (PPP); the upper line corresponds to $2 a day. The poverty gap gives the total shortfall from the poverty line, averaged across the entire population; it is expressed in dollars a day. The mean positive poverty gap is a measure of the intensity of poverty: it indicates the average shortfall from the poverty line among those in poverty; it is also measured in dollars a day.

Table 5.2 reports results for the 2004 Kenya WHS. When out-of-pocket payments are counted as part of a household's consumption, 58.4 per cent of the population in 2004 was poor using a US$2.00 a day poverty line. If we take out-of-pocket payments out from the household's consumption, recognizing that this expenditure is involuntary and simply enables a household to cope with a health problem, the

poverty rate goes up to 78.6 per cent; this is the true poverty rate. Thus about two per cent of the population would not have been poor if the resources they were forced to devote to health care had been available to spend on other things. Out-of-pocket spending on health raises the per-capita poverty gap rises by $0.05, equivalent to or a 5 per cent increase. The mean positive poverty gap increases by $0.03, or a 3 per cent increase. The rise in the poverty gap is thus mainly due to more households being brought into poverty through out-of-pocket spending on health, and not because of a deepening of the poverty of the already poor.

When the poverty line is reduced to US$1.25 a day, the analysis shows an increase in the percentage of those becoming impoverished and an increase in the depth of poverty from out-of-pocket health spending. The normalized mean positive poverty gap is similar in both analyses.

Table 5.2: Impoverishment through out-of-pocket health spending

	Consumption including OOP	Consumption excluding OOP	Change	Percentage change
Poverty line at US$1.25 per capita per day				
Percentage in poverty/poverty headcount	58.4%	61.3%	2.9 pp	5.0%
Average shortfall from the poverty line	$0.36	$0.39	$0.03	7.5%
Average shortfall from the poverty line, among the poor	$0.62	$0.63	$0.01	2.4%
Poverty line at US$2.00 per capita per day				
Percentage in poverty/poverty headcount	76.8%	78.6%	1.8 pp	2.4 %
Average shortfall from the poverty line	$0.88	$0.93	$0.05	5.3%
Average shortfall from the poverty line, among the poor	$1.14	$1.17	$0.03	2.8%

Source: Authors' estimates using ADePT and data from 2004 Kenya WHS.
Note: Poverty lines are at 2005 purchasing power parities, adjusted to current prices using Kenya's CPI.

Figure 5.1 shows the effect of out-of-pocket payments on poverty via a "Pen's parade". Households are lined up in ascending order of their consumption including out-of-pocket payments. The vertical "paint drips" show the extent to which out-of-pocket payments divert a household's spending away from items such as food, education, clothing, etc. Insofar as health care is used in response to an adverse health event, health spending doesn't add to the household's living standards in a way that food spending does. The length of the paint drip, therefore, shows how far health spending compromises a household's living standards. In this case, we can see that when using a poverty line of US$1.25 a day, the majority of households are already below the poverty line regardless of out-of-pocket spending. The effects of out-of-pocket health expenditures on the extremely destitute are small, but they grow as the population increases in wealth and some of those approaching the poverty line are brought back down into extreme poverty. The chart also shows that many already-impoverished households are experiencing a deepening of poverty as a result of their health spending.

Figure 5.1 : The impoverishing effect of out-of-pocket spending
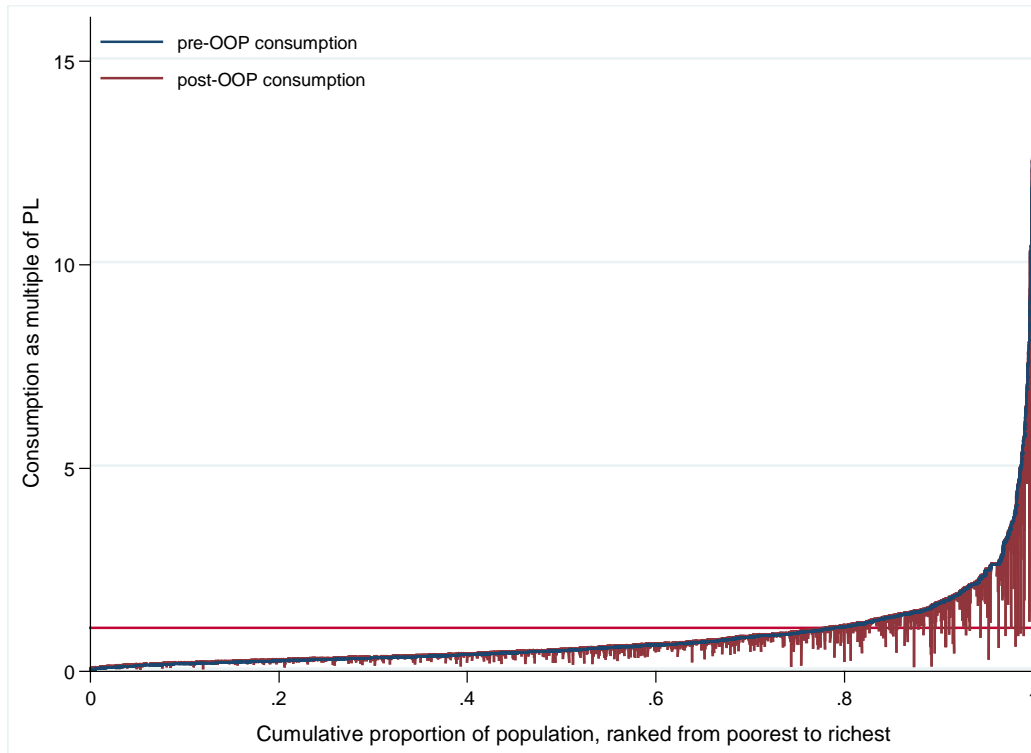
Source: Authors' estimates using ADePT and 2004 Kenya WHS.
Note: Poverty line is US$1.25 a day at 2005 purchasing power parities, adjusted to current prices using Kenya's CPI.

In sum, the analyses in this section do not find very high levels of catastrophic expenditure according to the 2004 Kenya WHS. To the extent that they are present, catastrophic payments are found to be concentrated among the poor, but not strongly so and only when using the nonfood threshold. In fact, at the top threshold of total consumption measure, they are concentrated among the wealthy. With regards to impoverishment, the data indicate that health spending increases the absolute number of the impoverished, but the increase is modest. Indeed, the increase in the poverty rate due to health spending is only 2.4 per cent when using the US$2.00 a day measure and 5.0 per cent when using the US$1.25 a day measure.

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7 Annexes

7.1 Measurement of indicators

INDICATOR	MEASUREMENT	DATA
CHILD HEALTH		
Infant mortality rate	Number of deaths among children under 12 months of age per 1,000 live births (Note: mortality rate calculated using the true cohort life table approach; the DHS reports use of the synthetic cohort life table approach)	DHS
Under-five mortality rate	Number of deaths among children under 5 years of age per 1,000 live births (Note: mortality rate calculated using the true cohort life table approach; the DHS reports use of the synthetic cohort life table approach)	DHS
Stunting	% of children with a height-for-age z-score <-2 standard deviations from the reference median (Note: z-score calculated using WHO 2006 Child Growth Standards)	DHS, MICS
Underweight	% of children with a weight-for-age z-score <-2 standard deviations from the reference median (Note: z-score calculated using WHO 2006 Child Growth Standards)	DHS, MICS
Diarrhea	% of children with diarrhea (past two weeks)	DHS, MICS
Diarrhea	% of children with diarrhea (past two weeks; youngest child)	WHS
Acute respiratory infection	% of children with an episode of coughing and rapid breathing (past two weeks)	DHS, MICS
Acute respiratory infection	% of children with an episode of coughing and rapid breathing (past two weeks; youngest child)	WHS
Fever	% of children with fever (past two weeks)	DHS, MICS
Fever	% of children with fever (past two weeks; youngest child)	WHS
Malaria	% of children with an episode of malaria (past year; youngest child)	WHS
ADULT HEALTH		
Tuberculosis	% of adults who reported tuberculosis symptoms (past year)	WHS
HIV positive	% of adults aged 15 to 49 whose blood tests are positive for HIV 1 or HIV 2	DHS
Obesity among non-pregnant women	% of women aged 15 to 49 with a BMI above 30	DHS
Obesity among all women	% of women aged 18 to 49 with a BMI above 30	WHS
Road traffic accident	% of adults involved in a road traffic accident with bodily injury (past year)	WHS
Non-road traffic accident	% of adults who suffered bodily injury that limited everyday activities, due to a fall, burn, poisoning, submersion in water, or by an act of violence (past year)	WHS
Angina	% of adults ever diagnosed with angina or angina pectoris	WHS
Arthritis	% of adults ever diagnosed with arthritis	WHS
Asthma	% of adults ever diagnosed with asthma	WHS
Depression	% of adults ever diagnosed with depression	WHS
Diabetes	% of adults ever diagnosed with diabetes	WHS
Difficulty with work and household activities	% of adults who have severe or extreme difficulties with work or household activities (past 30 days) (Note: This indicator was created from an ordinal variable with five categories)	WHS
Poor self-assessed health status	% of adults who rate own health as bad or very bad (Note: This indicator was created from an ordinal variable with five categories)	WHS

RISK FACTORS		
Smoking (all)	% of adults who smoke any tobacco products such as cigarettes, cigars or pipes	WHS
Smoking (women)	% of women aged 15 to 49 who smoke cigarettes, pipe or other tobacco	DHS
Smoking (women)	% of women aged 18 to 49 who smoke cigarettes, pipe or other tobacco	WHS
Insufficient intake of fruit and vegetables	% of adults who have insufficient intake of fruit/vegetables (less than 5 servings)	WHS
Insufficient physical activity	% of adults who spend < 150 minutes on walking/ moderate activity/vigorous activity (past week)	WHS
Drinking	% of adults who consume ≥5 standard drinks on at least one day (past week)	WHS
Concurrent partnerships	% of women aged 15 to 49 who had sexual intercourse with more than one partner (past year)	DHS, MICS
Concurrent partnerships	% of women aged 18 to 49 who had sexual intercourse with more than one partner (past year)	WHS
Condom usage (more than one partner)	% of women aged 15 to 49 who had more than one partner in the past year and used a condom during last sexual intercourse	DHS, MICS
Condom usage (more than one partner)	% of women aged 18 to 49 who had more than one partner in the past year and used a condom during last sexual intercourse	WHS
Mosquito net use by children	% of children who slept under an (ever) insecticide treated bed net (ITN) (past night)	DHS, MICS
Mosquito net use by pregnant women	% of pregnant women aged 15 to 49 who slept under an (ever) insecticide treated bed net (ITN) (past night)	DHS
MATERNAL AND CHILD HEALTH INTERVENTIONS		
Full immunization	% of children aged 12-23 months who received BCG, measles, and three doses of polio and DPT, either verified by card or by recall of respondent	DHS, MICS
Treatment of diarrhea	% of children with diarrhea given oral rehydration salts (ORS) or home-made solution	DHS, MICS
Medical treatment of ARI	% of children with a cough and rapid breathing who sought medical treatment for acute respiratory infection (past 2 weeks)	DHS, MICS
Skilled antenatal care (4+ visits)	% of mothers aged 15 to 49 who received at least 4 antenatal care visits from any skilled personnel (Note: type of skilled personnel varies by country including doctor, nurse, midwife, auxiliary midwife, feldsher, clinical officer, health surveillance attendant, medical assistant)	DHS
Skilled birth attendance	% of mothers aged 15 to 49 that were attended by any skilled personnel at child's birth (Note: type of skilled personnel varies by country including doctor, nurse, midwife, auxiliary midwife, feldsher, clinical officer, health surveillance attendant, medical assistant)	DHS
Contraceptive prevalence	% of women aged 15 to 49 who currently use a modern method of contraception	DHS, MICS
ADULT PREVENTIVE CARE		
TB screening	% of adults who were tested for tuberculosis (past year)	WHS
Voluntary Counseling and Testing for HIV	% of women aged 18 to 49 who were tested for HIV and were told the results of the test	WHS, MICS
Cervical cancer screening	% of women aged 18 to 69 who received a pap smear during last pelvic examination (past 3 years)	WHS
Breast cancer screening	% of women aged 40 to 69 who received a mammogram (past 3 years)	WHS
ADULT CURATIVE CARE		
Inpatient or outpatient (12 months)	% of adults who used any inpatient or outpatient health care (past year)	WHS
Inpatient (12 months)	% of adults who used any inpatient health care (past year)	WHS
Inpatient (5 years)	% of adults who used any inpatient health care (past 5 years)	WHS

Outpatient (12 months)	% of adults who used any outpatient health care (past year; conditional on having not used any inpatient care past 5 years)	WHS

Unless otherwise noted, all children are under the age of 5 and all adults are aged 18 and older

7.2 Methodological notes

Sections 2 and 3: Inequalities in health and health care utilization

The selection and measurement of health outcome indicators used in Section 2 and 3 on inequalities in health and health care utilization was based on (i) a comparison of indicators used in major health publications and databases, (ii) the advice of World Bank Health Specialists on recommended monitoring and measurement practice in their respective fields, and (iii) how measurable those indicators would be in the available data sources. The following major reports/databases were consulted as a guide to indicator measurement: World Bank Development Indicators, the World Bank's HNPStats database, WHO's World Health Survey country reports, and the World Bank's report series on "Socio-economic differences in health, nutrition and population (Gwatkin et al. 2007).

The data sources for this section include the Demographic and Health Surveys (DHS), World Health Surveys (WHS), Multiple Indicator Cluster Surveys (MICS) and multipurpose household surveys (such as the World Bank Living Standard and Measurement Surveys). Where the selected indicators are available in more than one of these surveys, all measures are reported.

In all analyses of inequality in this section, i.e. quintile analysis and calculation of concentration indices, households are ranked by an asset index computed using principal components analysis. In order to avoid presenting estimates biased by insufficient power, indicators were removed from the tables if the sample size in any quintile was less than the following thresholds: 250 per quintile for infant and child mortality estimates and 25 per quintile for all other indicators. This follows the practice of Gwatkin et al. (2007). In addition, the statistical significance of all concentration indices is reported.

Section 4: Benefit-incidence analysis

The section on benefit incidence analysis uses three different methods for allocating government health expenditure to households, invoking three different assumptions that are described in detail in Wagstaff (2011). The first, the constant unit cost assumption, treats the sum of individual fees and government subsidies as constant, and thus any fees paid when using public services results in a reduction in the government subsidy received. The second, the constant unit subsidy assumption, allocates the same subsidy to each unit of service used, irrespective of the fees paid. Finally, the third, the proportional unit cost assumption, makes the cost of care proportional to the fees paid, which implies that the government subsidy received increases as the fees paid increases. In calculating the distribution of fees, service utilization and government subsidies, households are ranked by per capita consumption. The quintile distributions and concentration indices are reported, including measures of statistical significance.

The data sources for this section include the WHS and multipurpose household surveys that are used to obtain information on service utilization at difference levels of care and fees paid by patients. Data on government subsidies at each level of service are obtained from National Health Accounts reports, specifically from one or more of the following tables depending on the level of detail provided: financing source by financing agent, financing agent by provider, and provider by function, other detailed country expenditure reviews or directly from budget offices.

The limitations of the analysis depend on the data source. One limitation of using the WHS is that we only observe whether or not the individual had an inpatient and outpatient visit, but not the actual number of visits or length of stay. We also observe outpatient visits only for people who did not use inpatient care. The implications of these limitations are being investigated.

Section 5: Financial protection

Section 5 examines health insurance coverage, catastrophic health care payments and impoverishment due to out-of-pocket expenditures. In this section, households are ranked by consumption. The analysis of catastrophic health care payments follows the popular approach elaborated upon O'Donnell et al. (2008) which defines health spending as "catastrophic" if it exceeds some fraction or threshold of total expenditure, or of total nonfood expenditure, in a given period. As O'Donnell et al. (2008) note, the threshold of 10% for total expenditure and 40% for nonfood expenditure are commonly used in the literature. In addition to measures of incidence, distribution-sensitive measures of catastrophic payments are calculated, specifically the concentration index, and statistical significance is reported. The analysis of impoverishing expenditure uses the poverty lines of US$1.25 and US$2.00 per capita per day at 2005 purchasing power parity (PPP) (with PPP values obtained from the World Development Indicators database) and, in some cases, national poverty lines.

Data sources for the analysis of financial protection include the WHS, as well as multipurpose household surveys. Survey data on health insurance coverage is difficult to obtain for most countries.

ABOUT THE HEALTH EQUITY AND FINANCIAL PROTECTION REPORTS

The Health Equity and Financial Protection reports are short country-specific volumes that provide a picture of equity and financial protection in the health sectors of low- and middle-income countries. Topics covered include: inequalities in health outcomes, health behavior and health care utilization; benefit incidence analysis; financial protection; and the progressivity of health care financing. Data are drawn from the Demographic and Health Surveys, World Health Surveys, Multiple Indicator Cluster Surveys, Living Standards and Measurement Surveys, as well as other household surveys, and use a common set of health indicators for all countries in the series. All analyses are conducted using the health modules of the ADePT software. Also available are Health Equity and Financial Protection datasheets that summarize key measures of equity and financial protection.

The most recent versions of the Health Equity and Financial Protection reports and datasheets can be downloaded at **www.worldbank.org/povertyandhealth.**

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