

Impact evaluation of Results-based Financing for Health Cameroon Performance-based Financing

Results from the health facility baseline survey



July 2013

Acknowledgements

The impact evaluation of the Cameroon Performance-based Financing (PBF) program is the product of collaboration between the Cameroon Ministry of Public Health, l'Institut de Formation et de Recherche Démographiques (IFORD) and the World Bank.

The research team for this impact evaluation consists of staff from IFORD and World Bank staff, including Gaston Sorgho, Damien de Walque, Jake Robyn, Omer Zang and Zubin Shroff. Data collection and management was led by IFORD. Zubin Shroff and Jake Robyn conducted the analysis of the collected data and wrote this report with overall guidance from Gaston Sorgho. Benjamin Loevinsohn provided additional comments and inputs on the report, for which the team is grateful.

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Contents

ACKNOWLEDGEMENTS	2
SUMMARY	6
OVERVIEW	14
INTRODUCTION	14
OBJECTIVES OF THE PBF FOR HEALTH IMPACT EVALUATION IN CAMEROON	14
CAMEROON HEALTH SECTOR CONTEXT	19
HEALTH STATUS AND SERVICE COVERAGE	20
OTHER FACTORS INFLUENCING HEALTH SERVICE DELIVERY OUTCOMES	26
PERFORMANCE-BASED FINANCING IN CAMEROON	28
IMPLEMENTATION ARRANGEMENTS	29
INSTITUTIONAL FRAMEWORK OF PBF: REGULATION, PAYMENT, AND SERVICE PROVISION ...	29
REGULATION:.....	29
FUNDHOLDING, PAYMENT AND VERIFICATION:	29
HEALTH SERVICE PROVISION	31
IMPACT EVALUATION METHODOLOGY	37
IDENTIFICATION STRATEGY	37
IMPACT EVALUATION DATA	41
RANDOMIZATION CEREMONIES AND RESULTS	41
SAMPLE SIZES AND SAMPLING STRATEGY FOR THE HEALTH FACILITY SURVEY	41
TIMELINE OF THE BASELINE SURVEY AND OVERALL IMPACT EVALUATION.....	42
COMPONENTS OF THE HEALTH FACILITY BASELINE SURVEY.....	43
FACILITY ASSESSMENT MODULE (F1)	43
HEALTH WORKER INTERVIEW MODULE (F2)	43
OBSERVATIONS OF PATIENT-PROVIDER INTERACTION MODULE (F3 AND F4)	44
PATIENT EXIT INTERVIEWS (F5, F6 AND F7)	44
2012 HEALTH FACILITY BASELINE SURVEY DESCRIPTIVE STATISTICS	45
FINAL HEALTH FACILITY SAMPLE.....	45
GENERAL HEALTH FACILITY CHARACTERISTICS	46
HEALTH FACILITY ASSESSMENT (F1)	49
SERVICE DELIVERY CHARACTERISTICS	49
FINANCIAL RESOURCES OF HEALTH FACILITIES	53
EQUIPMENT AND DRUGS	55
MANAGEMENT AND SUPERVISION	55

<u>HEALTH WORKER SURVEY (F2)</u>	63
HEALTH WORKER SURVEY RESPONDENT CHARACTERISTICS	63
HEALTH WORKER ACTIVITIES, TRAINING RECEIVED AND TRAINING NEEDED	68
REMUNERATION OF HEALTH WORKERS	75
SUPERVISION.....	77
SECONDARY EMPLOYMENT	78
HEALTH WORKER PERCEIVED WELL-BEING.....	80
HEALTH WORKER SATISFACTION	82
HEALTH WORKER PERSONAL DRIVE.....	83
<u>QUALITY OF ANTENATAL CARE: DIRECT OBSERVATIONS (F3)</u>	86
PROVIDER CHARACTERISTICS AND BACKGROUND QUESTIONS ASKED.....	86
ACTIVITIES PERFORMED BY HEALTH CARE PROVIDERS DURING ANTENATAL CONSULTATIONS	87
<u>QUALITY OF ANTENATAL CARE: PATIENT EXIT INTERVIEWS (F5)</u>	96
PATIENT CHARACTERISTICS AND SELECTED BACKGROUND TREATMENT CHARACTERISTICS ..	96
PATIENT SATISFACTION	105
<u>QUALITY OF EXTERNAL CONSULTATIONS FOR CHILDREN UNDER FIVE YEARS OF AGE: DIRECT OBSERVATIONS (F4)</u>	109
HEALTH WORKER CHARACTERISTICS	109
TREATMENT CHARACTERISTICS	110
<u>QUALITY OF EXTERNAL CONSULTATIONS FOR CHILDREN UNDER FIVE YEARS OF AGE: PATIENT EXIT INTERVIEWS (F6)</u>	118
PATIENT CHARACTERISTICS AND CONSULTATION TASKS PERFORMED AND PROVIDER CHARACTERISTICS	118
TREATMENT CHARACTERISTICS	123
PATIENT SATISFACTION	126
COMMUNITY HEALTH WORKERS	128
<u>QUALITY OF EXTERNAL CONSULTATIONS FOR PATIENTS AGED FIVE YEARS AND ABOVE: PATIENT EXIT INTERVIEWS (F7)</u>	130
PATIENT CHARACTERISTICS AND CONSULTATION TASKS PERFORMED AND PROVIDER CHARACTERISTICS	130
TREATMENT CHARACTERISTICS	135
PATIENT SATISFACTION	139
COMMUNITY HEALTH WORKERS	141
<u>INTERNAL VALIDITY OF THE STUDY</u>	143
BALANCE TESTS	143
HEALTH FACILITY ASSESSMENT	146
SERVICE DELIVERY CHARACTERISTICS.....	146
EQUIPMENT AND DRUGS.....	150

MANAGEMENT AND SUPERVISION	155
HEALTH WORKER SURVEY	157
DIRECT OBSERVATIONS FOR ANTENATAL CONSULTATIONS	159
PATIENT EXIT INTERVIEWS FOR ANTENATAL CONSULTATIONS.....	167
DIRECT OBSERVATIONS FOR EXTERNAL CONSULTATIONS FOR CHILDREN UNDER FIVE YEARS OF AGE.....	173
PATIENT EXIT INTERVIEWS FOR EXTERNAL CONSULTATIONS FOR CHILDREN UNDER FIVE YEARS OF AGE.....	179
PATIENT EXIT INTERVIEWS FOR EXTERNAL CONSULTATIONS FOR ADULTS	183
<u>CONCLUSIONS AND RECOMMENDATIONS FOR FOLLOW-UP SURVEY</u>	<u>187</u>
<u>APPENDICES</u>	<u>188</u>
GIS DISTRICT-LEVEL MAPS.....	188
NORTH-WEST	188
SOUTH-WEST.....	190
EAST	192
ADDITIONAL TABLES	199
<u>REFERENCES.....</u>	<u>225</u>

Summary

Scaling-up of performance-based financing (PBF) schemes across sub-Saharan Africa (SSA) has developed rapidly over the past few years. PBF schemes have attained national coverage in Rwanda, Burundi, and Sierra Leone, and are being piloted in different sub-Saharan countries, among them: Central African Republic, Zimbabwe, Zambia, the Democratic Republic of Congo (DRC), Benin, Cameroon, Chad, and Malawi. Over time, PBF has been implemented in a growing number of countries. Many studies have shown a positive association between PBF and health service coverage, and some with improvements in quality.

However, a lack of controls and confounders in most studies that have been published on PBF initiatives means that the *impact* of PBF initiatives on service coverage, quality and health outcomes remains open to question (Witter, et al., 2012). Moreover, few studies have examined the factors that influence the impact of PBF— an area of considerable operational significance since PBF often involves a package of constituent interventions: linking payment and results, independent verification of results, managerial autonomy to facilities and enhanced systematic supervision of facilities.

The Cameroon Health Sector Support Investment Project (HSSIP) is a five year US\$25 million project. It received Board approval on May 29th, 2008 and became effective in March 2009. The objective of the project is to increase utilization and improve quality of health services with a particular focus on child and maternal health and communicable diseases. Cameroon started piloting Performance-based financing in public and private health facilities in Littoral region in January 2011, while piloting in the other three regions began in mid-2012. Today, PBF is implemented across 26 districts in the Littoral, North-West, South-West and East regions of the country, covering a total population of approximately 3 million. In each region, performance contracts govern results-based payments to facilities, including performance bonuses for health workers employed at contracted facilities. Currently over 400 primary and secondary care health facilities have signed PBF contracts with the regional Performance Purchasing Agencies.

As up until this point PBF has never been implemented in Cameroon on a large scale and has never been systematically evaluated, the larger policy objectives of the Cameroon PBF impact evaluation are to (a) identify the impact of PBF on maternal and child health (MCH) service coverage and quality, (b) identify key factors responsible for this impact, and (c) assess cost-effectiveness of PBF as a strategy to improve coverage and quality. In doing so, we expect that the results from the impact evaluation will be useful to designing national PBF policy in Cameroon and will also contribute to the larger body of knowledge on PBF.

The impact evaluation is a blocked-by-region cluster-randomized trial (CRT), having a pre-post with comparison design. The IE relies primarily on experimental control to answer the main research questions for this study. Individual health facilities in each region have been

randomized to one of the 4 study groups. Individual public and private primary care health facilities in 14 districts¹ from the 3 pilot regions have been randomly assigned to each study group to create a factorial study design. This process of random allocation seeks to ensure that the four study groups are comparable in terms of observed and unobserved characteristics that could affect treatment outcomes so that average differences in outcome can be causally attributed.

Table 1: Study groups

T1: PBF with health worker performance bonuses	C1: Same per capita financial resources as PBF but not linked to performance; Same supervision and monitoring and managerial autonomy as T1
C2: No additional resources but same supervision and monitoring as PBF arms and T1 and C1	C3: Status quo

The evaluation will rely on two main sources of data to answer the impact evaluation research questions identified:

1. Household surveys: A household survey will be implemented at baseline (i.e., before implementation of PBF begins), and at endline (i.e., after PBF has been implemented for two years).
2. Facility-based surveys: A facility-based survey will be implemented at baseline and at endline.

The same facilities included in the baseline facility sample will also be visited at endline. Households surveyed at baseline will also be visited at endline, and will be included in the endline sample if they continue to meet eligibility criteria. Additional households may be sampled at endline if necessary to meet sample size requirements.

The household and health facility baseline surveys were jointly completed by IFORD before PBF implementation began in the three regions included in the IE. Preparation for the survey took place between July 2011 and January 2012, with selection and training of field workers occurring in January-February 2012. Survey data collection was conducted from March 3rd, 2012 to June 6th, 2012. The North-West region was completed in April 2013, followed by the South-

¹ As noted earlier, 22 districts in the East, North-West and South-West will participate in the second phase of the PBF pilot. However, 5 of these districts – Batouri, Yokadouma, Mbang, Mouloundou, Ndelele – have already begun implementing PBF in FBO facilities. The impact evaluation will therefore exclude these districts, although implementation of PBF in public sector facilities will be financed in these districts through the larger project. A remaining 14 districts will be included in the Impact Evaluation.

West and East regions being completed during the first week of June 2012. PBF implementation began soon after the baseline survey was completed in each of the regions.

The facility survey will be conducted at baseline and endline in all public CMAs, CSIs and District Hospitals in the 14 districts included in the impact evaluation and a sample of private facilities in these districts. Based on a health facility mapping exercise conducted prior to the baseline survey, there was a total of 242 primary care facilities and 20 secondary care facilities (district and private hospitals) in the 14 districts included in the impact evaluation. Primary care and secondary care facilities combined, this included 81 in the East, 91 in the North-West and 88 in the South-West for a total of 262. Out of these, 40 were private for profit facilities. As private for-profit facilities were added to the sample after the signature of the contract with IFORD (baseline survey firm), it was decided that a random sample of 20 primary care private for-profit facilities and all private hospitals would be taken, due to budget constraints. Thus the target number of facilities was 222 primary care facilities and 20 secondary care facilities (district hospitals and private hospitals). All facility team visits will be unannounced. The facility-based survey includes multiple components: Health facility assessment survey (F1), Health worker survey (F2), Direct observation for prenatal consultations (F3), Direct observation for children under 5 (F4), Exit interview for prenatal consultations (F5), Exit interview for children under 5 (F6), and Exit interview for patients 5 and older (F7).

Table 2: Health facility survey expected and actual sample size

Sample	F1	F2	F3	F4	F5	F6	F7
Expected	242	1210	484	1210	484	1210	1210
Actual	227	516	319	234	319	237	345
%	93.8	42.6	65.9	19.3	65.6	19.6	28.5
Average per facility	1.0	2.3	3.5	1.0	3.51	1.0	1.5

Overall, 93.8% of targeted facilities were surveyed. The remaining 6% were either inaccessible or not functional (closed down) at the time of the survey. All facilities that were visited are included in the health facility assessment module (F1). The remaining six modules had much lower execution rates. It should be noted that the expected sample was based on a minimum of 5 respondents for each module in each sampled facility was in fact unrealistic given (i) the realities of the demand and supply of health services in the study districts and the (ii) data collection plan and budgeting. Due to budget constraints, each health facility was only visited for one day during unannounced visits. Thus the survey teams were limited to the number of patients and providers that were present on the day of the survey. The realities of the field show that the target sample

sizes may be unrealistic given the limited time spent at each facility, the low number of health workers employed and present on the day of the survey, and the low utilization of health services in the districts included in the sample (Table 2).

Baseline results for key variables

Only 49% of primary care facilities and 75% of hospitals had water for hand washing, soap and clean towel in the patient examination area. Most facilities at both the primary care and hospital levels had a vaccine thermometer. 88% of primary care facilities and 88% of hospitals had a stock of oral polio vaccine (OPV) on the day of the survey; stock of DPT vaccine was found to be in place at almost 95% of primary care facilities and at 100% of hospitals. The proportion of facilities with functional partographs and aspiration tubes was low, particularly at the primary care level. Only 60% of primary care facilities had a functional partograph, and 67% had a functional aspiration tube. It is important to note, that most facilities reported having these devices, but these were found to be in a non-functional condition.

Basic equipment such as a blood pressure machine (sphygmomanometer) and stethoscope was almost universally present. Only 43% of primary care facilities and 38% of hospitals had bed nets in stock on the day of the survey. 85% of primary care facilities had an updated immunization register and 75% had a completed HMIS monthly report. The corresponding figure for hospitals was 70% and 80% respectively. Over 95% of facilities had a waste disposal system in place and a safety box for sharps. While over 85% of hospitals could conduct each of the lab tests examined for on the day of the survey, the proportion of primary care facilities equipped with laboratory services varied widely. Only 21% of these facilities could carry out TB tests on the day of the survey, 96% were able to conduct tests for malaria.

Approximately 88% of health workers across facility type stated that they always received their salaries on time. Patient satisfaction was high, particularly at the primary care level with close to 90% of respondents expressing overall satisfaction with the quality at the facility they visited. Between 82% and 83% of respondents at the hospital level were satisfied with quality of the facility they visited. Around 90% of respondents at the primary care level felt that the facility opening hours were convenient as opposed to around 75% of respondents at the hospital level.

Comparisons between public, private and confessional sectors

The private sector plays a large role in Cameroon's health sector. Approximately 45% of health services provided are by the private sector, combining confessional (faith-based) and private for-profit providers. Approximately 30% of health facilities included in the impact evaluation baseline survey were from the private or para-statal sectors. The baseline survey allows for an in-depth comparison of characteristics of health service delivery at the primary care level across sectors.

In terms of opening hours and the availability of health services, while a higher proportion of private facilities (100%) provided continual 24-hour service than public facilities (84%) and confessional facilities (82%), the number of days per week for which ANC consultations were offered was substantially lower in for-profit (1.61) and faith-based facilities (2.03) than public facilities (2.58). The same trend was found for the number of days dedicated to under-5 checkups. The availability of transport for patient referral to secondary care facilities was almost twice as high among confessional facilities (30%) than public (15%) and private (17%) facilities.

Facility management practices differ by status as well. While in 89% of public facilities a hospital management committee existed, the percentage was as low as 55% among confessional facilities and 28% in private facilities. While the facility annual budget was seen by the interviewer in 23% of public facilities and 38% of confessional facilities, no private for profit facilities were able to show an annual budget (0%). According to the health worker survey, the number of meetings held with internal and external supervisors did not vary substantially by sector, or overall health worker job satisfaction scores.

The characteristics of health care provider workloads varied by facility status. While there was relatively little difference in the number of hours worked in the past seven days (54 hours in public facilities, 46 in private and 48 in confessional), the number of patients seen by providers on the last full working day varied a bit more (6 in public, 5 in private and 8 in confessional facilities). While 36% of providers based in confessional facilities and 34% in private facilities stated that they were tempted to leave their current job, percentage was much lower among public sector workers (15%). The proportion of health workers who received housing allowances and rural hardship bonuses was found to be much higher in public facilities than either private or confessional facilities. Health care workers in private facilities (34%) were found to be more engaged in supplementary work activities than those in public (25%) or confessional (24%) facilities. Salary scales for facility staff also varied by sector. While more than 70% of staff at private facilities had an average salary of less than 50,000 FCFA per month, the percentage of staff with salaries below this level was around 30% for both confessional and public health facility staff.

Patient expenditures varied by facility status as well. Overall, out-of-pocket patient expenditures were highest at confessional health facilities and lowest at public facilities. For ANC consultations, the average total cost paid by patients using confessional facilities was 6,803 FCFA, while in public and private facilities the average cost for ANC consultations was only 4,093 FCFA and 4,938 FCFA, respectively. Low cost was the principal reason for choosing the facility for only 10% of patients at confessional facilities, 6% at public facilities and 0% at private facilities. For under-5 consultations, expenditure trends were similar with out-of-pocket costs higher among patients visiting confessional facilities (5,211 FCFA) than public (3,047 FCFA) and private (3,525 FCFA) facilities. For adult consultations (patients aged 5 and above), average out-of-pocket expenditures for patients was highest at private health facilities (8,701 FCFA), followed by confessional (6,857 FCFA) and public (4,395 FCFA) facilities.

Urban-Rural Comparisons

The inequity in access to and availability of healthcare between urban and rural Cameroon is well documented. As mentioned in the introductory section of this report, urban areas outperform rural ones on almost every health indicator, be it maternal mortality rate, the percentage of children immunized or the proportion of women using modern contraception.

In the last few years, while poverty in urban areas has declined, rural poverty rates have actually increased, which can only be expected to exacerbate health inequalities (World Bank, 2010). Further, the distribution of health workers is also heavily skewed towards urban areas with the Central Region having five times more physicians per capita compared to the Extreme North region (Ministry of Public Health, 2012). Given the often stark differences between urban and rural areas, it is imperative to examine these areas separately to get an accurate picture of the situation on the ground. In this section we highlight some of the important differences in the health facility survey, health worker survey and patient surveys between urban and rural areas.

Examining health facility characteristics, we find that a greater proportion of rural primary care facilities are open 24 hours (87%) compared to urban primary care facilities (80%). However, none of the eight rural hospitals (0.00%) and only one of the 12 urban hospitals (8%) surveyed reported being open 24 hours. Unsurprisingly, the availability of referral transport was much higher in urban as compared to rural areas, 14% of rural primary care facilities and 25% of rural hospitals reported that they were able to provide referral transport, compared to 27% of urban primary care facilities and 67% of urban hospitals respectively. Even though urban areas do better than rural areas, the overall availability of referral transport is abysmal and is something that must be addressed on an urgent basis. Urban hospitals were open for ANC and under 5 check-ups almost one day a week more than rural hospitals. However, this trend does not extend to primary care facilities where there do not appear to be such significant differences based on urban or rural location.

Rural primary care facilities outperform their urban counterparts in the majority of management and supervision characteristics that we have information on. Rural primary care facilities are far more likely to have hospital committees in existence (80%) compared to urban primary care facilities (69%). They also report a higher number of hospital committee meetings over the year prior to the survey (6.09) compared to their urban counterparts (4.84). Urban primary care facilities appear to have done better at developing a facility budget (35%) compared to rural facilities (20%). However the reverse is true when we look at the development of a facility work plan, with 48% of rural and 44% of urban primary care facilities reporting the development of this plan. Given that Community Health Workers (CHWs) are a more integral part of the health system in rural, as opposed to urban areas, it is not surprising that 85% of rural as opposed to just 64% of urban facilities reported having active CHWs.

The health worker survey shows some interesting differences between urban and rural areas. Across both primary care facilities and hospitals, a greater proportion of urban respondents (49% and 57% respectively) live with their spouse, compared to 40% and 48% respectively in rural areas. 44% of health workers at rural primary care facilities were born in the same district that they were working in, compared to 32% of respondents at urban primary care facilities. There was no such trend when urban and rural hospitals were compared. Respondents at rural primary care facilities reported working significantly longer hours over the week prior to the survey (54.15) compared to those working at urban primary care centers (46.65). However, respondents at urban primary care centers reported seeing more patients (8.80) on their last full work day, compared to those at rural primary care centers (4.80). While there was no major difference in the number of hours worked in the previous week when comparing urban and rural hospitals, respondents at rural hospitals reported seeing almost twice the number of patients (17.88) on their last full work day when compared to respondents at urban hospitals (9.07). A similar proportion of respondents in rural (10%) and urban primary care facilities (9%) reported receiving a housing allowance. However respondents at urban hospitals (27%) were more than twice as likely to receive a housing allowance when compared to those working at rural hospitals (12%).

In line with their relatively better performance on management and supervision characteristics, we found that rural respondents at the primary care level were more likely to have discussed job difficulties with their supervisor in the month prior to the survey (81%) as compared to their urban counterparts (67%). We found a similar trend at the hospital level, with 92% of rural hospital respondents and 74% of urban hospital respondents reporting discussing job difficulties with their supervisors. Rural primary care respondents had more meetings with external supervisors in the year leading up to the survey (4.21) as compared to their urban counterparts (3.51), however for those working in hospitals, the situation was reversed, with urban hospitals reporting much higher number of meetings with external supervisors (4.18) compared to rural hospitals (2.38). A greater fraction of rural respondents, across facility levels were engaged in supplementary employment (28% at primary care level and 31% at hospitals) than in urban areas (20% and 18% respectively). There were no significant differences in overall health worker satisfaction scores across facility type or urban or rural areas.

Even though health worker satisfaction scores across urban and rural areas were relatively similar, urban respondents fared better on each dimension of the WHO Index of well being. 68% of urban respondents felt that they were cheerful and in good spirits most of the time during the two weeks prior to the survey as opposed to 61% of rural respondents. 56% of urban respondents felt calm and relaxed most of the time, compared to 51% of rural respondents and 73% of urban respondents reported feeling active and vigorous most of the time compared to 63% of rural respondents.

Looking at indicators regarding prenatal consultations, we found that at both the primary care and hospital levels, client's age was asked more often in urban than in rural areas. 73% of urban

respondents and 65% of rural respondents at primary care facilities were asked their age. On the other hand, medication taken by the client was asked more often in rural settings. 31% of rural respondents at the primary care level were asked about medications that they were taking as opposed to 26% of urban respondents. A similar trend was found at the hospital level where 56% of rural respondents and just 37% of urban respondents were asked about medications they were taking. In line with the information on client's age, a greater proportion of urban respondents at the primary care level (73%) were asked the date of their last menstrual period as compared to rural respondents (69%). At the hospital level, 86% of urban respondents and 74% of rural respondents were asked about the date of their last menstrual period.

Examining indicators for consultations for children under the age of five years, we found that about 48% of patients at primary care facilities in both rural and urban areas were male. At the hospital level, however, there was a preponderance of male patients in rural (69%) as opposed to urban (52%) areas, suggesting that rural populations may be more responsive to attending to the needs of male children compared to female children. At the primary care level, less than half the health workers in both urban (43%) and rural (46%) locations were male. An overwhelming 92% of rural hospital health workers were male compared to 59% of urban hospital health workers.

Only 3% of rural health workers at the primary care level washed their hands before examination, 21% of urban health workers did so. At the hospital level, hand washing before examination was more common in rural areas (54%) compared to urban areas (10%). The low prevalence of hand washing prior to examination points to a serious lack of attention to hygiene, something that must be emphasized at every level of the Cameroonian health system.

Internal validity

F-tests and t-tests were taken into account to estimate balance for only those variables where we had 40 observations in each of the groups being compared. For all sections taken together, the F test was significant ($p < 0.05$) for 13.07% of cases, implying significant differences in variables across randomized groups. However, there was substantial variation in the fraction of variables with significant differences across randomization groups based on the section of the survey examined. For the health worker survey, none of the variables were significantly different across the groups at the 5% significance level, similarly for the health facility assessment section, less than 5.00% of variables considered showed significant differences across the randomization arms.

On the other hand, the F test was significant for 23.81% of variables for the section that examined direct observation of antenatal care. Inadequate sample size led us to not consider F tests for any of the variables in the sections on direct observation of consultations provided to children under the age of five years and exit interviews after consultations provided to children under the age of five years.

Overview

Introduction

Scaling-up of performance-based financing (PBF) schemes across sub-Saharan Africa (SSA) has developed rapidly over the past few years. PBF schemes have attained national coverage in Rwanda, Burundi, and Sierra Leone, and are being piloted in different sub-Saharan countries, among them: Central African Republic, Zimbabwe, Zambia, the Democratic Republic of Congo (DRC), Benin, Cameroon, Chad, and Malawi.

Initial evidence from PBF pilots in low-income countries suggests that linking payment mechanisms to defined outcomes can lead to increased service coverage and improved service quality for maternal and child health services. In Rwanda, results from two independent evaluations showed a positive impact of PBF on utilization for institutional deliveries, growth monitoring consultations, and increased levels of perceived and evaluated quality of care (Basinga et al., 2011; Rusa et al., 2009). In the DRC, providing performance-based subsidies resulted in lower direct payments to health facilities for patients, who received comparable or higher quality services than patients receiving care in control facilities. This disparity occurred despite the fact that districts receiving performance-based subsidies received less external foreign assistance than control districts (Soeters, Peerenboom, Mushagalusa, & Kimanuka, 2011).

A very recent review points to the need for evaluations with robust design and in particular the importance of an external control group in order to draw evidence based conclusions on whether the changes can be attributed to the intervention or not. The review calls for studies that consider untargeted effects and systems effects in order to enable the formulation of forthright conclusions about the effects of performance-based financing in low- and middle-income countries (Gorter, Ir, & Meessen, 2013). They also emphasize the need of qualitative methods, in order to understand the overall system effects and the motivation and health seeking behaviour of health care providers and consumers (Fretheim, Witter, Lindahl, & Olsen, 2012; Witter, Fretheim, Kessy, & Lindahl, 2012).

Objectives of the PBF for health impact evaluation in Cameroon

Research questions

Over time, PBF has been implemented in a growing number of countries. Many studies have shown a positive association between PBF and health service coverage, and some with improvements in quality. An impact evaluation in Rwanda where districts were randomly assigned to treatment (PBF) and comparison (input financing with matched financial resources) found large and statistically significant positive impacts on institutional deliveries and preventive care visits from young children and also on quality of antenatal care (Basinga, et al., 2011).

However, a lack of controls and confounders in most studies that have been published on PBF initiatives means that the *impact* of PBF initiatives on service coverage, quality and health outcomes remains open to question (Witter, et al., 2012). Moreover, few studies have examined the factors that influence the impact of PBF– an area of considerable operational significance since PBF often involves a package of constituent interventions: linking payment and results, independent verification of results, managerial autonomy to facilities and enhanced systematic supervision of facilities.

As up until this point PBF has never been implemented in Cameroon on a large scale and has never been systematically evaluated, the larger policy objectives of the Cameroon PBF impact evaluation are to (a) identify the impact of PBF on maternal and child health (MCH) service coverage and quality, (b) identify key factors responsible for this impact, and (c) assess cost-effectiveness of PBF as a strategy to improve coverage and quality. In doing so, we expect that the results from the impact evaluation will be useful to designing national PBF policy in Cameroon and will also contribute to the larger body of knowledge on PBF.

The impact evaluation focuses on the following research questions:

1. Does the PBF program increase the coverage of MCH services?
2. Does the PBF program increase the quality of MCH services delivered?
3. Is it the enhanced monitoring & evaluation and supervision or the link between payments and results that leads to improvements observed in quality or coverage?

The impact evaluation hypothesizes that it is link between payments and results – and not increased supervision and monitoring that is responsible for the improvements in MCH service coverage and quality.

4. What is the contribution of enhanced supervision and monitoring to improving MCH service coverage and quality in the absence of increased autonomy or additional financial resources?

The hypothesis to be tested is that enhanced supervision and monitoring in itself – even in the absence of other interventions such as enhanced managerial autonomy, additional resources or performance-linked payments – will result in improved MCH service coverage and quality.

In addition, the impact evaluation also examines the following research questions that relate to intermediate outcomes in the hypothesized causal pathway (see Figure 1 for more details):

1. Does the PBF program lower informal charges for health services?
2. Does the PBF program lower formal user charges?
3. Does the PBF program increase funds available at the operational (i.e., facility) level?
4. Does the PBF program improve physical and social accessibility of health services?

Accessibility of health services will be examined in terms of the convenience of facility opening hours, availability of services through outreach, client perceptions of convenience of accessing health services and client perceptions of health providers' attitudes towards clients.

5. Does the PBF program lower staff absenteeism?
6. Does the PBF program increase demand generation activities by health facilities?

What are the targeted outcomes?

The main targeted outcomes fall into two main groups: (a) maternal and child health service coverage indicators and (b) quality of care indicators. Tables 1 and 2 below describe these indicators in more detail.

For the purposes of PBF implementation, the service coverage indicators are expressed as outputs (rather than coverage indicators with population denominators) and collected routinely by health facilities. These data are verified by the PPAs and local non-governmental organizations contracted by the PPAs to conduct community verification (described in subsequent sections). Quality indicators are monitored by the PPAs and District Health Management Teams for each facility using a supervision checklist. These routinely collected data will not be used for the purposes of the impact evaluation. The impact evaluation collects data on service coverage and health behaviors using household surveys, while facility surveys are implemented for the quality indicators. Both household and facility surveys will be conducted by a third party research firm that is not involved in any aspect of RBF implementation.

Table 1: MCH service coverage indicators

	Indicator	Coverage
1	Children aged 12-23 months who are fully immunized*	53%
2	Contraceptive Prevalence Rate (modern methods)*	14%
3	Unmet need for Family Planning*	17%
4	Children under 5 years who slept under a bednet the night before the survey*	21%
5	Children under 5 years who have received Vitamin A*	55%
6	Skilled birth attendance*	63%
7	Women who have had 4 or more antenatal care visits in most	62%

	Indicator	Coverage
	recent pregnancy*	
8	Children aged between 11 and 59 months who have participated in growth monitoring in the previous month	Not available
9	Women who received at least 2 tetanus toxoid vaccinations in most recent pregnancy	59%
10	Women who received any postnatal care in most recent pregnancy	42%
11	Children aged under 6 months who are exclusively breastfed	20%

*Source: DHS 2011

Table 2: Facility-level quality indicators**

	Indicator
1	Proportion of full complement of clinical staff present on the day of survey
2	At least one female clinical staff present on the day of survey
3	Proportion of health facilities with water for hand washing, soap and clean towel in patient examination area
4	Proportion of health facilities with at least one clean and functioning latrine
5	Proportion of health facilities with basic EPI equipment
6	Proportion of health facilities with EPI vaccines in stock on the day of the survey
7	Proportion of health facilities with basic delivery equipment
8	Proportion of health facilities with basic ANC equipment
7	Proportion of health facilities with basic clinical equipment
9	Number of essential drugs available on the day of the survey
10	Average number of contraceptive methods in stock on the day of survey
11	Proportion of health facilities with bednets in stock on the day of the survey
12	Proportion of facilities with an up-to-date EPI register
13	Proportion of facilities with an up-to-date ANC and delivery register
14	Proportion of facilities with completed HMIS monthly report
15	Proportion of facilities that have a working waste disposal system (bin, pit or incinerator) in use and safety box for sharps
16	Proportion of facilities that can perform lab tests for malaria, TB, HIV and full blood count on the day of the survey
17	Proportion of facilities with working means of communication (radio, mobile phone, landline)
18	Proportion of facilities with a working vehicle to transport patients for referral
19	Proportion of health workers who report receiving their full salary on time
20	Average health worker clinical knowledge score***
21	Under-five examination quality score (based on IMCI protocols)
22	ANC examination quality score (based on national ANC protocols)

	Indicator
23	Average client satisfaction score
24	Proportion of health facilities that conduct outreach for key MCH services
25	Proportion of clients who report that facility opening hours are convenient

**No data are available on these indicators

*** Health worker knowledge will be measured using case vignettes, which are to be finalized.

The impact evaluation will also measure indicators that could potentially mediate improvements in service coverage and quality (primary outcomes of interest). These include:

1. Informal charges and formal user charges
2. Funds available at the operational (i.e., facility) level
3. Factors that determine physical and social accessibility of health services, including facility opening hours, outreach for health services and staff behaviors
4. Staff absenteeism
5. Demand generation activities such as Behavior Change Communication by facility staff

In addition, the impact evaluation will also measure the following health status indicators through rapid blood tests and anthropometry:

- Prevalence of malaria among children aged under 5 and currently pregnant women
- Prevalence of anemia among children aged under 5 and non-pregnant women who have delivered a baby in the preceding 2 years
- Weight and height of children aged under 5 years

How will RBF improve these targeted outcomes?

Figure 1 describes the hypothesized manner in which PBF will trigger changes that can improve MCH service coverage. The PBF interventions envisaged will be focused primarily on the supply side. We expect PBF to improve MCH service coverage and quality primarily by incentivizing facility managers and health workers:

1. Purchasing priority quality-adjusted service outputs can incentivize facility managers and health workers to expand the delivery of priority and high quality MCH service outputs in a client-focused manner and to increase demand for health services
2. Independent monitoring can also encourage managers to manage for results while managerial autonomy and supervisory support can enable them to respond to these incentives
3. Performance bonuses to health workers can incentivize health workers to adopt a client-friendly attitude, reduce absenteeism and reduce informal charges to patients

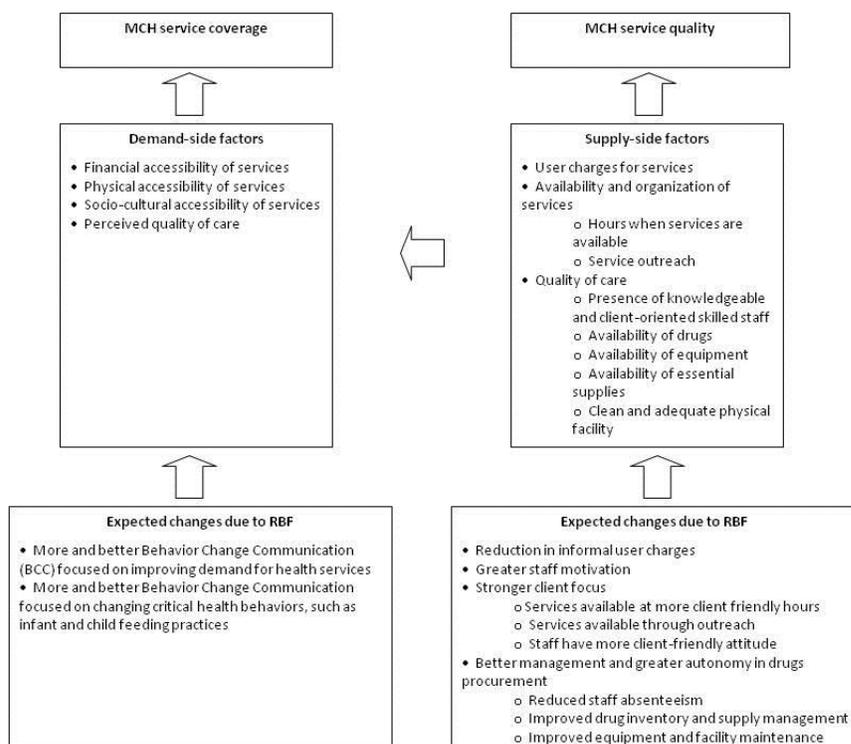
We expect that this will, in turn, result in important changes at the health facility level such as:

1. Lower user charges

2. More accessible health services
3. Better facility functioning and improved quality of care, and
4. An increased focus on generating demand for health services

Better technical quality of care is one of the intended outcomes. In addition, we expect that the facility-level changes that are triggered by PBF can influence care-seeking and health behaviors and ultimately lead to improved MCH service coverage. Lower user charges can improve financial access to health services, more client friendly hours can improve physical access to health services, while demand generation activities and improved technical quality of care can lower socio-cultural barriers to service use and encourage greater service uptake.

Figure 1: How does PBF affect MCH service coverage and quality?



Cameroon health sector context

In 2011 Cameroon was ranked 150th out of 187 countries on the Human Development Index. With an index of 0.482, slightly better than 2010 (0.479), the country is situated slightly above the average of countries with low human development (0.456) and of countries in sub-Saharan Africa (0.463). Cameroon holds an index of 0.431, with a gross national income per capita of \$2,031 (\$USD, constant at 2005 rates). The human development index for health is situated at 0.499, with health expenditures amounting to approximately 1.3% of GDP. Since 2000 there has been no significant change in the poverty rate. It is estimated at about 40% of the population was

living below the poverty line in 2007, or approximately 7.1 million people. At 39.9%, the incidence of poverty has only slightly decreased from 40.2% in 2001. Large geographical disparities in economic status continue to exist, with poverty rates significantly higher in rural areas and in the Northern regions of the country. Existing data also highlight geographically contrasting trends, as in recent years poverty has decreased in urban areas while continuing to increase in rural areas (World Bank, 2010).

In Cameroon's health sector, there exist major imbalances between the inadequate and ineffective level of health service provision, and the growing needs of poor and vulnerable populations (women, children, and people with disabilities). In particular: (i) geographical barriers to accessing health care, geographical inequities in the availability of health services (a direct result of an absence of a National Health Map) and an obsolescence of most of the health infrastructure and equipment; (ii) an inefficient and worsening geographic distribution of trained health professionals, despite ongoing recruitment and training efforts; and (iii) a legislative and regulatory framework which does not allow for the full operationalization of the Health Sector Strategy (HSS), particularly for decentralization of health service management and delivery.

Health status and service coverage

Profile of health outcomes

Despite progress in some areas, several aggregate health indicators have deteriorated over the last decade. Life expectancy has decreased from 55 years in 1990 to 51 years in 2011, while the mortality rate (among the population aged 15-60 years) increased from 321/1000 in 1990 to 403/1000 in 2008. Despite a continual regression of the HIV prevalence over time (5.30% in 2004 to 4.30% in 2011), the prevalence remains higher than the majority of neighboring countries in West and Central Africa. The mortality rate for malaria-related deaths (116/1000) also exceeds those of the African region (104/1000), as well as neighboring countries such as Central African Republic (World Bank, 2010).

Cameroon is not on tracking for reaching the majority of MDGs, and is faring even poorer than the majority of countries in the region. For example, in order to achieve MDG 5 by 2015, the under-5 mortality rate would have to reduce 136/1000 to 45/1000 in less than three years. It also seems unlikely that MDG 4 (reduction in maternal mortality) will be close to being achieved, as the maternal mortality rate would have to decrease from 600 deaths per 100,000 live births to 170 deaths per 100,000 live births in the next three years. While the incidence of underweight children would also have to decrease by nearly half, from 17% to 9%, by 2015, the situation has actually worsened during the past 5 years.

According to the most recent estimate by the WHO Global Health Observatory (2012), the mortality profile of Cameroon remains marked by infectious diseases, while the burden of chronic diseases such as cancer and cardiovascular diseases continues to increase. Cameroon has the 32nd highest infant mortality rate in the world, decreasing from 63.3/1000 in 2009 to

59.7/1000 in 2011. Cameroon has one of the highest under-five mortality rate in the world (122/1000), a slight improvement over Mozambique and Burundi. This rate exceeds the average of the region (127), with main causes of death being malaria, pneumonia and diarrhea (DHS, 2012; World Health Organization, 2012).

The under-five mortality rate, i.e. the risk of death before the age of five, is 122 deaths per 1000 live births. In other words, in Cameroon about one in eight children dies before reaching the age of five. Recent population-based surveys estimate that between 2006 and 2011, the risk of infant mortality remained stable, increasing from 62 deaths per 1000 live births in 2006 to 63 per 1000 live births in 2011, composed of a high neonatal mortality rate of 31/1000 and post-neonatal rate of 31/1000. Disparities between rural (including the regions of the North and Extreme North) and the urban areas are significant for all health indicators, with mortality levels substantially higher among lower socio-economic groups. The under-5 mortality rate is twice as high in households from the poorest quintile as found in households in the richest quintile. The age of the mother is also decisive. One in six children born to mothers under 20 years of age die before the age of five, while the rate is less than one in eight children for mothers aged 20-29 years (DHS, 2012).

Pregnancy and childbirth remain significant risk factors for mortality: one woman dies every 2 hours due to complications of pregnancy or childbirth, and one pregnancy out of 50 is fatal. Cameroon has the 18th highest rate of maternal mortality in the world, ranked just between the Republic of Congo and Angola. Substantial differences in maternal mortality also show that pregnancy-related deaths are substantially higher in rural areas than in urban areas. Women and newborns from poor and rural communities have a higher risk of death and higher chances of early childbirth (33% of pregnancies occur in adolescents and young people aged 10 to 24). The principal causes of these poor health outcomes are lack of schooling and education, geographical barriers to health facilities, and a lack of qualified staff in rural facilities to provide antenatal care services (World Health Organization, 2012).

Malaria is the most significant cause of morbidity in Cameroon; while 60% of children less than 6-59 months are anemic; acute respiratory infections and pneumonia are common causes of morbidity, albeit a decrease in prevalence in recent years. Among children aged 6-59 months, the prevalence is as high as 30%. In addition, 27% suffer from mild anemia, 31% suffer from moderate anemia, and 2% from severe anemia. Geographic disparities exist as well: severe anemia is highest in the South (4.40%) and Central (excluding Yaoundé) regions (3.60%). The age group most affected by respiratory infections includes children aged 12-23 months (26.00%). As with malaria morbidity, rural areas have higher prevalence rates (60.00%) than urban areas, while the regions of the Extreme North (24.50%) and North (14.00%) and are the regions with the highest prevalence rates. In recent years morbidity among pregnant women has experienced a substantial decline, decreasing from 49% in 2008 to 44% in 2009 and then to 38% in 2010 (DHS, 2012).

Food insecurity and malnutrition remain high, with malnutrition worsening over the years. In the Extreme North, South and West, the food situation has deteriorated since 2007, with severe food insecurity being the most prevalent in the Extreme North (4.10% of households) and North (3.70%). In these regions, 14.60% and 17.90% of households are affected by moderate food insecurity, with household members not benefitting from sufficient nutrient intakes even in times of relative availability. Cameroon has made no progress on reducing the prevalence of growth stunting, a clear sign of chronic malnutrition. In fact, growth stunting has increased by 10% over the past 20 years. Equally shocking, malnutrition is an underlying cause of 48% of deaths among children under the age of five years. In addition, 14% of children are affected by severe growth stunting (compared to only 11% in 2004) (DHS, 2012).

Coverage of services

Less than 30% of children targeted for Integrated Management of Childhood Illnesses (IMCI) benefitted from services from a qualified provider in 2011, and the percentage has in fact decreased since 2004. The situation is even worse in rural areas. While in 2006 34% of mothers of children under 5 with potential respiratory infections consulted a qualified provider in the percentage decreased to 29.9% in 2011. Moreover, in 2011, only 22.8% of women whose child has presented signs of diarrhea consulted a health service provider. About 75% of these children (or 17.2% of children having presented signs of diarrhea) received oral rehydration salts (ORS). Increased use of ORS is also correlated with higher levels of education among mothers. Finally, in 2011, only 26% of mothers of children with febrile symptoms visited a health facility for care. In the Extreme North and North, 22.5% and 39.9% of children with febrile symptoms took antibiotics but only 5.7% and 9.7% of cases benefitted from anti-malarials (DHS, 2012).

The proportion of children completely vaccinated (53.2% of children between 12-23 months in 2011) remains a significant problem, even though 98% of the sampled population of a recent study could identify locations where child vaccinations can be acquired, and that 77% of individuals with dependent children are informed in advance of upcoming vaccination campaigns. The vast majority of the people in Cameroon recognized the importance of vaccinations. According to the same study, 53% of children 12-23 months were fully vaccinated, while only 5% had not received any type of immunization. 42% of children among this age group were partially vaccinated. The proportion of children completely vaccinated is higher in urban areas (63%) than in rural areas (46%), with coverage varying substantially by region (DHS, 2012).

Despite high levels of knowledge among women of childbearing age, the use of contraceptives remains low and is even declining. Currently, 23% of women aged 15-49 years in the union use a contraceptive method, compared to 26% in 2004. After a significant increase in utilization of contraceptive methods between 1998 and 2004, utilization has begun to slight decline over the past decade. As with other health outcomes, contraceptive prevalence differs substantially between urban and rural areas. 33% of women living in urban areas use a method any contraception (with 20.8% using a modern method); compared to only 14.4% of women in rural

areas (8% using a modern method). Differences in unmet need for family planning also vary by socio-economic status: The level of education of women is closely associated with use of contraceptive methods: utilization reaches 34% among women with higher education, compared to 3% among women with no education (DHS, 2004, 2012).

Even though overall coverage remains high, coverage of antenatal care services has also remained stagnant over the past decade, and has regressed among the poorest quintile of the population. In 2011, 85% of pregnant women received at least one antenatal consultation from a qualified provider (against 83% in 2004). Regional disparities in coverage exist as well: (i) coverage of antenatal care increased in all regions between 2006 and 2011 and reached almost 100% in several regions, (ii) rates remain substantially lower in the northern regions than other regions, albeit a significant increase over the years. In addition, socio-economic disparities are quite significant: among the wealthiest quintile, the percentage of women that benefit from at least one antenatal consultation is almost 100% (increasing 1.4% between 2004 and 2006), while coverage for at least one antenatal consultation is as low as 57.2% among the poorest quintile. Coverage actually decreased among the poorest quintile by 8% between 2004 and 2011 (DHS, 2004, 2012; UNICEF & INS, 2006).

Regional disparities show that coverage of assisted deliveries in the northern regions in 2011 is only half of the level coverage seen in other regions more than 20 years ago (1991). Close to 40% of women deliver at home or without the assistance of professional health workers, with the percentage increasing to 81.8% among the poorest quintile of the population. Globally, little progress has been made over the years. In 2011 61% of births took place in a health facility, a slight increase from 59% in 2004. Wealth and educational status are once again determinant factors of where deliveries occur: while 81.8% of deliveries among the poorest quintile occur at home, the percentage decreases to 45.6%, 26.2%, 12.1% and finally 3.7% as the socio-economic quintile increases. The poorer the woman is, the greater the barriers to accessing qualified personnel, leading to the vast majority of deliveries occurring in the traditional and informal sectors (DHS, 2012).

Coverage for insecticide-treated bednets (ITN) has substantially improved (from 4% in 2004 to 36.4% in 2011) and inequity in utilization among children over time has reduced due to mass distribution campaigns, but the majority of children still don't benefit from the presence of bednets in their households. In general, children now benefit from curative care for malaria quicker than in the past. The availability of bednets in households increased from 32% to 51.8% and the availability of ITNs increased from 4% to 36.4% due to mass distribution campaigns of free ITNs. Even though the average number of bednets in the North is twice as high as the national average, the percentage of children under 5 sleeping under these nets is the second lowest in the country (16.9% vs. 21%). In the case of pregnant women, even though there exists a policy for free access to intermittent treatment of malaria, coverage has barely improved over the past five years. That being said, there has been a significant improvement in health-seeking behavior. 96% of children with febrile symptoms received a rapid diagnostic test for malaria, a

significant increase from previous years. In 2011, 89% of children 0-59 months who had febrile symptoms were treated with antimalarial drugs (compared to 68% in 2006), including 64.3% within 24 hours of the onset of fever (an increase from 38% in 2006) (DHS, 2012; UNICEF & INS, 2006).

In 2010, 64% of new tuberculosis cases and 55% of cases receiving a new treatment were considered cured. However, because of co-infection with HIV/AIDS, tuberculosis could increase rapidly. In 2008, 71% of TB patients know their serology status, increasing to 78% in 2010 (World Health Organization, 2012).

The overall HIV prevalence decreased by 25% between 2004 and 2011, but among women the prevalence increases with education status and is twice as high as among men. While there have been significant reductions both among men (30%) and women (20%), the prevalence is still 51% higher among women than men in 2011, even though the overall prevalence has decreased since 2004. The prevalence of HIV/AIDS among persons aged 15 to 49 years of age reduced from 5.5% in 2004 to 4.3% in 2011, although the prevalence remains twice as high among women as among men. Prevalence increases rapidly with age in women, being as low as 2.0% among women 15-19 years old, and as high as 7.6% among women 25-29 years, and 10% among women 35-39 years old, before substantially decreasing. Overall, HIV prevalence increases with level of education (DHS, 2004, 2012).

Human Resources for Health

The public sector employs two-thirds of health personnel, followed by the faith-based private sector (nearly 20% of the health workforce). In total, the public sector employs 66% of 38,207 total health workers. Unskilled staff represents a fairly small share of the personal, while than half of the workforces in the public sector are nurses (Ministry of Public Health, 2012).

In total, the private sector employs 34% of the health workforce, with 19% employed in the faith-based private sector, 4% in the private non-profit sector, and 12% in the private-for-profit health sector. The private sector brings together a quarter of physicians and nearly half of the nurses and other allied health staff. For all types of qualified personnel, the faith-based sector employs the majority of the health workforce employed in the private sector (Ministry of Public Health, 2012).

As in many countries of the sub-region, Cameroon presents an inequitable geographic distribution of health personnel. Urban areas have higher densities of health personnel due to the unattractiveness of rural health posts and the lack of any incentive system for recruitment to rural areas. Due to poor planning at the organizational levels, the distribution of health facilities and deployment of health staff does not respond to the potential demand for health services in rural areas.

More than half of Cameroon's health workforce is employed in three administrative regions of Cameroon: The Center, Littoral and West. In Cameroon, the majority of physicians are based in

urban areas. The Central (Yaoundé region) employs almost 40% of physicians in the country, for only 18% of the population, while the Extreme North region, which is also home to 18% of the national population, has only 8% of physicians. Along the same trends, 55% of public sector nurses are concentrated in three Regions of Center, Littoral, and West, which together represent only 42% of the population (Ministry of Public Health, 2012).

The main cause for the insufficient number of doctors in Cameroon is the very high rate of migration, having a much greater impact than underemployment of the health workforce and other "leaks" in the system (death, retirement, etc.). The results of a recent study in Cameroon suggest that working conditions, such as the availability of equipment and supplies are equal to, if not more important, than financial incentives such as bonuses for the retention of qualified personnel in rural areas (Robyn, Shroff, Zang, & Sorgho, 2013).

Growth in the number of health workers in the public sector is relatively low compared to population growth. With about 11 qualified health workers per 10,000 population, Cameroon is better off than certain countries and is above-average for countries with low health worker densities, but still well below the estimated need of 22.3 qualified personnel per 10,000 population. However, Cameroon appears on track to absorb more health workers due to an ongoing situation of underemployment of qualified health workers. Since the early 2000s, Cameroon has initiated several waves of recruitment to compensate for the insufficient health workforce. The last recruitment wave, part of the Emergency Plan for Human Resources (EPHR) for the period 2006-2008, resulted in the recruitment of health workers to compensate the number of health workers who have retired since 2001 (World Bank, 2012).

In 2008, public sector wages for health personnel were on average lower than those of other countries in the region. However, the share of salaries among public health expenditures remains limited, suggesting that the Government retains significant flexibility to increase wages or introduce other types of performance-oriented incentives. In 2010 "other operating expenses" (from which salaries are paid) reached 76% of the total budget, increasing from 66% in 2006. The average increase in the total budget over the period is 40%, with increases occurring mostly among operational expenses (+ 70%) at the expense of investment spending (+ 4%). However, expenditure levels for salaries have not benefitted from the overall increase in operational expenses as they have remained stagnant at close to 40% over the period (World Bank, 2012)..

Inequities of access to health services

One of the major challenges in Cameroon is the inequity in access to and use of health services across socio-economic groups and areas of residence, whether it is differences between urban and rural areas, or across regions. The vast majority of health expenditures in Cameroon are private and out-of-pocket by households, leading to inequalities and inequities across different population groups. In almost every category of health outcomes, whether they be health service utilization or actual health outcomes, are worse for the poor and those who live in rural areas.

Socio-economic inequities in health outcomes are particularly strong. Concerning maternal health, there exist substantial inequities in the use of reproductive health services, and have tended to increase between 2004 and 2011. Differences between rich and poor in the use of primary health care services for child health are also significant and appear to have increased over time, with the exception of the use of insecticide-treated nets. The same observation can be made in the case of malnutrition among children. Such outcomes surely contribute to the increasing gap in under-5 mortality rates between the rich and poor (DHS, 2004, 2012).

Differences observed in health service utilization between the wealthy and poor highlight inherent disparities in access to essential health services across socio-economic groups. The type and level of health services households use is strongly influenced by the level of household wealth, with significant differences across regions.

Other factors influencing health service delivery outcomes

Governance

Symptoms of failure of governance in the health sector are manifested in different forms and at different levels of the health system, and directly affect the accessibility and quality of care provided by the public sector institutions. All aspects of health management are vulnerable to misuse and corruption: management and planning, financial and human resource management, and the procurement and management of drugs and equipment. It is recognized that the manifestations of the failure of governance such as the sale of drugs under the table gifts institutionalized, informal billing of patients, and "private practice" in public health facilities, directly affect the accessibility and quality of care provided by the public sector institutions.

Resource allocation in the health sector is both highly unpredictable and prone to leakage (money, drugs and equipment) which weakens the operational capacity of health services. Centralization and the vertical allocation and management of financial and human resources were supposed to channel resources in a controlled way. But health facilities do not always receive the operating budgets or materials they need to provide proper services, leading them to find alternative options outside of the health system (purchase of drugs in parallel circuits, forms of disadvantageous use of "cartons", etc.). And health facilities' resource management is often far from transparent, especially where fees and drugs are concerned.

Health information system

The health information system is highly dysfunctional. The compartmentalization of information coupled with low level vertical and horizontal information diffusion does not allow for a full flow of data. There are currently several initiatives by the Government and development partners to reinforce the national health map, yet a clear vision of the framework and structure of the national system remains to be developed.

Health financing

While Cameroon has a level of health spending per capita per year of \$ 61, its epidemiological profile corresponds more to countries with extremely low per capita spending (on the order of \$ 10-15 per capita per year). This outcome is a reflection of profound inefficiencies in the use of the resources available for health, and lead to significant geographic and socio-economic inequities in access to essential health. Health financing data produced a National Health Accounts exercise (results should be available in 2013) will allow for more detailed information on the structure and framework of health financing in Cameroon.

The burden of health care financing is largely borne by households in Cameroon. Private spending in 2010 (out of pocket) accounted for 70.4% of total expenditure on health (including 94.5% in the form of direct payments), while public spending accounted for only 16.4% and external resources 13.2% of total health spending (World Bank, 2010; World Health Organization, 2012).

Government expenditures on health are low, amounting to 8.5% of Total Government Expenditure in 2010, which is only slightly higher than in 2000. The contribution of technical and financial partners to health sector financing has been growing in recent years, which can be partly explained by significant financial investments via C2D and other multilateral initiatives. With such a heavy financial burden on households for the financing of health through direct payments, the negative impact on equity in utilization and accessibility to health services is undeniably strong. In addition, private expenditures on health made by households are largely conducted in the informal health sector.

The root causes of the identified inefficiencies in health financing are systemic in nature. Governance and corruption problems undermine the impact that the minimal levels of health financing may have. Informal payments at health centers are rampant and endemic, potentially representing close to 10% of health expenditures incurred by households. Corruption is also problematic in the pharmaceutical industry, leading to a negative impact on both access to and the quality of pharmaceutical products available in health facilities.

In addition to corruption, one of the major roadblocks of an efficient financing system is the existence of cumbersome financial procedures throughout Cameroon's health sector. In particular, procurement mechanisms generate substantial bottlenecks in service delivery and sectorial operations. The Public Expenditure Tracking Survey 2 (2010) report highlights the fact that many of the health structures, especially at the decentralized level, report not have received inputs from the Government for the 2009 fiscal year. Moreover, the rules of public management are not always respected and public resources are often "lost" among multiple agents involved in the financing chain. The main difficulties in budget execution, which are all the more important in rural areas due to their isolation, are (i) the failure and the inadequacy of appropriations, (ii) administrative inefficiencies, and (iii) delays in facility payments and inputs (INS, 2010).

The PETS2 from 2010 measured the satisfaction of patients for the services they received at a given health facility. According to the study, the average expenditure for an external consultation is 1,381FCFA, with variations according to the level of the structure and the environment (urban / rural). Among respondents, 67% of patients considered this level of payment manageable (INS, 2010).

Pharmaceutical sector

The pharmaceutical sector is vital to the health system, but the consultation of stakeholders on the subject is not optimal and concerns among partners and ministry seem not to converge. The Central National Supply of Essential Drugs and Medical Supplies (CENAME) is tasked to ensure the availability of essential drugs and medical supplies throughout the country. 83% of these purchases are performed by international tenders and the rest by consultation of a restricted list of approved providers. The role of CENAME is continuing to expand. However, currently there is no dialogue structure for discussions between development partners and the Ministry of Public Health for the annual development of coordinated and coherent drugs needs quantification/planning and other health products. The lack of communication makes it difficult for the two parties to develop a coordinated and coherent funding budget and national procurement plan. In addition, the current status of CENAME and the question of the distribution of drugs at the peripheral level, including the role of the Special Fund for Health Promotion have been long discussions that reflect different visions among stakeholders (World Bank, 2012).

Certain essential medicines and products are underfunded, such as pediatric ARVs, condoms and contraceptives, and the under-stocking and unavailability of these products may have an impact on the morbidity and mortality of the target populations for which they are intended. In addition, several partners fund the same types of medicine and products, which increases the risk of duplication and overestimation of available funding. This leads to difficulties in disbursing funds obtained and the probable risk of drugs expiring prior to consumption (World Bank, 2012).

Performance-based financing in Cameroon

The Cameroon Health Sector Support Investment Project (HSSIP) is a five year US\$25 million project. It received Board approval on May 29th, 2008 and became effective in March 2009. The project received Level-2 restructuring on June 13th, 2011.

The objective of the project is to increase utilization and improve quality of health services with a particular focus on child and maternal health and communicable diseases.

The project components include:

- (a) Component 1: District Service Delivery (US\$20 million)
- (b) Component 2: Institutional Strengthening (US\$5 million)

The following are the key performance indicators:

- (a) Children immunized (number)
- (b) Number of births attended by skilled professional in targeted areas
- (c) Pregnant women receiving antenatal care during a visit to a health provider (number)
- (d) New acceptors of modern contraceptive methods in targeted areas
- (e) Children by the first anniversary who have received one dose of Vitamin A in the last six months in targeted areas
- (f) Consultations provided to people from the poorest quintile as measured by asset index in targeted areas

Implementation Arrangements

Institutional Framework of PBF: Regulation, payment, and service provision

The primary functions and responsibilities in the Cameroon PBF framework are (i) regulation and quality control, (ii) fundholding, payment and verification, and (iii) health service provision,

Regulation:

The **Regulatory Function** is assured by the central and decentralized levels of the Ministry of Public Health (MOH). In the context of Cameroon, these include Regional Health Delegations (RHD) and District Medical Teams (DMT). In Cameroon the regulatory function is primarily in the hands of the RHD and DMT, which are decentralized levels of the MOH that coordinate the provision of health services and ensure conformity to the norms established by the central level of the ministry. Within the context of the PBF process, the District Medical Team takes part in (i) the selection of the health facilities to be contracted, (ii) assessment of the quality of services provided in contracted health facilities, and (iii) general monitoring of the intervention. In this framework, the DMT equally signs a performance contract and funds are put at their disposal based on activities conducted by the district in the implementation of PBF.

Fundholding, payment and verification:

The function of fundholding, payment and verification is ensured by the PPA. This PPA is has a contractual relationship with the Ministry of Health that transfers the responsibility of managing funds intended to be channeled to health care providers over a given period of time. In order to channel funds, the fund holder contracts with health facilities to provide a pre-established set of health services. Based on the modalities defined in the contract, health facilities submit requests for payment based on the price and quantity of services provided over a given period. The PPA has the obligation of ensuring that the purchased services are real and of sufficient quality by organizing both technical and community verifications. Thus, the PPA occupies the dual function of both purchasing contracted health services, and verification of the authenticity of the services declared by contracted health facilities. This verification function can partly be delegated to the third party within the context of a sub-contract.

The **verification** function of the Performance Purchasing Agency includes three types of service provision verification:

Quantitative verification: This seeks to verify the conformity of the quantity of health services declared by each health facility on the reimbursement form sent to the fund holder. Within the context of Cameroon, quantitative verification is done monthly by PPA supervisors, who visit each health facility on a monthly basis. When visiting facilities, supervisors bring a copy of the previously submitted monthly activity report of the concerned preceding months and an activity verification form. Carefully going through the entire support documentation (registers, tally sheets etc.), the supervisor assesses the conformity of the reported or declared data. All errors are corrected in the presence of the health facility staff and the any fraudulent cases tracked and documented. The monthly payment request form is eventually corrected and validated by the PPA supervisor in the presence of the health facility administration. It is then produced in two copies and signed by the supervisor and the health facility chief. One copy is filed in the health facility for reference and the other forwarded to the PPA head office for final verification and payment.

Qualitative verification: This includes the verification of the technical or clinical quality of services provided by contracted health facilities. Payment of services provided by health facilities can only be done if the declared services respect minimum of quality standards. There two types of quality standards that are used to define payment level:

- A minimum threshold of quality standards that must be reached before the health facility is paid any PBF subsidy;
- A higher level of quality standards that allows health facilities to be eligible for an additional Quality Bonus payment.

The technical quality of the services provided by primary care health facilities is assessed by the District Medical Team with the support of the PPA. For District Hospitals and private hospitals, peer- assessment is carried out. The technical quality assessment of the health center is carried out using a pre-determined checklist that permits the evaluation team to: (i) verify if the minimum quality threshold is met, (ii) calculate the quality score of the health facility (0% - 100%), and (iii) calculate the quality bonus based on the quality score.

Community verification: Community verification is conducted through selecting a random sample of patients from each health facility and ensuring that the patient received the services included in the request for payment. The random sample of patients used for community verification is sampled on a quarterly basis from health facility registers (patients from the preceding three months) during the visit of the PPA supervisor for the quantitative verification.

The task of community verification is sub-contracted to a community based organization (CBO) selected locally in the health district.

After selecting the patient sample, the PPA supervisor completes the sampled patient form that contains information on the identity of the patient and the care/services provided (date of consultation, duration of hospitalization, lab tests done, etc.). The supervisor provides a questionnaire to the CBO that contains only the information necessary to trace the patient and the elements of verification related to his/her use of the health system. The rest of the information is masked from the CBO verification agent.

The CBO agent then visits the respective patients' households in the given communities to collect the required information. In addition to verifying that the patient accessed health services as declared by the health facility, patients are also asked about their perceived quality of care and satisfaction of the services received. The completed questionnaire is transmitted to the PPA by the CBO within 15 days. On reception of the questionnaires, the PPA validates the information found in the sampled patient forms kept at the PPA level. Comparison of information from the community verification questionnaire with that from the health facility registers (included in the sampled patient forms) permits the PPA to determine the validity of the payment request submitted by the health facility. The final "quality score" for each health facility is determined through calculating both technical quality scores (conducted by the District Medical Teams) and perceived quality/satisfaction scores (conducted by the CBO).

Health service provision

Public and private (for-profit and not-for-profit) health facilities are contracted by the PPA to provide a pre-defined package of health services to the target population of the health facility catchment area. Health facilities are then paid PBF subsidies based on the services provided as agreed upon in the performance contract. The contract is signed for a period of six months renewable and payment requests are made every three months. The payment request form must identify the quantity of services provided and the requested payment level for the health facility. After verification, correction and validation, the form will be used as a document to justify for the payment of subventions to the health facility.

The package of services identified in the performance contract is defined by the central level of the Ministry of Health. In Cameroon, primary care health facilities are contracted to provide the Minimum Health Package (MHP) while secondary care facilities (district hospitals and private hospitals) provide the Complementary Health Package (CHP).

The Minimum Health Package at the primary care level consists of:

- Outpatient consultation (curative care);
- Preventive care for children 0-5 years;

- Maternal and infant vaccination;
- Ante natal and post natal consultation;
- Normal Assisted deliveries;
- Family Planning;
- Management of major infectious diseases (malaria, tuberculosis etc.)
- Prevention and diagnosis of HIV/AIDS;
- Nutritional support;
- Health education, communication with the population and community activities;
- Referral and counter referral system.

The Complementary Package at the secondary care levels consists of:

- Consultation of referred cases;
- Management of HIV/AIDS cases;
- Management of medical and surgical emergencies;
- Management of complicated deliveries;
- Hospitalization of referred cases from the primary level;
- Diagnostic function (laboratory and imagery-radiology);
- Referral and counter referral system.

Additional information included in the health facility performance contract includes the following:

- The list of health services to be provided by the health facility and purchased by the PPA;
- The unit amount of the subsidy (price or payment level) of the respective services to be paid to the health facility;
- Methods for calculating the different bonuses (quality, equity);
- Sanctions;
- A budgeted six-monthly business plan developed by the health facility in collaboration with the health facility management committee (community representatives) and under the supervision of the District Medical Team;
- The modalities of using the subsidies as well as the internal distribution of the staff performance allowances.

Within the context of the implementation of its activities, the health facility is expected to submit a copy of the monthly activity report (containing data compiled by the National Health Management Information System) and a form containing additional PBF service provision information to the PPA. The report will be accompanied by a Payment Request Form for the provided services.

The six-monthly business plan to be used by the health facilities as well as the District Medical Team is comprised of the following information:

- Analysis of the current business plan to assess the level of attainment of the results at the end of the past six months;
- Strategic orientations and quantitative priority objectives of the health facility for the next six months;
- The approaches to be used in the resolution of the identified problems;
- An operational budget that clearly indicates how the health facility income will be spent according five major rubrics:
 - Incentives to the health staff
 - Incentives to the facility management committee
 - Drug and supplies purchasing
 - Running costs
 - Small or major investments
 - Reserves (savings) for the health facility.

Progress to-date on implementation of PBF in Cameroon

On July 2010, the restructuring of the project was completed, a PPA was established in Littoral Region and the hiring of experienced institutions to develop RBF in the other regions was launched. Cameroon started piloting Results-based financing in public and private health facilities in Littoral region in January 2011, while piloting in the other three regions began in mid-2012. The international organization AEDDES was hired for the role of PPA in the North-West and South-West regions of the country, while Cordaid was hired for the East. Today, RBF is implemented across 26 districts in the Littoral (4), North-West (4), South-West (4) and East (14) regions of the country, covering a total population of approximately 3 million. In each region, performance contracts govern results-based payments to facilities, including performance bonuses for health workers employed at contracted facilities. All four implementation agencies have been operational now, with the last (Cordaid in the East) becoming operational in September 2012. Currently over 300 primary and secondary care health facilities have signed RBF contracts with the regional Performance Purchasing Agencies. Details on the districts and health facilities included in the project (as of January 2013) are below.

Figure 2: Cameroon PBF project and impact evaluation map

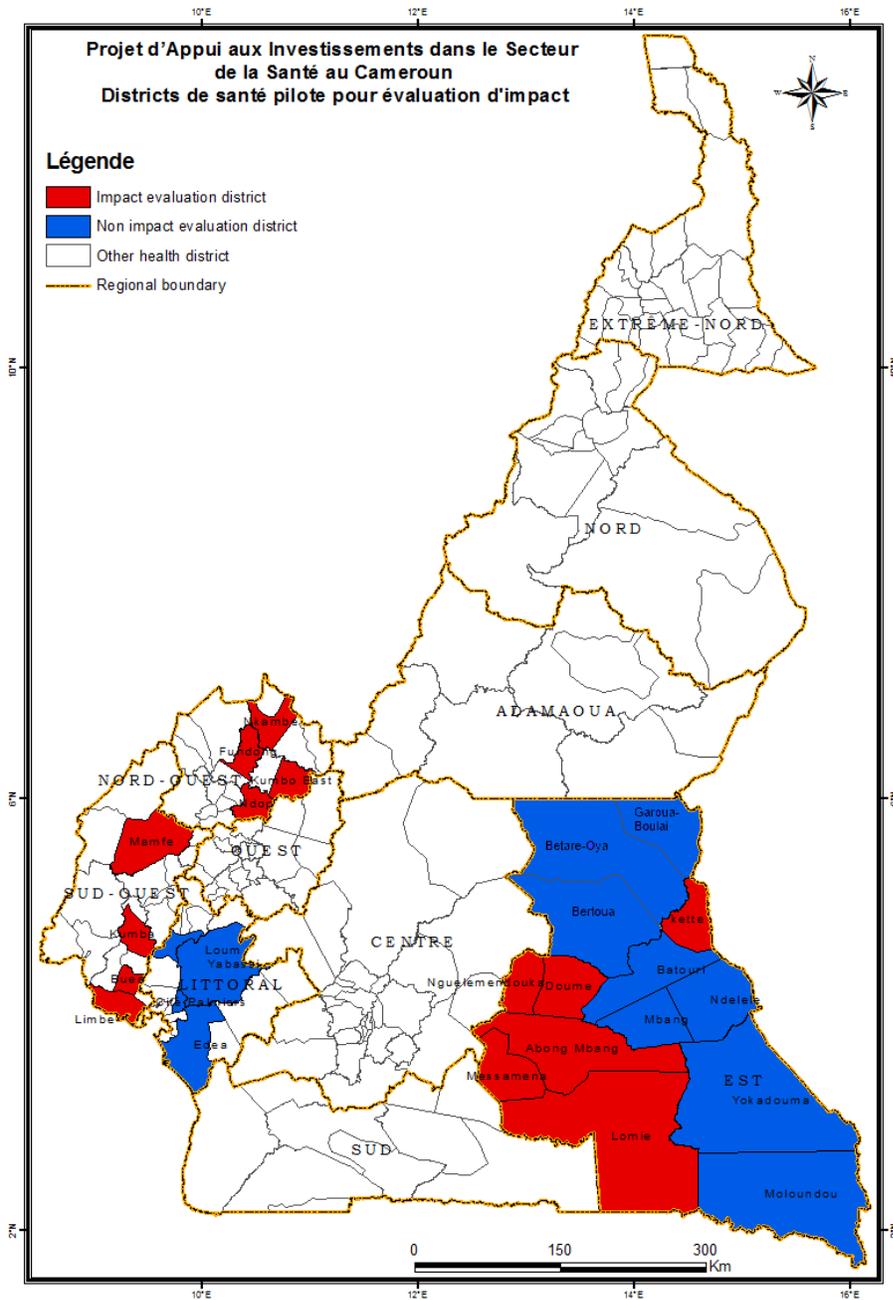


Table 3: Summary of PBF contracts in HSSIP implementation zone

Region	District	No. PMA	No. PCA	Total	T1*	C1	C2	C3	Total	Public**	Private**	Refusal	Close d
East	Abong-Mbang	14	1	15	7	3	4	3	17	15	1	4	1
East	Batouri	14	4	18	0	0	0	0	0	13	5	0	0
East	Bertoua	24	0	24	0	0	0	0	0	12	16	4	0
East	Betare-Oya	12	1	13	0	0	0	0	0	12	1	2	0
East	Doume	11	1	12	3	3	3	2	11	11	1	1	2
East	Garoua-Boulai	5	2	7	0	0	0	0	0	5	2	0	0
East	Kette	7	1	8	0	3	4	3	10	8	0	0	0
East	Lomie	6	1	7	4	2	0	4	10	7	0	1	0
East	Mbang	9	1	10	0	0	0	0	0	7	3	0	0
East	Messamena	7	1	8	0	4	3	3	10	9	0	2	0
East	Mouloundou	13	2	15	0	0	0	0	0	9	6	0	1
East	Ndelele	9	1	10	0	0	0	0	0	8	2	0	0
East	Nguelemendouka	3	1	4	2	0	1	3	6	4	0	1	0
East	Yokadouma	14	1	15	0	0	0	0	0	10	4	4	1
Sous-total		148	18	166	16	15	15	18	64	130	41	19	5
Littoral	Cite des Palmiers	29	1	30	0	0	0	0	0	3	27	0	1
Littoral	Edea	25	2	27	0	0	0	0	0	18	9	0	0
Littoral	Loum	16	0	16	0	0	0	0	0	2	14	0	0
Littoral	Yabassi	11	0	11	0	0	0	0	0	0	11	0	11
Sous-total		81	3	84	0	0	0	0	0	23	61	0	12
North-West	Fundong***	14	3	17	4	6	4	8	22	0	0	8	9
North-West	Kumbo East***	19	1	20	4	9	6	4	23	0	0	11	9
North-	Ndop***	17	1	18	8	1	8	5	22	0	0	12	6

West													
North-West	Nkambe***	15	1	16	6	6	3	4	19	0	1	11	5
<i>Sous-total</i>		65	6	71	22	22	21	21	86	0	1	42	29
South-West	Buea	19	3	22	8	7	5	2	22	12	10	0	0
South-West	Kumba	12	5	17	6	2	6	6	20	8	9	0	0
South-West	Limbe	18	1	19	5	7	6	7	25	10	9	0	0
South-West	Mamfe	9	2	11	3	4	3	6	16	9	2	0	0
<i>Sous-total</i>		58	11	69	22	20	20	21	83	39	30	0	0
<i>EI sous-total</i>		171	23	194	60	57	56	60	233	93	33	51	32
Total		352	38	390	60	57	56	60	233	192	133	61	46

*Excluding hospitals that were not randomized

***Excluding facilities in the C3 group

***Including C2 facilities that will now sign contracts with the PPA

Impact evaluation methodology

Identification strategy

The study is a blocked-by-region cluster-randomized trial (CRT), having a pre-post with comparison design. The IE relies primarily on experimental control to answer the main research questions for this study. Individual health facilities in each region have been randomized to one of the 4 study groups. Individual public and private primary care health facilities in 14 districts² from the 3 pilot regions have been randomly assigned to each study group to create a factorial study design. This process of random allocation seeks to ensure that the four study groups are comparable in terms of observed and unobserved characteristics that could affect treatment outcomes so that average differences in outcome can be causally attributed.

Table 1: Regions and districts to be covered by the PBF pilot in Cameroon

	Region	District	Population (2011 est.)	Impact evaluation ?
1	Nord-Ouest	Fundong	122,160	Yes
2	Nord-Ouest	Kumbo East	166,979	Yes
3	Nord-Ouest	Ndop	198,356	Yes
4	Nord-Ouest	Nkambe	117,541	Yes
5	Sud-Ouest	Buea	133,089	Yes
6	Sud-Ouest	Kumba	250,048	Yes
7	Sud-Ouest	Limbe	141,466	Yes
8	Sud-Ouest	Mamfe	63,365	Yes
9	Est	Doume	41,177	Yes
10	Est	Abong-Mbang	65,392	Yes
11	Est	Lomie	36,260	Yes
12	Est	Messamena	32,554	Yes
13	Est	Nguelemendouka	30,628	Yes
14	Est	Kette	40,677	Yes
15	Est	Batouri*	81,157	No
16	Est	Mbang*	26,840	No
17	Est	Moloundou*	37,124	No
18	Est	Ndelele*	44,318	No
19	Est	Yokadouma*	83,802	No
20	Est	Garoua-Boulai*	43,008	No
21	Est	Betare-Oya*	78,624	No
22	Est	Bertoua*	164,948	No
23	Littoral	Cité des Palmiers**	403,174	No

² As noted earlier, 22 districts in the East, North-West and South-West will participate in the second phase of the PBF pilot. However, 5 of these districts – Batouri, Yokadouma, Mbang, Moloundou, Ndelele – have already begun implementing PBF in FBO facilities. The impact evaluation will therefore exclude these districts, although implementation of PBF in public sector facilities will be financed in these districts through the larger project. A remaining 14 districts will be included in the Impact Evaluation.

24	Littoral	Edea**	130,955	No
25	Littoral	Loum**	81,625	No
26	Littoral	Yabassi**	17,447	No

*Note- 19 districts in the East, North-West and South-West will participate in the second phase of the PBF pilot. However, 5 of these districts – Batouri, Yokadouma, Mbang, Mouloundou, Ndelele – have already begun implementing PBF in FBO facilities. The impact evaluation will therefore exclude these districts, although implementation of PBF in facilities will be financed in these districts through the larger project. A remaining 14 districts will be included in the Impact Evaluation.

**The project began implementing PBF in 4 health districts (Cité des Palmiers, Edea, Loum and Yebassi) in Littoral Region as of January 2011. These four districts will also be excluded from the PBF Impact Evaluation due to the introduction of PBF prior to the IE Baseline Survey.

All district hospitals in these 14 districts have been included in the full PBF (i.e., treatment) arm. This is because district hospitals play a critical role in supervising and acting as source of referral services for all facilities in the district. District hospitals will supervise and support treatment and comparison group CMAs and CSIs differently based on the group they are assigned to. The table below describes the 4 study groups formed by randomizing CMAs and CSIs. We hope to answer the main research questions identified by making comparisons between these groups.

For the purposes of our study, the ‘full’ PBF package of interventions will include the following elements:

- Linking payment and results, including performance bonuses for health workers
- Independent monitoring of results
- Systematic supervision of health facilities defined as regular supervision by an external supervisor from the district hospital team using a structured checklist and providing immediate feedback to facility staff on problems identified and potential solutions to improve service delivery. Systematic supervision will include monitoring whether the facility is complying with national user fee guidelines
- Managerial autonomy to facilities defined as autonomy over use of resources combined with the autonomy to hire and fire staff

Table 2: Study groups

T1: PBF with health worker performance bonuses	C1: Same per capita financial resources as PBF but not linked to performance; Same supervision and monitoring and managerial autonomy as T1
C2: No additional resources but same supervision and monitoring as PBF arms and T1 and C1	C3: Status quo

Facilities in group T1 implement this full PBF package. Facilities assigned to group C1 receive a fixed per capita budgetary supplement that matches the per capita budgetary allocation for T1

facilities. However, this supplement is not linked to performance. C1 facilities receive the same supervision and monitoring and managerial autonomy over the budgetary supplement received. Both T1 and C1 facility managers have the autonomy to hire staff with their PBF revenues or budgetary supplement received, and also to fire these staff if necessary. T1 and C1 facility managers also have the autonomy over how to use these revenues. C2 facilities receive no additional resources but the same supervision and monitoring as T1 and C1 facilities. District-level supervisors responsible for supervising T1, C1 and C2 facilities use the same tools and receive the same supplementary payments for visits to facilities in these three groups. However, quality scores are linked to facility payments only in the case of T1 facilities. C3 facilities are ‘business as usual’ (pure control) facilities and will not receive any additional resources or inputs. C2 and C3 facility managers do not have the autonomy to hire/ fire staff or financial autonomy. As the status quo group, the C3 facilities will not receive this additional monitoring & supervision (Table 3).

Table 3: Implementation of impact evaluation groups

	T1 PBF with health worker performance bonuses	C1 PBF with subsidies not linked to performance (*)	C2 No additional resources but same supervision and monitoring as PBF arms and T 1 and C1	C3 Status quo
Contract	Classic PBF contract	Contract stipulating the conditions for PBF verification, supervision and monitoring	Contract stipulating technical assistance such as enhanced supervision	No contract
Business plan	Facilities develop business plans	Facilities develop business plans	Lite business plan, focusing on increased supervision	No business plan
Quality assessment	Quality assessment and feedback, payment takes into account quality assessment	Quality assessment and feedback as in T1, but payment does not take into account quality assessment	Quality assessment and feedback as in T1	Quality assessment with written feedback, twice per year
Service quantity declaration and verification	Facilities report service quantity monthly, quantity verification monthly	Facilities report service quantity monthly, quantity verification monthly	Facilities report quarterly, no quantity verification	Facilities report quarterly, no quantity verification
Payment	Payment linked to performance	Payment not linked to performance	No payment	No payment
Managerial autonomy	Managerial autonomy, health facilities retain all revenue	Managerial autonomy, health facilities retain all revenue	No managerial autonomy, traditional « quot-part » system remains	No managerial autonomy, traditional « quot-part » system remains
Monthly activity report submitted to health district	Yes	Yes	Yes	Yes

management team				
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(*) - Method of assessing the amount of subsidies for health facilities Group 2: Payment in Group C1 will be made a priori based on the population of the health area. In the particular case where the population is not a good reference, we will refer to "matching" the characteristics of health facilities: type of services provided, volume of services provided, staff available, etc.

The impact evaluation team is aware that individuals living in the catchment area of a facility assigned to a given study group (e.g. C3) may visit a health facility assigned to a different group (e.g. T1). The low density of health facilities in the predominantly rural study districts lowers these risks. Nonetheless, where this occurs it could bias estimates of impact. The impact evaluation will therefore seek to (a) minimize, and (b) measure contamination and account for how this may have affected the estimates of impact. To minimize contamination, GIS mapping has been conducted before the baseline survey to define realistic catchment areas for health facilities. This GIS mapping allowed the research team to define 'true' catchment areas by taking into account physical features (like terrain or water bodies) and roads that influence travel time and thereby potentially affect health facility choice. GIS maps including health facilities and communities are included in the Annexes of this report. Households were sampled from these catchment areas (see data section for more detail).

In addition, we will use statistical methods to examine the relationship between PBF and:

1. Key expected changes in the hypothesized causal pathway, including:
 - a. Funds available at the operational (i.e., facility) level
 - b. Informal charges for health services and formal user charges for health services
 - c. Degree of client orientation, including facility opening hours, outreach for health services and client perceptions of staff behaviors
 - d. Facility management, including reduced absenteeism, availability of drugs and functioning equipment
 - e. Demand generation activities such as Behavior Change Communication by facility staff
2. The cost-effectiveness of PBF, i.e., how much of an improvement in coverage and quality does each \$ of PBF buy? We will examine this issue by comparing incremental costs and results in the PBF treatment arm to the corresponding costs and results in each comparison arm. We will examine costs in terms of: (a) Total (public and private) costs; (b) Public costs; (c) Out-of-Pocket costs to households
3. Health worker retention
4. Coverage of key services that are not purchased as part of the PBF pilot

Impact evaluation data

The evaluation will rely on two main sources of data to answer the impact evaluation research questions identified:

3. Household surveys: A household survey will be implemented at baseline (i.e., before implementation of PBF begins), and at endline (i.e., after PBF has been implemented for two years).
4. Facility-based surveys: A facility-based survey will be implemented at baseline and at endline.

The same facilities included in the baseline facility sample will also be visited at endline. Households surveyed at baseline will also be visited at endline, and will be included in the endline sample if they continue to meet eligibility criteria. Additional households may be sampled at endline if necessary to meet sample size requirements.

Details on the household survey design, sampling and results are included in the impact evaluation household baseline survey report.

Randomization ceremonies and results

Randomization of health facilities took place during public ceremonies that coincided with the official launching of the project in each of the three regions in early-mid 2012. The ceremony took place in February in the North-West region, April in the South-West region, and in July in the East region. A short documentary on the ceremony was developed and has recently been used by other World Bank teams to demonstrate to client country teams how to conduct a randomization of health facilities for an RBF impact evaluation and will soon be posted on the WB RBF website.

Sample sizes and sampling strategy for the health facility survey

The facility survey will be conducted at baseline and endline in all public CMAs, CSIs and District Hospitals in the 14 districts included in the impact evaluation and a sample of private facilities in these districts. Based on a health facility mapping exercise conducted prior to the baseline survey, there was a total of 242 primary care facilities and 20 secondary care facilities (district and private hospitals) in the 14 districts included in the impact evaluation. Primary care and secondary care facilities combined, this included 81 in the East, 91 in the North-West and 88 in the South-West for a total of 262. Out of these, 40 were private for-profit facilities. As private for-profit facilities were added to the sample after the signature of the contract with IFORD (baseline survey firm), it was decided that a random sample of 20 primary care private for-profit facilities and all private hospitals would be taken, due to budget constraints. Thus the target number of facilities was 222 primary care facilities and 20 secondary care facilities (district

hospitals and private hospitals). All facility team visits will be unannounced. The facility-based survey includes multiple components, described below.

Timeline of the baseline survey and overall impact evaluation

The household and health facility baseline surveys were jointly completed by IFORD before PBF implementation began in the three regions included in the IE. Preparation for the survey took place between July 2011 and January 2012, with selection and training of field workers occurring in January-February 2012. Survey data collection was conducted from March 3rd, 2012 to June 6th, 2012. The North-West region was completed in April 2013, followed by the South-West and East regions being completed during the first week of June 2012 (Table 4). PBF implementation began soon after the baseline survey was completed in each of the regions.

Endline data collection is planned to take place two years after implementation of PBF in the three regions, i.e. mid-2014 (Table 4).

Table 4 : Timeline

	FY 2011		FY 2012				FY 2013				FY 2014			
Phase	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Evaluation Preparation														
Baseline Data Collection														
Regional PBF Pilot Initiation Workshops														
Initiation of PBF pilot														
Exposure to PBF Treatment														
Baseline Analysis and Report														
Evaluation Preparation														
Endline Data Collection														
Impact Analysis and Report														
Endline Dissemination Workshop														

Components of the health facility baseline survey

Facility assessment module (F1)

The facility assessment module seeks to collect data on key aspects of facility functioning and structural aspects of quality of care. The respondent for this module are individuals in charge of the health facility at the time when the survey team visits the health facility. The main themes covered by the facility assessment include:

- Facility staffing, including the staffing complement of the facility, staff on duty at the time of the survey team's visit and staff present at the time of the survey team's visit
- Facility infrastructure and equipment
- Availability of drugs, consumables and supplies at the health facility
- Supervision
- Record keeping and reporting to the Health Management Information System
- Facility management
- Official user charges at the facility
- Revenues obtained at the health facility, and how revenues have been used

Health worker interview module (F2)

A stratified random sample of clinical health workers with maternal and child health service delivery responsibilities at sampled health facilities was interviewed as part of this module. The main themes covered by this module include:

- Role and responsibilities of the interviewed health worker
- Compensation, including delays in salary payments
- Staff satisfaction and motivation
- Technical knowledge on Maternal and Child Health. The latter is assessed through the use of vignettes. The vignettes focus on services to be purchased under PBF, tailored to the epidemiological profile of Cameroon and national protocols.

A stratified random sample of 5 health workers will be taken at each of the 242 health facilities resulting in a total number of 1210 health worker interview observations. For all health facilities with less than 5 health workers, all health workers present at the facility will be interviewed.

Observations of patient-provider interaction module (F3 and F4)

While the health worker interview module collects information on what health workers know, the purpose of this module is to gather information on what health workers actually *do* with their patients. A member of the survey team observed consultations with a systematic random sample of patients under five presenting with a new condition (i.e., not for follow-up visits or routine) and new ANC clients. The observer used a structured format to note whether key desired actions are carried out. In the case of patients under five, the instrument (F4) focused on whether IMCI protocols are followed. For ANC clients the instrument (F3) will examine whether key desired actions (including counseling) are carried out. As primary care facilities do not offer ANC services on all days of the week – typically these are offered 2 days each week – the ANC observations module was conducted in a sub-sample of facilities (2 out of 5). The expected sample for this module was 5 under-5 and 5 ANC observations will be undertaken at each facility where these modules are implemented. It was therefore anticipated a total of 484 ANC observations and 1210 under-five observations. All health workers selected for patient-provider observations were included in the health worker interview sample.

Patient exit interviews (F5, F6 and F7)

A systematic random sample of patients visiting the facility (an expected 5 patients aged under-five and 5 patients aged over 5) for curative care with a new complaint will be interviewed to assess the patient's perception of quality of care and satisfaction at all 245 primary care facilities surveyed. If the patient is a child, the child's caregiver will be interviewed. The 5 under-fives included in the patient exit sample will be the same 5 children whose consultation with a provider was observed. In addition to this, exit interviews will be conducted with all ANC clients whose consultation with a provider was observed. In total we expect 2420 exit surveys with patients who visited the health facility for curative care consultations and 484 exit surveys with ANC clients.

2012 health facility baseline survey descriptive statistics

Final health facility sample

In total, 20 private for-profit health facilities were excluded from the survey sample through the random selection of private facilities prior to the survey, and 15 facilities (public or private) were not included in the sample due to being inaccessible to the survey team. The results of the health facility survey and its seven modules are as follows:

Table 1: Total and sampled health facilities

	East		North-West		South-West		Total		
	Total	Sample	Total	Sample	Total	Sample	Total	Sample	%
<i>Primary care</i>									
Public	59	51	52	50	46	44	157	145	92.4
Confessional	12	10	19	19	9	9	40	38	95.0
For-profit	5	2	13	10	22	7	40 (20)	19	95.0*
Para-statal	0	0	0	0	5	5	5	5	100
Total	76	63	84	79	82	65	242 (222)	207	93.24*
<i>Secondary care</i>									
Public	6	6	4	4	4	4	14	14	100
Private	0	0	3	2	4	4	6	6	100
Total	6	6	6	6	4	4	20	20	100
Total (all)	82	69	90	85	86	69	262 (242)	227	93.8*

*Note: As private for-profit facilities were added to the project after the signature of the baseline survey contract (which did not include private for-profit facilities), a sample of half was taken. Thus the expected total for the survey sample was 20 out of 40 private for-profit facilities. Thus the execution rate is 95% for private for-profit facilities.

Table 2: Health facility survey expected and actual sample size

Sample	F1	F2	F3	F4	F5	F6	F7
Expected	242	1210	484	1210	484	1210	1210
Actual	227	516	319	234	319	237	345
%	93.8	42.6	65.9	19.3	65.6	19.6	28.5
Average per facility	1.0	2.3	3.5	1.0	3.51	1.0	1.5

Overall, 93.8% of targeted facilities were surveyed (Table 1). The remaining 6% were either inaccessible or not functional (closed down) at the time of the survey. All facilities that were visited are included in the health facility assessment module (F1). The remaining six modules had much lower execution rates. It should be noted that the expected sample was based on a minimum of 5 respondents for each module in each sampled facility was in fact unrealistic given (i) the realities of the demand and supply of health services in the study districts and the (ii) data collection plan and budgeting. Due to budget constraints, each health facility was only visited for one day during unannounced visits. Thus the survey teams were limited to the number of patients and providers that were present on the day of the survey. The realities of the field show that the target sample sizes may be unrealistic given the limited time spent at each facility, the low number of health workers employed and present on the day of the survey, and the low utilization of health services in the districts included in the sample (Table 2).

General health facility characteristics

Table 3 provides an overview of some important impact evaluation indicators at baseline. Only 49.30% of primary care facilities and 75.00% of hospitals had water for hand washing, soap and clean towel in the patient examination area. Most facilities at both the primary care and hospital levels had a vaccine thermometer. 87.50% of primary care facilities and 88.24% of hospitals had a stock of oral polio vaccine (OPV) on the day of the survey; stock of DPT vaccine was found to be in place at almost 95% of primary care facilities and at 100.00% of hospitals. The proportion of facilities with functional partographs and aspiration tubes was low, particularly at the primary care level. Only 60.13% of primary care facilities had a functional partograph, and 66.88% had a functional aspiration tube. It is important to note, that most facilities reported having these devices, but these were found to be in a non-functional condition (Table 3).

Basic equipment such as a blood pressure machine (sphygmomanometer) and stethoscope was almost universally present (Table 3). Only 42.60% of primary care facilities and 37.50% of hospitals had bed nets in stock on the day of the survey. 85.00% of primary care facilities had an updated immunization register and 74.90% had a completed HMIS monthly report. The corresponding figure for hospitals was 70.00% and 80.00% respectively. Over 95% of facilities had a waste disposal system in place and a safety box for sharps (Table 3). While over 85% of hospitals could conduct each of the lab tests examined for on the day of the survey, the proportion of primary care facilities equipped with laboratory services varied widely. Only 20.60% of these facilities could carry out TB tests on the day of the survey, 96.30% were able to conduct tests for malaria.

Approximately 88% of health workers across facility type stated that they always received their salaries on time (Table 3). Patient satisfaction was high, particularly at the primary care level with close to 90% of respondents expressing overall satisfaction with the quality at the facility they visited. Between 82% and 83% of respondents at the hospital level were satisfied with quality of the facility they visited. Around 90% of respondents at the primary care level felt that

the facility opening hours were convenient as opposed to around 75% of respondents at the hospital level (Table 3).

Table 3: Impact Evaluation Indicators at Baseline

	Indicator	Randomized Facilities	Obsv.	Non Randomized Facilities	Obsv.
1	Proportion of full complement of clinical staff present on the day of survey				
2	At least one female clinical staff present on the day of survey				
3	Proportion of health facilities with water for hand washing, soap and clean towel in patient examination area	49.30	207	75.00	20
4	Proportion of health facilities with at least one clean and functioning latrine	83.60	207	95.00	20
5	Proportion of health facilities with basic EPI equipment				
5a	Vaccine Thermometer	62.34	207	70	20
6	Proportion of health facilities with EPI vaccines in stock on the day of the survey				
6a	OPV	47.34	207	75.00	20
6b	DPT	34.30	207	25.00	20
7	Proportion of health facilities with basic delivery equipment		207		
7a	Partograph	44.44	207	85	20
7b	Aspiration/ Suction Bulb	51.69	207	60	20
8	Proportion of health facilities with basic clinical equipment		207		
8a	BP Apparatus	99.50	207	100.00	20
8b	Stethoscope	99.50	207	100.00	20
9	Proportion of health facilities with bednets in stock on the day of the survey	36.23	207	30	20
10	Proportion of facilities with an up-to-date EPI register	85.02	207	70.00	20
11	Proportion of facilities with completed HMIS monthly report	74.88	207	80.00	20
12	Proportion of facilities that have a working waste disposal system (bin, pit or incinerator)				

	Indicator	Randomized Facilities	Obsv.	Non Randomized Facilities	Obsv.
	in use and safety box for sharps				
12a	Disposal System in use	96.60	207	100.00	20
12b	Safety Box for sharps	97.60	207	100.00	20
13	Proportion of facilities that can perform lab tests for malaria, TB, HIV and full blood count on the day of the survey				
13a	Malaria	75.24	206	95.00	20
13b	TB	15.94	207	85.00	20
13c	HIV	14.01	207	80.00	20
13d	Blood Tests	34.78	207	90.00	20
14	Proportion of facilities with working means of communication (radio, mobile phone, landline)				
14a	Walky Talky	1.40	207	0.00	20
14b	Phone	17.50	206	45.00	20
15	Proportion of facilities with a working vehicle to transport patients for referral	17.87		50.00	
16	Proportion of health workers who report receiving their full salary on time	88.18	406	88.24	68
17	Average health worker clinical knowledge score***				
18	Under-five examination quality score (based on IMCI protocols)				
19	ANC examination quality score (based on national ANC protocols)				
20	Proportion of clients satisfied with facility				
20a	Antenatal Visit	93.87	261	83.33	54
20b	Consultations of individuals over five years	89.02	264	82.35	68
21	Proportion of clients who report that facility opening hours are convenient				
21a	Antenatal Visits	90.80	261	75.93	54
21b	Consultations of individuals over five years	90.87	263	77.94	68

Health facility assessment (F1)

Service delivery characteristics

Table 1 provides information on health and laboratory services provided by primary care facilities and hospitals. The majority of primary care facilities offered at least one type of laboratory service (78.30%), while all hospitals provided some lab services (100%). Among facilities that offered lab services, 45.00% could conduct blood tests, 96.30% could conduct malaria tests, 20.60% could conduct TB tests, and 28.40% could conduct HIV tests. The most common type of test among hospitals was the malaria test (95.00%) and the least common was the TB test (85.00%). Almost all primary care facilities provided immunization services (96.60%), ANC services (98.60%), delivery services (93.90%), and post-partum care (94.40%). The average number of days PHCs offered facility-based ANC services in the month preceding the survey was 6.89, while the number of days conducting community-based sensitization campaigns on ANC was 3.36. The average number of meetings with traditional birth attendants during the previous six months was 0.59 among PHCs and 0.11 among hospitals. The numbers were slightly higher for hospitals (Table 1).

While over three-quarters of PHCs noted that they provide insecticide-treated mosquito nets (77.10%), only 42.60% of facilities had nets available at the facility on the day of the survey.

About three-quarters of health facilities (PHCs and hospitals combined) had the previous month's completed HMIS monthly report available in the facility, while a slightly higher percentage had immunization reports available from the previous month (85.00%)(Table 2).

Demand-side financing schemes only had limited coverage in the sampled health facilities (Table 1). Formal mechanisms to improve financial access to health services of the poor, such as exemption cards, only existed in 18.00% of PHCs and 25.00% of hospitals. Health insurance schemes were operating in half (50.00%) of hospitals but only 16.50% of primary care facilities (Table 1).

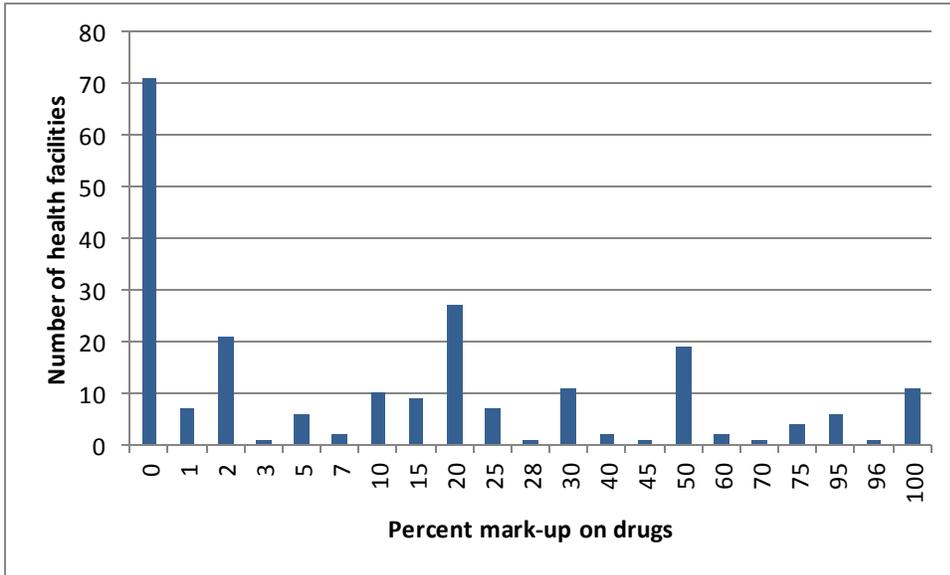
Table 1: Health and laboratory services offered by health facilities, primary care facilities and hospitals

	Primary care facilities (Randomized)			Hospitals (Non-randomized)		
	Mean	SE	Obsv.	Mean	SE	Obsv.
Facility open 24 hours	0.850	0.026	207	0.950	0.002	20
Facility provides Laboratory Services	0.783	0.056	207	1.000	0.000	20
Facility can provide Blood Tests*	0.450	0.063	160	0.900	0.065	20
Facility can provide Malaria Tests*	0.963	0.013	161	0.950	0.046	20
Facility can provide TB Tests*	0.206	0.025	160	0.850	0.080	20
Facility can provide HIV Tests*	0.284	0.034	162	0.900	0.073	20
Facility provides immunization	0.966	0.016	207	0.950	0.052	20
Facility provides ANC	0.986	0.010	207	1.000	0.000	20
Number of days ANC last month	6.887	0.519	204	10.500	1.357	20
Number of meetings with TBA in last six months	0.589	0.199	202	0.105	0.108	19
Number of days ANC community outreach	3.355	1.132	200	4.421	3.199	19
Facility provides Delivery Services	0.939	0.021	196	1.000	0.000	20
Facility provides Post-Partum Care	0.944	0.021	196	1.000	0.000	20
Number of days Post-Partum Care last month	17.451	1.299	184	25.579	2.274	19
Maternal deaths occurred at facility last year	0.038	0.014	185	2.750	1.292	20
Treated Mosquito Net free for Pregnant Women and Children	0.771	0.055	197	0.687	0.112	16
Treated Mosquito Net Available at Facility	0.426	0.061	197	0.375	0.102	16
Number of Patients Seen at Facility last month	125.981	14.332	205	1272.947	474.366	19
Completed Monthly Activity Report Available	0.749	0.036	207	0.800	0.079	20
Number of Malaria Cases Treated with ACT last six months	154.236	18.737	195	696.188	275.597	16
Number of Free ACT doses for Children last six months	76.330	21.924	194	66.286	22.236	14
Population of Catchment Area	9127.553	1260.350	190	22657.690	4929.770	16
Percentage Drug Cost Charged to Patient	13.452	1.370	199	11.789	5.235	19
Exemption Card for Exempt Individuals	0.180	0.041	189	0.250	0.071	20
Health Insurance Scheme at Facility	0.165	0.035	206	0.500	0.097	20

***Note:** percentages apply to sub-set of facilities that were able to provide *any* type of laboratory service

Mark-ups on drug costs varied substantially across health facilities (Figure 1). While the average percentage mark-up passed on to patients was 13.45% in PHCs and 11.79% in hospitals, 31% of PHCs did not introduce any markup (0%) and 5% introduced a 100% mark-up. The most common mark-up rates were 20% (12% of facilities) and 50% (8% of facilities) (Figure 1).

Figure 1: Mark-up on base cost of drugs for sales to patients



Bivariate analysis shows that considerable variation exists on characteristics of service delivery across geographic areas and types of health facilities (Table 2). While the North West region had the highest proportion of health facilities that offered 24 hour service (89.87%), facilities in the Eastern region on average had the greatest number of days per week offering ANC services (3.22) and care for children under 5 (6.29). The Eastern region also had the greatest proportion of facilities with transport available for patient referral to higher levels of care (23.81). While there was no substantial differences between facilities in urban and rural areas in the number of days services were available, rural health facilities had a higher proportion that were open 24 hours a day (86.84% vs. 80.00%). Only about one in five primary care facilities had transport available for patient referral to reference facility (17.87%), half of the hospitals had transport to the referral hospital (in most cases the Regional Hospital).

There were substantial differences in service delivery characteristics across sectors as well (Table 2). All private for-profit facilities noted that they were open 24 hours a day (100%), higher than both public (84%) and confessionnal (81.58) facilities. Yet private facilities, on average, had close to half the number of days offering ANC and under-5 care services than public facilities.

Table 2: Service delivery characteristics, by facility characteristics, primary care facilities

	Facility Open 24 hours (%)	Number of days in week that facility is open for ANC	Number of days in week that facility is open for under 5 check up	Availability of patient referral transport at facility (%)	Observations
Region					
East	84.13	3.22	6.29	23.81	63
Northwest	89.87	2.03	2.41	12.66	79
Southwest	79.69	2.03	2.23	18.46	65
Location					
Rural	86.84	2.49	3.70	14.47	152
Urban	80.00	2.13	3.10	27.27	55
Sector (Primary Care)					
Public	84.00	2.58	3.91	15.33	150
Private	100.00	1.61	1.94	16.67	18
Confessional	81.58	2.03	2.92	28.95	38
Total	85.71	2.37	3.48	17.87	207

Community health supervisors play an important role at both primary care facilities and hospitals (Table 3). At the primary care facility level, the activities most frequently performed were the organization of vaccination camps (82.76%), participation in community health worker (CHW) meetings (81.03%) and supervision of CHW activities (79.31%). At the hospital level, promotion of specific health programs (85.71%) was the activity that was most consistently performed. Approximately 35% of CHS at primary care facilities and 30% at hospitals had replaced CHW kits in the three months prior to the survey. Further investigation is needed to examine whether CHW kits are being adequately replenished at regular intervals (Table 3).

Table 3: Activities Performed by the Community Health Supervisor in the past three months, primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Obsv.	Hospitals (Non- randomized) (%)	Obsv.
Participated in CHW Meetings	81.03	116	71.43	7
Supervised CHW Activities	79.31	116	71.43	7
Replaced CHW kits	34.48	116	28.57	7
Provided CHW training	59.48	116	42.86	7
Supported CHW training	55.17	116	28.57	7
Collected and Compiled Monthly Activity Reports	57.76	116	71.43	7
Promoted Specific Health Programs	65.52	116	85.71	7
Organized Vaccination Campaigns	82.76	116	71.43	7
Other	5.26	114	0.00	7

Financial resources of health facilities

Table 4 examines the use of revenues generated through user fees over a period of three months prior to the survey. Among primary care facilities, almost 70% of facilities used these revenues to pay salaries for staff; approximately 61% used revenues from user fees for facility equipment and supplies and close to 60% used this money for facility programs. Among hospitals, 80.00% of the facilities used these revenues for facility equipment and supplies as well as for staff salaries, with 70.00% of the 20 hospitals in the sample using these revenues for staff performance bonuses. On the other hand, less than 10% of primary care facilities and a quarter of hospitals sent any money generated through user fees back to either the central government or decentralized government (Table 4).

Table 4: Use of Revenues Generated through User Fees in Past Three Months, primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Obsv.	Hospitals (Non-randomized) (%)	Obsv.
Health Facility Infrastructure	36.45	203	40.00	20
Facility Equipment and Supplies	60.78	204	80.00	20
Drugs	50.00	204	65.00	20
Facility Programs	59.61	203	60.00	20
Use in Community	28.92	204	20.00	20
Sent back to Management Committee	28.92	204	21.05	19
Staff Salaries	69.61	204	80.00	20
Staff Performance Bonuses	59.80	204	70.00	20
Sent back to Central Government	10.29	204	25.00	20
Sent back to Decentralized Government	5.88	204	15.00	20
Other	9.41	202	0.00	20

Table 5 examines categories of individuals exempt from use fee payments at both primary care facilities and hospitals. Children under 5 (41.67%), pregnant women (40.2%) and extremely poor individuals (32.51%), were the three groups most likely to be exempt from user fees at primary care facilities. At the hospital level, TB patients (45%), HIV/AIDS patients (40%) and children under 5 (40%) were the three groups exempt from the payment of user fees at the largest percentage of facilities. TB and HIV/AIDS patients received exemptions from user fees at only a small proportion (4.52% and 19.40% respectively) of primary care facilities in the sample (Table 5).

Table 5: Categories of Individuals Exempt from Paying User Fees, primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Obsv.	Non-Randomized Facilities (Hospitals) (%)	Obsv.
Widows	8.33	204	0.00	20
Children Under 5	41.67	204	40.00	20
Elderly (Above 65)	16.67	204	5.00	20
Orphans	19.61	204	15.00	20
TB Patients	4.52	199	45.00	20
HIV/AIDS Patients	19.40	201	40.00	20
Extremely Poor	32.51	203	30.00	20
Physically Disabled Persons	20.59	204	25.00	20
Military Personnel	2.94	204	0.00	20
Pregnant Women	40.20	204	25.00	20
Refugees	7.35	204	10.00	20
Others	17.16	204	20.00	20

Data from Table 2 pointed to the limited extent of demand side financing mechanisms operating in the study sample. Table 6 displays the type of health insurance schemes implemented at primary care facilities and hospitals, sampled in this survey. 83.50% of primary care facilities were not implementing any type of health insurance scheme, 9.22% of these facilities were participating in private health insurance programs, 5.34% in public health insurance programs and approximately 2% participated in both public and private health insurance programs. By contrast, half the hospitals sampled accepted some form of insurance, with private insurance the most commonly accepted form of insurance (30%). 10% of facilities each accepted either only public health insurance or both public and private health insurance programs (Table 6).

Table 6: Type of health insurance at health facility

	Primary care facilities (Randomized) (n=206)	Non- Randomized Facilities (Hospitals) (n=20)
None	83.50	50.00
Public	5.34	10.00
Private	9.22	30.00
Both	1.94	10.00

Equipment and drugs

The majority of health facilities, both PHCs and hospitals, had functional toilets, although only four out of five PHCs in the sample had them (83.60%) (Table 7). The proportion of facilities with water, towel and soap in examination rooms was dangerously low, with less than half of PHCs (49.30%) and only 75.00% of hospitals reporting these present at all times. More than 95% of facilities (both PHCs and hospitals) had water evacuation systems, secure boxes for sharps disposal, and essential physical examination equipment (scale for children, scale for adults, height measurement tool, tape measure, blood pressure reader, thermometer and stethoscope (Table 7).

Table 7: Existence of key equipment for external consultations, primary care facilities and hospitals

	Primary care facilities (Randomized)			Hospitals (Non-randomized)		
	Mean	SE	Obsv.	Mean	SE	Obsv.
Functional Toilet	0.836	0.048	207	0.950	0.052	20
Water, towel and soap in Examination Room	0.493	0.062	207	0.750	0.115	20
Waste Evacuation System	0.966	0.015	207	1.000	0.000	20
Secure Box for Sharps	0.976	0.009	207	1.000	0.000	20
User Fees for Consultation Posted	0.353	0.059	207	0.500	0.122	20
User Fees for Laboratory Services Posted	0.321	0.052	196	0.600	0.100	20
Child Weighing Scale	0.995	0.005	207	1.000	0.000	20
Height Measure	0.957	0.024	207	1.000	0.000	20
Tape Measure	0.995	0.005	207	1.000	0.000	20
Adult Weighing Scale	1.000	0.000	207	1.000	0.000	20
Blood Pressure Instrument	0.995	0.005	207	1.000	0.000	20
Thermometer	1.000	0.000	207	0.950	0.052	20
Stethoscope	0.995	0.005	207	1.000	0.000	20

Management and supervision

Summary statistics on management and supervision characteristics of health facilities in the sample are included in Table 8. Among primary care facilities, 77.30% had functional health management committees, while the proportion was slightly lower among hospitals (75.00%). Although committees are supposed to hold monthly meetings, the average number of committee meetings during the 12 months preceding the survey was 5.79 among primary care facilities and 4.33 among hospitals. The proportion of facilities with budgets and work plans was quite low: only 23.90% of primary care facilities and 50.00% among hospitals had budgets, and only 46.90% of primary care facilities and 55.00% of hospitals had work plans developed. Approximately half of health facilities had written job descriptions for all staff (53.20% among PHCs and 45.00% among hospitals) (Table 8).

Table 8: Management and supervision characteristics, primary care facilities and hospitals

	Primary care facilities (Randomized)			Hospitals (Non-randomized)		
	Mean	SD	Obsv.	Mean	SD	Obsv.
Hospital Committee in Existence	0.773	0.034	207	0.750	0.102	20
Number of Hospital Committee Meetings in last year	5.794	0.652	155	4.333	1.010	15
Facility Budget Developed and Seen	0.239	0.040	159	0.500	0.118	14
Facility Work Plan Developed and Seen	0.469	0.039	207	0.550	0.096	20
Number of Staff Meetings in past 3 months	2.030	0.150	203	2.300	0.571	20
All staff have written job descriptions	0.532	0.053	203	0.450	0.121	20
Visits last 3 months: District Hospital Representatives	0.728	0.117	206	0.667	0.335	18
Visits last 3 months: District Health Management Team	0.913	0.167	207	1.278	0.299	18
Visits last 3 months: Community Health Workers	2.734	0.311	203	5.750	2.310	20
Number of Internal Assessments: Past 12 months	4.097	0.392	195	4.700	0.676	20
Number of External Assessment: Past 12 Months	1.424	0.338	203	0.632	0.543	19
Patient Feedback Sought	0.715	0.040	207	0.850	0.089	20
Patient Feedback Communicated to Staff	0.770	0.048	148	1.000	0.000	17
Patient Feedback led to Change in Past 12 months	0.797	0.034	148	0.824	0.079	17
Health Area has Active Community Health Workers(CHWs)	0.792	0.041	207	0.750	0.146	20
Number of Active CHWs in Health Area	9.529	0.896	206	7.611	2.359	18
Health Facility has Community Health Supervisor (CHS)	0.580	0.055	200	0.368	0.127	19

In most cases, the quarterly schedule of district health management team (DHMT) supervision visits was respected, with an average of 0.91 visits per PHCs and 1.28 visits per hospital over the previous three months (Table 8). That being said, external assessments during these supervision meetings remained quite limited, with on average on 1.42 assessments per year for PHCs and 0.63 for hospitals. Internal assessments among facility staff were more common, with the average for the previous 12 months being 4.10 assessments among PHCs and 4.70 among hospitals.

Many health facilities worked closely with community health workers operating in the facility catchment area (Table 8). 79.20% of primary care facilities had active CHWs in their catchment area, with an average of 9.53 CHWs per facility. 58.00% of PHCs had a designated Community Health Worker Supervisor, and the average number of supervision visits to CHWs in the facility catchment area in the 3 months preceding the survey was 2.73.

Patient perspectives on service delivery were of interest to many facilities (Table 8). Among PHCs, 71.50% of facilities applied mechanisms to acquire feedback from patients, with 77.00% of these facilities communicating feedback back to staff. Approximately 80% of facility representatives though that such feedback had led to changes in service delivery over the past year.

Bivariate Analysis for selected indicators on health facility management are provided in Table 9. Primary care facilities in the Northern region,(68.25%) were far less likely to have hospital committees in existence compared to those in the Southwest or Northwest regions. Urban facilities (69.09%) and those in the private sector (27.78%) were also less likely to have hospital committees, compared to those in rural areas (80.26%) and public (88.67%) or confessional facilities (55.26%). The number of hospital committee meetings in the year leading up to the survey varied from 4.40 in the Southwest region to 6.90 in the East region. Urban facilities (4.84 meetings) and private facilities (4.80 meetings) had fewer meetings than facilities in rural areas and those under public or confessional management (Table 9).

A facility budget was developed and verified by interviewers for 29.17% of primary care facilities in the Southwest region, compared to just 9.52% in the East region (Table 9). The figure for urban facilities was 35.14% compared to 20.49% for rural facilities. Confessional facilities (38.10%) were more likely to develop a facility budget than public (22.73%) or private facilities (0.00%). In contrast to the facility budget, primary care facilities in the East region were the most likely (55.56%) to have developed a facility work plan. Private sector facilities (27.78%) were less likely to develop a work plan, compared to public facilities (47.33%) or confessional facilities (55.26%). The number of staff meetings in the month prior to the survey did not show much variation across stratification variables. Only 60% of primary care facilities in the Southwest had active community health workers (CHWs) compared to 88.61% in the Northwest and 87.30% in the East. Urban facilities (63.64%) were much less likely to have active CHWs than rural facilities (84.87%). 55.56% of private sector facilities had active CHWs, compared to 71.05% of confessional and 84.00% of public facilities (Table 9).

Table 10: Management and supervision characteristics, by facility characteristics, primary care facilities

	Hospital Committee Existence (%)	Number of Hospital Committee Meetings in last year	Facility Budget Developed and Seen (%)	Facility Work Plan Developed and Seen (%)	Number of Staff Meetings in past 3 months	Health Facilities Have Active CHWs (%)	Observations
Region							
East	68.25	6.90 (n=39)	9.52 (n=42)	55.56	2.38 (n=61)	87.30	63
Northwest	87.34	6.15 (n=68)	18.99 (n=69)	43.04	1.82 (n=78)	88.61	79
Southwest	73.85	4.40 (n=48)	29.17 (n=48)	43.08	1.95 (n=64)	60.00	65
Location							
Rural	80.26	6.09 (n=118)	20.49 (n=122)	48.03	1.97 (n=148)	84.87	152
Urban	69.09	4.84	35.14	43.64	2.18	63.64	55

	Hospital Committee in Existence (%)	Number of Hospital Committee Meetings in last year (n=37)	Facility Budget Developed and Seen (%) (n=37)	Facility Work Plan Developed and Seen (%)	Number of Staff Meetings in past 3 months	Health Facilities Have Active CHWs (%)	Observations
Sector (Primary Care)							
Public	88.67	5.79 (n=129)	22.73 (n=132)	47.33	2.03 (n=147)	84.00	150
Private	27.78	4.80 (n=5)	0.00 (n=5)	27.78	1.94	55.56	18
Confessional	55.26	6.15 (n=20)	38.10 (n=21)	55.26	2.08 (n=37)	71.05	38
Total	88.67	5.79 (n=129)	22.73 (n=132)	47.33	2.03 (n=147)	84.00	150

The list of activities undertaken by hospital/ health center committees over the year leading up to the survey is included in Table 10. The most common initiatives taken by health center committees included community mobilization to encourage facility usage (49.37%), facility repairs (32.28%) and the provision of new supplies or equipment (29.75%) to the facility. Hospital committees were most active in the provision of administrative support to the facility (53.33%), provision of new supplies or equipment (33.33%), facility repair (26.67%) and environmental sanitation (26.67%). Only 1.90% of health center committees and 0% of hospital committees were involved with the design of the Results Based Financing Scheme. 3.80% of health center committees and 20.00% of hospital committees collected information and data on Results Based Financing Activities (Table 10).

Table 10: Initiatives Taken by the Hospital/Health Center Committee in the past year, primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Obsv.	Hospitals (Non-randomized) (%)	Obsv.
Administrative Support to Facility	26.58	158	53.33	15
Provided New Supplies or Equipment	29.75	158	33.33	15
Provided New Infrastructure	16.46	158	20.00	15
Provided Repairs to facility	32.28	158	26.67	15
Provided Drugs	12.03	158	20.00	15
Sensitization/Mobilized Community to Use the Facility	49.37	158	20.00	15
Provided Transport to Staff for Home Visits	8.23	158	13.33	15
Gave In-Kind Contributions	8.28	157	0.00	15
Improved Security at Facility	10.13	158	20.00	15
Improved Water Quality	10.76	158	13.33	15

Improved Water Supply (Quantity)	8.86	158	13.33	15
Supported Training for Community Health Workers	13.29	158	20.00	15
Supported Outreach Teams	29.11	158	13.33	15
Verified Health Facility Maternal and Child Related Results	14.56	158	20.00	15
Environmental Sanitation	29.11	158	26.67	15
Screening for Diseases	10.19	157	13.33	15
Reported and Collected Data for Results Based Financing Activities	3.80	158	20.00	15
Designed the Results Based Financing Scheme	1.90	158	0.00	15
Participated in Training and Awareness Raising on Performance Based Financing Project	7.59	158	20.00	15
Other	30.46	151	46.15	13

Services that were given priority at the facility level over the past fiscal year are included in Table 11. At the primary care level, malaria and immunization activities were mentioned as priority services for the fiscal year at the highest proportion of facilities (97.07%), followed by antenatal care and curative consultations (95.61%). Tuberculosis (23.41%) and family planning and reproductive health (61.95%) were the services that were least frequently mentioned as having high priority at the primary care level facilities in the sample. Malaria and curative consultations were reported as priority services for the fiscal year at all the hospitals sampled. Nutrition (60%) was reported least frequently as a priority service for the fiscal year among this group of facilities (Table 11).

Table 11: Initiatives Priority Services for the Fiscal Year, primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Obsv.	Hospitals (Non-randomized) (%)	Obsv.
Antenatal Care	95.61	205	95.00	20
Institutional Delivery	93.17	205	95.00	20
Postnatal Care	88.78	205	95.00	20
Immunization	97.07	205	85.00	20
Curative Consultations	95.61	205	100.00	20
Family Planning/ Reproductive Health	61.95	205	75.00	20
Nutrition	72.20	205	60.00	20
Integrated Management of Childhood Illness (IMCI)	91.22	205	80.00	20
Malaria	97.07	205	100.00	20
Tuberculosis	23.41	205	75.00	20
HIV/AIDS	92.20	205	90.00	20
Health Promotion and Monitoring	93.17	205	75.00	20
Others	14.14	198	36.84	19

Facility managers were asked for their perceptions about their own autonomy along a number of dimensions (Table 12). 86.70% of facility managers at the primary care level felt that they had flexibility in how to use their staff more than half of the time or most of the time. 75.61% felt that the district health management team was supportive of their decisions and actions to bring about improvements at the facility. On the other hand, a significant proportion (36.59%) of facility managers felt that they did not have enough authority to obtain resources for the health facility and 34.95% felt that they did not have choice over what services were provided at the facility (Table 12). Details on facility autonomy at the hospital level are provided in Appendix 1-Table A4.

Table 12: Facility autonomy, primary care facilities (% for each statement)

	Most of the Time (%)	More than Half of the Time (%)	Less than Half of the Time (%)	Only Rarely (%)	Never (%)	Obsv.
I am able to elaborate my facility budget according to needs. There is enough flexibility in my budget	51.47	15.69	6.86	8.82	17.16	204
I am able to assign tasks and activities to staff as needed to achieve the outcomes I want in the facility. There is enough flexibility to use staff to address needs	70.44	16.26	5.42	4.93	2.96	203
The District Health Management Team Supports my Decisions and Actions for doing a better job in my facility	60.98	14.63	8.29	11.22	4.88	205
I have a choice over who I allocate for what tasks	67.16	16.18	4.41	8.33	3.92	204
I have a choice over what services are provided in the facility	41.26	14.08	9.71	14.08	20.87	206
I have enough authority to obtain the resources I need (drugs, supplies, funding)	36.10	17.56	9.76	18.05	18.54	205
The Policies and Procedures for doing things are clear to me	71.98	15.94	8.21	2.42	1.45	207
The Policies and Procedures for doing things are useful tools for the challenges I face in providing services and reporting on activities	73.79	16.50	6.31	3.40	0.00	206
The District Health Management Team provides adequate feedback to me about my job and the performance of my facility	60.00	12.20	7.80	13.66	6.34	205

Figures 1-2: Health facility managers perspectives on their management autonomy

Figure 1: Authority to obtain needed resources

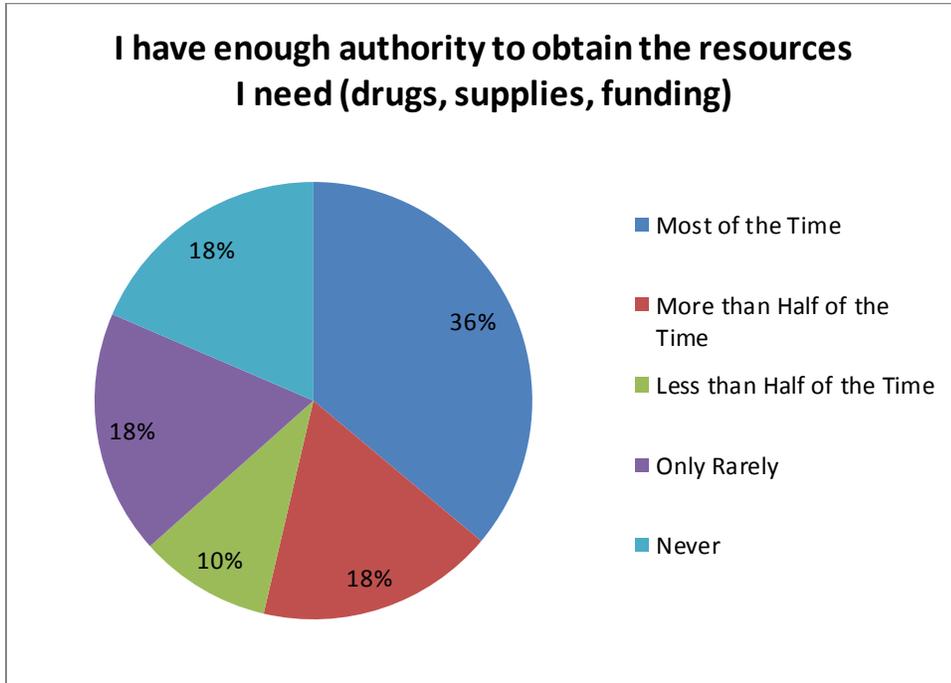
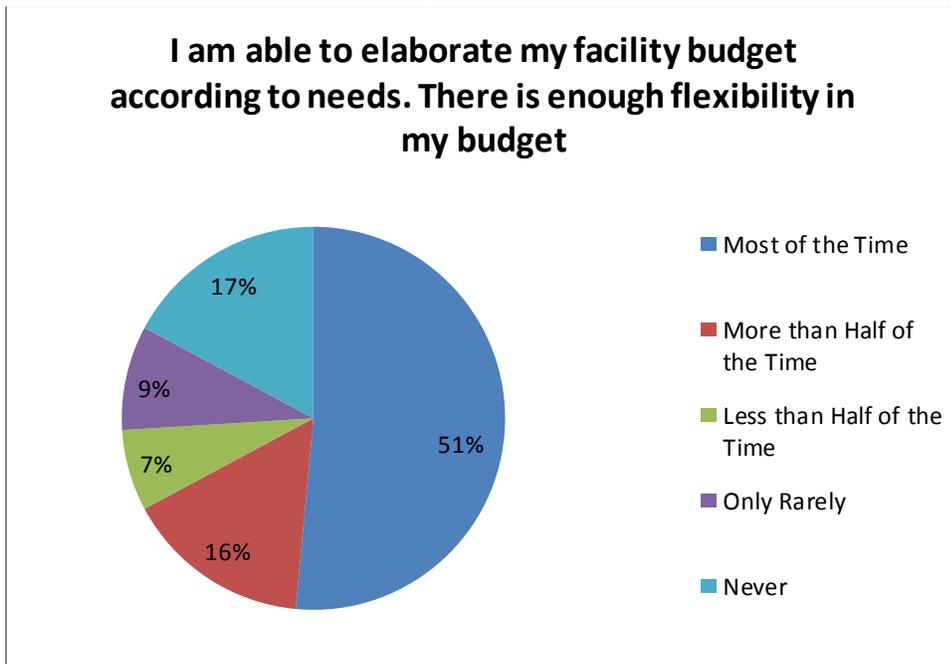


Figure 2: Flexibility in budget planning



Health worker survey (F2)

This section describes results from a survey of health workers at primary care facilities and hospitals. A total of 507 respondents were interviewed. 437 (86.19%) respondents were based at primary care facilities and 70 (13.81%) respondents were based at the hospital level. A region-wise breakdown of the sample indicates that 119 respondents (23.47%) were interviewed in the East region, 206 (40.63%) were interviewed in the Northwest region and 182 (35.90%) respondents were interviewed in the Southwest region.

Health worker survey respondent characteristics

Table 1 examines selected descriptive statistics from the health worker survey. The majority of health workers interviewed were female, with males accounting for 32.50% of respondents at primary care facilities and 31.40% of respondents at hospitals. Respondent mean age was 37.73 years at primary care facilities and 41.01 years at hospitals. 43.10% of health workers at primary care facilities and 53.60% at hospitals lived with their spouse. This discrepancy is probably due to primary care facilities being at relatively remote and rural locations where it may be difficult for families to relocate. 40.00% of health workers at primary care facilities and 30.00% of hospital level respondents were working in their native district. Respondents had typically worked at their current facility for a little over five years at the primary care level and over eight years at the hospital level (Table 1).

On average health workers were absent for a little under a day during the month prior to the survey at the primary care level. At hospitals, health workers were typically absent 1.60 days in the month leading up to the survey. The mean number of hours worked in the week before the survey varied from just under 49 hours at hospitals to a little under 52 hours at the primary care level. 6.20% of health workers at the primary care level and 4.30% of those at the hospital level had been absent without authorization, at least once during the course of their careers. The mean number of patients seen on the last full work day prior to the survey ranged from 6.07 patients for primary care providers to 12.44 patients for hospital level providers (Table 1).

21.80% of primary care providers and 23.20% of hospital level health workers admitted that they were tempted to leave their job. The proportion of respondents receiving extra allowances varied greatly across facility type. Less than 10% of primary care respondents received a rural housing allowance as opposed to 34.90% of hospital level respondents. A little over 1 % of respondents at both facility types received a rural hardship bonus. 28.50% of primary care respondents and 14.30% of hospital level respondents received a travel allowance for outreach (Table 1).

75.60% of primary care respondents and 81.30% of hospital level respondents discussed job difficulties with their supervisor in the month prior to the survey (Table 1). Mean number of

meetings held with external supervisors in the year prior to the survey were 3.68 at the hospital level and 3.99 at the primary care level. 25.40% of primary care respondents and 22.90% of hospital respondents were engaged in supplementary jobs. Mean health worker satisfaction was similar at both levels of facilities, with primary care respondents recording a score of 2.21 and hospital respondents averaging a score of 2.22 (Table 1).

Table 1: Respondent characteristics, health worker survey, primary care facilities and hospitals

	Primary care facilities (Randomized)		Obsv.	Hospitals (Non-randomized)		
	Mean	SE		Mean	SE	Obsv.
Male	0.325	0.042	437	0.314	0.050	70
Age	37.730	0.650	428	41.014	1.180	69
Lives with spouse	0.431	0.023	436	0.536	0.066	69
Serving in native district	0.400	0.056	435	0.300	0.071	70
Total years worked	10.130	0.533	431	13.315	1.216	70
Years worked at current facility	5.174	0.291	431	8.371	1.021	70
Number of days absent last month	0.956	0.163	434	1.600	0.857	70
Number of hours worked last week	51.771	1.543	429	48.882	2.395	68
Ever absent without authorization	0.062	0.025	437	0.043	0.034	70
Number of patients seen on last full work day	6.072	0.769	430	12.441	2.442	68
Are you tempted to leave your current job?	0.218	0.027	426	0.232	0.067	69
Receive housing allowance	0.098	0.020	435	0.349	0.082	43
Receive rural hardship bonus	0.011	0.009	435	0.014	0.015	70
Receive travel allowance for outreach	0.285	0.028	432	0.143	0.059	70
Discussed job difficulties with supervisor in last month	0.756	0.027	316	0.813	0.055	64
Number of meetings with external supervisor in last 12 months	3.989	0.325	352	3.681	0.861	47
Respondent is engaged in supplementary jobs	0.254	0.038	437	0.229	0.056	70
Health Worker Satisfaction Score	2.205	0.021	437	2.223	0.074	70

Bivariate analyses of descriptive statistics provided in Table 1 are displayed in Tables 2a-2c. Respondents in the Northwest region (38.67%) were less likely to be living with their spouses than respondents in the East (43.69%) and Southwest (48.03%) (Table 2a). Respondents in the Northwest (58.56%) were far more likely to have been born in the district they were serving in than the other two regions. Given this, it is not surprising that respondents in this region have the highest length of service in their current facility (5.92 years), compared to 4.52 years in the East and 4.71 years in the Southwest regions. Absent days in the month prior to the survey were lowest in the Southwest region (0.45), and respondents in the East region worked the longest hours (57.61 hours) compared to 51.06 hours in the Northwest and 48.66 hours in the Southwest. Urban respondents (48.92%) were more likely to live with their spouses than rural respondents (40.40%). Rural respondents, on the other hand were far more likely (43.92%) to be serving in

the district they were born in compared to urban respondents (31.65%). They also tended to have longer working hours (54.15 hours) than urban respondents (46.65 hours) per week. Respondents working at confessional facilities were more likely (52.00%) to live with their spouses than those working at private (39.47%) or public (40.54%) facilities. They were also more likely to be serving in their native district than respondents working at public or private facilities. Respondents at confessional facilities also had the highest number of years worked at the facility (6.66 years) and the lowest level of mean absenteeism during the previous month (Table 2a). Bivariate statistics for hospital level facilities are provided in Appendix 2, Tables A1a-A1c

Table 2a: Descriptive Statistics, health worker survey respondents, primary care facilities

	Respondent lives with Spouse (%)	Respondent born in same district (%)	Number of Years Worked at Current Facility	Number of Days Absent from Work in Past 30 Days	Number of Hours Worked in Past 7 days	Observations
Region						
East	43.69	24.51	4.52	1.52	57.61	103
Northwest	38.67	58.56	5.92	1.06	51.06	181
Southwest	48.03	28.29	4.71	0.45	48.66	152
Location						
Rural	40.40	43.92	5.34	1.09	54.15	296
Urban	48.92	31.65	4.81	0.67	46.65	139
Sector (Primary Care)						
Public	40.54	37.50	4.61	1.05	53.65	296
Private	39.47	36.84	5.87	1.00	46.39	38
Confessional	52.00	49.49	6.66	0.68	48.38	100
Total	43.09	40.18	5.20	0.96	51.80	434

Respondents in the East region (19.42%) were far more likely to be absent without authorization than those in the Northwest (2.20%) or Southwest (1.97%) regions (Table 2b). Also, those in the private sector were less likely to have been absent without authorization (2.63%) compared to respondents at public (6.73%) or confessional (5.00%) facilities. Respondents in the Southwest region, saw an average of 8.12 patients on their last full work day, compared to those in the East (4.75 patients) and Northwest (5.07 patients) regions. Urban respondents saw a mean of 8.80 patients compared to rural respondents, who examined 4.80 patients on average. Health workers at confessional facilities saw a mean of 7.91 patients on their last full work day, compared to 4.68 patients seen by health workers at private facilities and 5.62 patients seen at public facilities. Health workers in the Southwest were less likely to want to leave their current job (16.33%) compared to those in the Northwest (22.60%) and East (28.43%). Public sector respondents were also far less likely to want to leave their current job (15.46%) compared to those working at private (34.29%) or confessional (35.71%) facilities. 13.59% of respondents in the East region received a housing allowance , as compared to approximately 9% of respondents in both the

other regions. Public sector health workers were also far more likely to receive a housing allowance (12.79%) compared to private sector (2.63%) or confessional facility (4.00%) health workers (Table 2b).

Table 2b: Descriptive Statistics, health worker survey respondents, primary care facilities

	Ever Absent without Authorization n (%)	Number of Patients seen on Last Full Work Day	Tempted to leave Current Job (%)	Receive Housing Allowance (%)	Receive Rural Hardship Bonus (%)	Observations
Region						
East	19.42	4.75	28.43	13.59	0.00	103
Northwest	2.20	5.07	22.60	8.79	2.78	182
Southwest	1.97	8.12	16.33	8.55	0.00	152
Location						
Rural	6.04	4.80	22.07	10.06	1.69	298
Urban	6.47	8.80	21.32	9.35	0.00	139
Sector (Primary Care)						
Public	6.73	5.62	15.46	12.79	1.69	297
Private	2.63	4.68	34.29	2.63	0.00	38
Confessional	5.00	7.91	35.71	4.00	0.00	100
Total	5.98	6.06	21.70	9.89	1.15	435

A significantly lower proportion (68.64%) of health workers in the Southwest region discussed job difficulties with their supervisor compared to those in the East (77.05%) and Northwest regions (81.02%)(Table 2c). Respondents in the Southwest region also reported having fewer meetings with external supervisors (3.07 in the past year), compared to those in the other two regions. Rural respondents (80.69%) were far more likely to discuss job difficulties compared to urban respondents (66.67%), they also had more meetings with external supervisors (4.21 in the past year) compared to urban respondents (3.51 in the previous year). Respondents in the Northwest region (36.81%), rural respondents (27.85%) and respondents in the private sector (34.21%) were more likely to engage in supplementary jobs compared to those in other regions, urban areas and those working in the public or confessional sector respectively. There was little variation in health worker satisfaction across any of the stratification variables (Table 2c).

Table 2c: Descriptive Statistics, health worker survey respondents, primary care facilities

	Discussed job difficulties with supervisor in last month (%)*	Number of meetings with external supervisor in last 12 months (%)*	Respondent is engaged in supplementary jobs (%)	Health Worker Satisfaction Score	Observations
Region					
East	77.05 (n=61)	4.94 (n=97)	18.45	2.25	103
Northwest	81.02 (n=137)	4.17 (n=129)	36.81	2.16	182

Southwest	68.64 (n=118)	3.07 (n=126)	16.45	2.22	152
Location					
Rural	80.69 (n=202)	4.21(n=240)	27.85	2.16	298
Urban	66.67 (n=114)	3.51(n=112)	20.14	2.30	139
Sector (Primary Care)					
Public	76.62 (n=201)	3.91(n=256)	24.92	2.19	297
Private	80.00 (n=30)	4.24(n=21)	34.21	2.25	38
Confessional	72.62 (n=84)	4.17(n=75)	24.00	2.25	100
Total	75.87 (n=315)	3.99(n=352)	25.52	2.21	435

*Sub-group analysis for individual who responded yes to have internal/external supervisors

Table 3 displays some more background characteristics of health workers based on the survey. 35.93% of health workers at randomized facilities and 24.29% of respondents at hospitals reported that they were single. On the other hand, 56.52% of respondents at primary care facilities and 70.00% of hospital respondents stated that they were married or co-habiting (Table 3).

At both primary care and hospital levels, the three largest employers were the Ministry of Health, the facility itself and faith based organizations, though the proportion of health workers employed by each employer varied (Table 3). At the primary care level, the Ministry of Health was the employer for 45.41% of respondents, faith based organizations employed 19.50% of respondents and the facility itself employed 15.60% of respondents. At the hospital level, the Ministry of Health directly employed 67.14% of respondents, the facility employed 15.71% and faith based organizations employed 11.43% of respondents (Table 3)

A little over 60% of respondents at the primary care level and over 85% of respondents at the hospital level were permanent employees in either the public or private sectors (Table 3). 17.85% of health workers at the primary care level held fixed term contracts for more than six months with 11.44% working without a contract. At hospitals, 8.57% of respondents had a fixed term contract with only 1.43% of respondents working casually without a contract. 18.54% of respondents at the primary care level and 12.86% of hospital level respondents had only primary level education. Over 75% of primary care level respondents had completed some secondary education, compared to over 63% of hospital level respondents. In the latter category, 20.00% of respondents held University degrees compared to just 5.49% of respondents at the primary care level (Table 3).

Table 3: Respondent characteristics, health worker survey

	Primary care facilities (Randomized) (%) n=437	Hospitals (Non-randomized) (%) n=70
Marital status		
Single	35.93	24.29
Married/ Union	56.52	70.00

Widowed	5.72	4.29
Divorced/Separated	1.83	1.43
Respondent employer		
MINSANTE	45.41	67.14
Facility	15.60	15.71
NGO	1.61	4.29
Military	0.00	1.43
Faith Based Organization	19.50	11.43
Self	0.69	0.00
Local Community	9.63	0.00
Others	7.57	0.00
Employment status		
Permanent (Public) and Pensionable	44.62	68.57
Permanent (Private) and Pensionable	16.02	17.14
Short Term Contract (less than 6 months)	3.20	2.86
Fixed Term Contract (6 months and more)	17.85	8.57
Casual (No Contract)	11.44	1.43
Volunteer	2.52	0.00
Other	4.35	1.43
Highest level of education		
None	0.69	0.00
Primary	18.54	12.86
Secondary First Cycle	39.13	34.29
Secondary Second Cycle	36.16	32.86
University	5.49	20.00
Position at facility		
Director/Head of Facility	18.46	1.43
Area Manager	0.00	0.00
General Supervisor	1.17	4.29
Care Coordinator	0.70	0.00
Head Nurse /Principal	1.40	2.86
Major-Pediatrics	0.23	5.71
Major –Maternity	3.27	8.57
Staff- Medical	17.76	21.43
Head Immunization	0.70	4.29
Major-Operating	0.00	0.00
Staff- Surgery	0.47	2.86
Treasurer	0.23	0.00
Accountant	0.00	0.00
Other, Head of Service	2.10	4.29
Other	53.50	44.29

Health worker activities, training received and training needed

Table 4 examines activities performed by respondents in the three months leading up to the survey at both primary care facilities and hospitals. At the primary care level, the activity most commonly performed was malaria treatment. 91.51% of health workers reported carrying this out in the past three months. Curative consultations, both for adults (90.14%) and children (88.53%), were the next most commonly performed activities. Antenatal and postnatal consultations (83.26%) were the third most frequent group of activities carried out by health workers at the

primary care level. Treatment of mental health issues (3.22%) and traditional birth attendant (TBA) training (6.22%) were the activities that were carried out most infrequently (Table 4).

In common with primary care facilities, malaria treatment was the most common activity performed at the hospital level (84.29%). This was followed by curative consultation for children (68.57%) and adults (67.14%) and generating awareness of health issues (67.14%). TBA training (1.45%), TBA supervision (4.41%) and Community Health Worker (CHW) training (8.70%) were the least commonly performed activities (Table 4). A graphical representation is presented in Figure 1.

Table 4: Types of activities performed by respondents in three months preceding the survey, health worker survey

	Primary care facilities (Randomized) (%) n=437	Hospitals (Non-randomized) (%) n=70
Supervise Community Health Worker (CHW)	32.41	10.29
Supervise Traditional Birth Attendant (TBA)	11.49	4.41
Curative consultation for children	88.53	68.57
Curative consultation for adults	90.14	67.14
Family planning consultation	52.75	41.43
Antenatal care consultation (ANC)	83.26	47.14
Postnatal care consultation (PNC)	83.26	47.14
Deliveries in facility	77.52	58.57
Tuberculosis diagnosis/treatment	9.43	22.86
Facility-based vaccination	80.05	40.58
Vaccinations by outreach campaigns (community)	61.93	14.49
Growth monitoring /Nutrition counselling	72.25	58.57
Malaria treatment	91.51	84.29
Community Health Worker training	25.75	8.70
Traditional Birth Attendant training	6.22	1.45
Treatment of disability and chronic diseases	30.11	44.29
Treatment of mental health issues	3.22	14.29
HIV/AIDS testing and counselling	78.85	65.71
HIV/AIDS treatment (Anti-retroviral therapy, ART)	35.93	48.47
Circumcision of male children	49.65	26.15
Awareness of health issues	71.36	67.14
Other, specify	7.48	18.57

Figure 1: Types of activities performed by respondents in three months preceding the survey

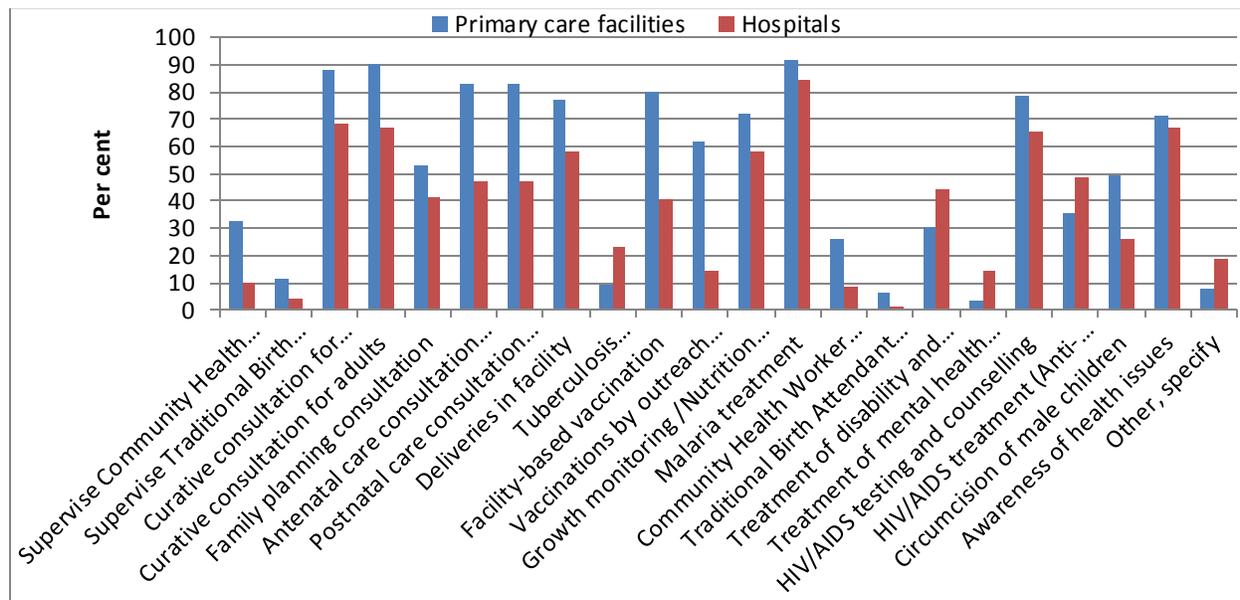


Table 5 examines patterns of in-service training for selected competencies at primary care facilities. It is clear that certain areas are getting far more priority than others and there are a number of conditions that are neglected in spite of their importance to the improvement of health outcomes which is the ultimate aim of the health system. 38.90% of respondents had received training on the prevention of mother to child transmission of HIV in the year leading up to the survey, 27.23% had received training on management of malaria with ACTs and 25.63% had received training on comprehensive care of HIV/AIDS. On the other hand, only 1.83% received training in obstetric surgery, 3.89% received training in administrative and financial management, 4.58% received training in the management of issues surrounding reproductive health in adolescents and 4.58% received training in the diagnosis and treatment of tuberculosis in the previous year. The systematic neglect of some of these conditions is reflected by the fact that 92.91% of respondents had never received training in obstetric surgery, 86.50% had never received any administrative and financial management training or training in the diagnosis and treatment of tuberculosis and 84.90% had no training in issues surrounding the reproductive health of adolescents (Table 5).

Table 5: Most recent In-Service Training in selected competencies, primary care facilities (n=437)

		Less than One Year Ago (%)	More than One Year Ago (%)	Never Trained (%)
a	Integrated Management of Childhood Illness (IMCI Clinical)	10.30	18.99	70.71
b	Integrated Management of Childhood Illness (IMCI Community-based)	5.49	13.04	81.46
c	Diagnosis of Malaria Rapid Tests	19.91	27.23	52.86
d	Management of Malaria with ACTs	27.23	30.66	42.11
e	Tuberculosis Diagnosis and Treatment	4.58	8.92	86.50
f	Basic Family Planning	9.38	18.76	71.58
g	Emergency Obstetric Care and Newborn Care (EONC)	10.30	16.02	73.68
h	Obstetric Surgery (EONC)	1.83	5.26	92.91
i	Refocused Antenatal	12.59	16.02	71.40
j	Support for Cholera	24.94	11.67	63.39
k	Comprehensive care of HIV / AIDS	25.63	18.99	55.38
l	Management of Inputs and Other vaccines	21.74	19.45	58.81
m	Integrated Epidemiological Surveillance of diseases of the EPI	16.93	20.59	62.47
n	Peer Educator training	7.32	11.44	81.24
o	Training in Reproductive Health of Adolescents	4.58	10.53	84.90
p	Prevention of Mother to Child Transmission of HIV/AIDS (PMTCT)	38.90	24.71	36.38
q	Administrative and Financial Management	3.89	9.61	86.50
r	Health Information System	8.92	13.27	77.80

Figure 2 compares the percentage of health workers never receiving training for selected competencies at both primary care facilities and hospitals. For most skill sets the proportion of respondents never receiving training are not very different across facility level. However there are some skills where training patterns appear different. A greater proportion of hospital level respondents (67.14%) had never received training in the diagnosis of rapid malaria tests, as compared to primary care facility workers (52.86%). On the other hand, hospital level staff was more likely to have received training in tuberculosis diagnosis and treatment, in emergency obstetric and newborn care and in obstetric surgery (Figure 2).

By contrast, Figure 3 examines the skill sets in which health workers received training in the year preceding the survey. As in Figure 2, a similar proportion of respondents received the given skill set across facility level. A far greater proportion of primary care facility respondents (19.91%) received training in the diagnosis of malaria rapid tests, compared to hospital level respondents (10.00%). Conversely, 24.29% of hospital respondents received training in emergency obstetric and newborn care compared to 10.30% of primary care facility respondents

and 14.29% of hospital respondents received training in obstetric surgery compared to the mere 1.83% of primary care facility respondents who received this training (Figure 3).

Figure 2: Percentage of health workers never receiving training for selected competencies

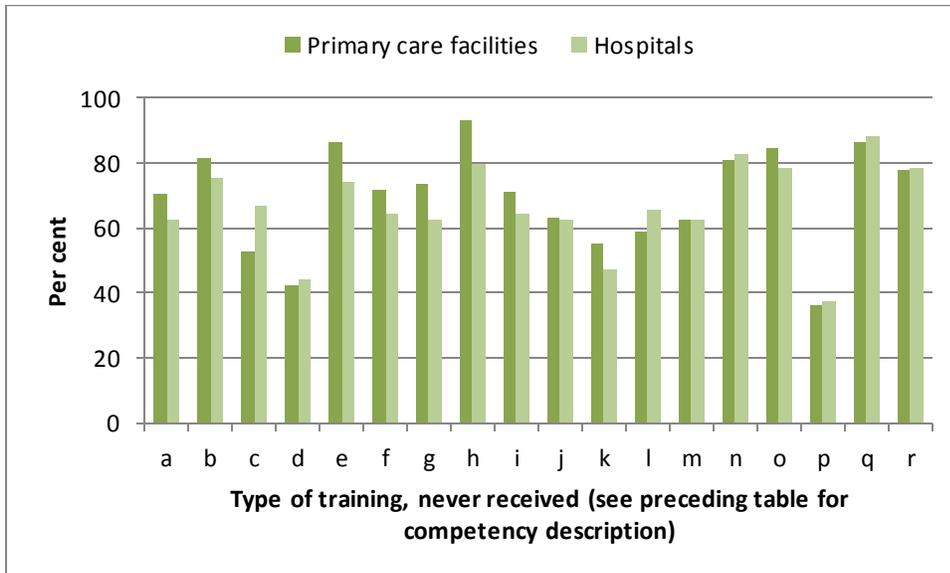
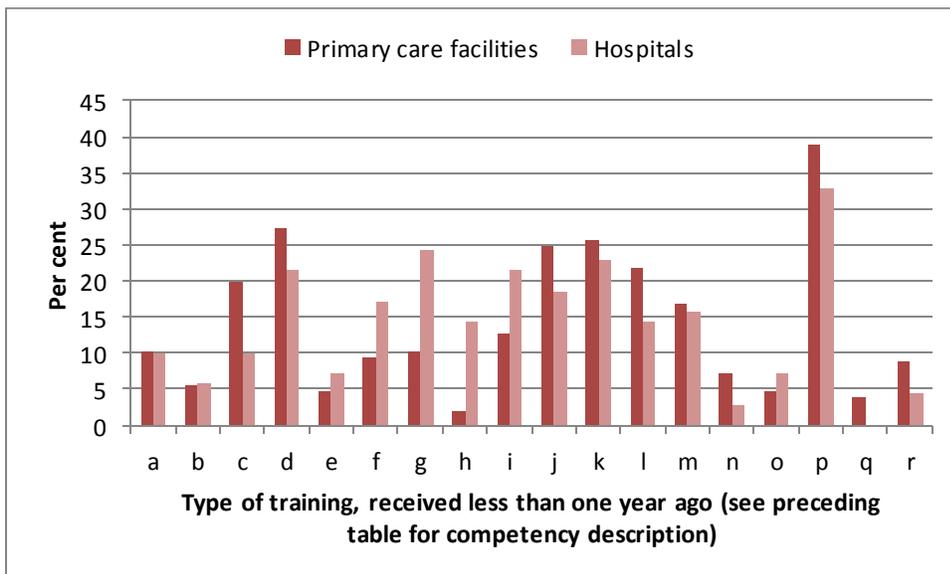


Figure 3: Percentage of health workers receiving training for selected competencies in the year preceding the survey



Health workers at both primary care facilities and hospitals felt the need for additional training in similar skills (Table 6). At the primary care level, training in basic family planning was the area that the maximum proportion of health workers (28.54%) felt the need for additional training,

this was closely followed by prevention of mother to child transmission of HIV/AIDS (PMTCT) (28.07%) and emergency obstetric care and newborn care (EONC) (27.36%). At hospitals, 40.00% of respondents felt that they needed additional training in EONC , 32.31% wanted more training in PMTCT and 30.77% felt they would benefit from more training on the clinical management integrated management of childhood illness (IMCI).

Among respondents at both levels, peer educator training, support for cholera and training in health information systems were the three skill sets that the smallest proportion of health workers felt that they needed additional training in. Given the largely medical orientation of health workers it is not surprising that peer educator training and skills such as the use of health information systems are not particularly sought after (Table 6). A graphical depiction of Table 6 is provided in Figure 4.

Table 6: Competencies health workers felt need for additional training in, health worker survey

		Primary care facilities (Randomized) (%) n=424	Hospitals (Non-randomized) (%) n=65
a	Integrated Management of Childhood Illness (IMCI Clinical)	26.89	30.77
b	Integrated Management of Childhood Illness (IMCI Community-based)	17.92	24.62
c	Diagnosis of Malaria Rapid Tests	16.04	16.92
d	Management of Malaria with ACTs	19.10	23.08
e	Tuberculosis Diagnosis and Treatment	15.80	12.31
f	Basic Family Planning	28.54	24.62
g	Emergency Obstetric Care and Newborn Care (EONC)	27.36	40.00
h	Obstetric Surgery (EONC)	14.86	20.00
i	Refocused Antenatal	14.62	18.46
j	Support for Cholera	6.37	6.15
k	Comprehensive care of HIV / AIDS	26.18	26.15
l	Management of Inputs and Other vaccines	8.25	13.85
m	Integrated Epidemiological Surveillance of diseases of the EPI	12.97	12.31
n	Peer Educator training	4.72	4.62
o	Training in Reproductive Health of Adolescents	18.63	21.54
p	Prevention of Mother to Child Transmission of HIV/AIDS (PMTCT)	28.07	32.31
q	Administrative and Financial Management	13.68	10.77
r	Health Information System	8.02	9.23

Figure 4: Competencies health workers felt need for additional training in, primary care facilities and hospitals

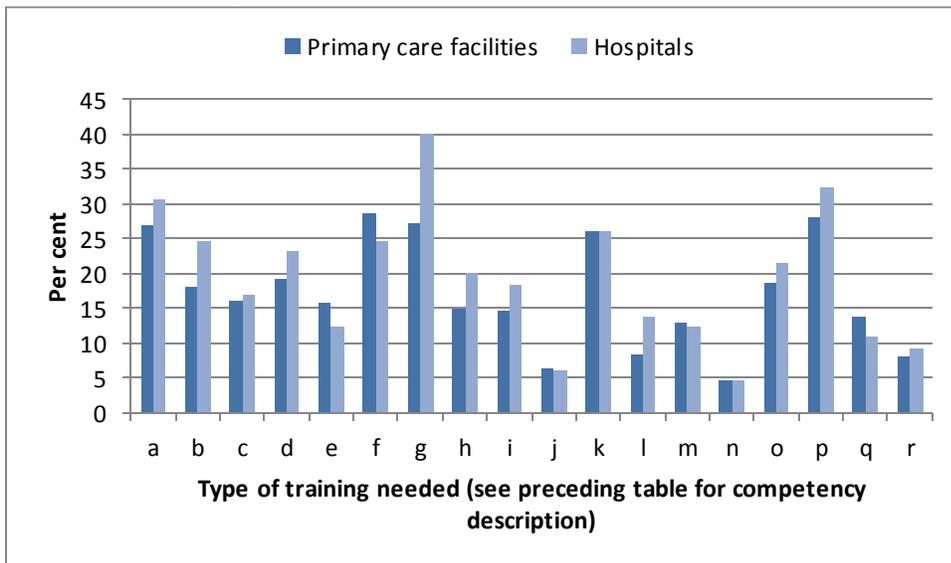
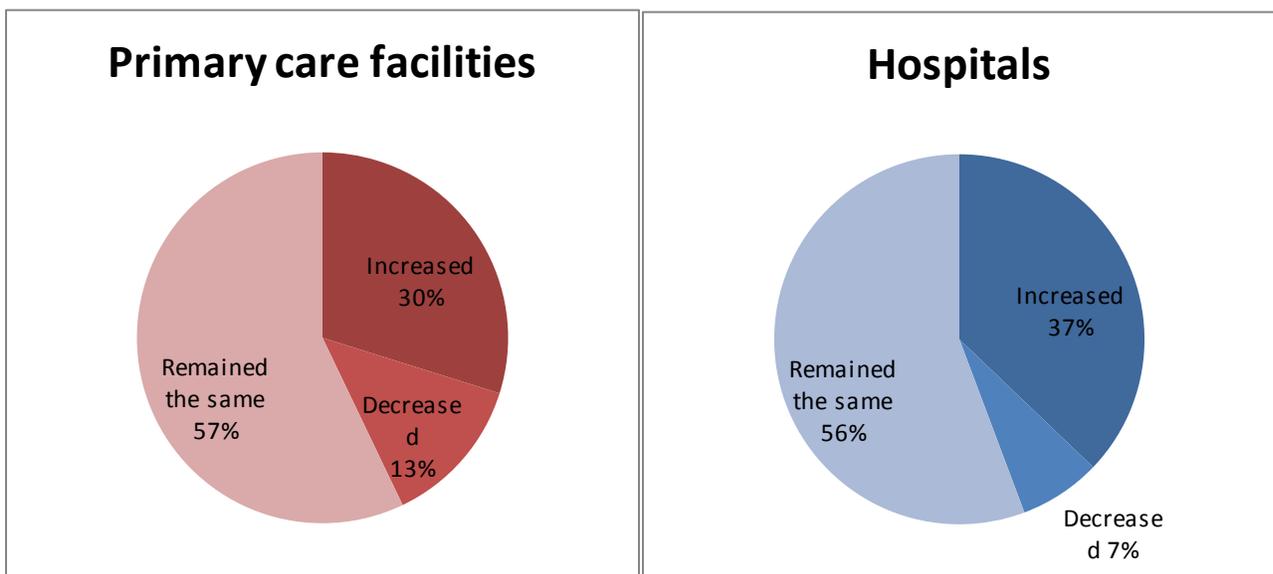


Figure 5 displays health worker perceptions of workload changes over the three months prior to the facility survey. At both primary care facilities and hospitals a similar proportion of health workers felt that their workload had remained the same. 30% of health workers at primary care facilities and 37% at hospitals felt that their workload had increased. On the other hand, 13% of health workers at the primary care level and 7% of hospital based health workers were of the opinion that their workload had lightened over the past three months (Figure 5).

Figure 5: Workload Changes over the past three months, primary care facilities (n=429) and hospitals (n=70)



Remuneration of health workers

There is a wide range in remuneration across facility type and public, private and confessional facilities (Table 7, Figures 6 and 7). At primary care facilities, the highest proportion (21.71%) of respondents had a salary of between 25,000-50,000 CFA per month. 16.86% had a salary between 50,000-75,000 CFA per month, 13.86% each earned less than 25,000 CFA or between 75,000-100,000 CFA per month. 11.55% of respondents earned more than 150,000 CFA per month and 10.85% of respondents worked as unpaid volunteers. In contrast, those earning more than 150,000 CFA per month were the largest group in hospitals (33.33%), followed by those earning between 125,000 and 150,000 CFA (15.94%). 11.59% of hospital based respondents worked as unpaid volunteers. 13.31% of public facility employees had a salary of more than 150,000 CFA compared to 7.50% of private sector employees and 8.00% of those working at confessional facilities. 75.00% of private sector employees earned less than 50,000 CFA per month, compared to 47.80% of public employees and 31.00% of those working in confessional facilities(these figures include those working as unpaid volunteers) (Table 7).

Table 7: Salary Range, primary care facilities and hospitals

	Primary care facilities (Randomized) (%) n=433	Hospitals (Non-randomized) (%) n=69	Public (%) n=293	Private (%) n=40	Confessional (%) n=100
Less than 25,000CFA	13.86	1.45	16.38	20.00	4.00
25,000-50,000 CFA	21.71	2.90	16.38	52.50	25.00
50,000-75,000 CFA	16.86	7.25	11.60	15.00	33.00
75,000-100,000 CFA	13.86	13.04	13.31	0.00	21.00
100,000-125,000 CFA	6.70	14.49	9.22	0.00	2.00
125,000-150,000 CFA	4.62	15.94	4.78	2.50	5.00
More than 150,000 CFA	11.55	33.33	13.31	7.50	8.00
Work without salary	10.85	11.59	15.02	2.50	2.00

Figure 6: Salary Range, primary care facilities and hospitals

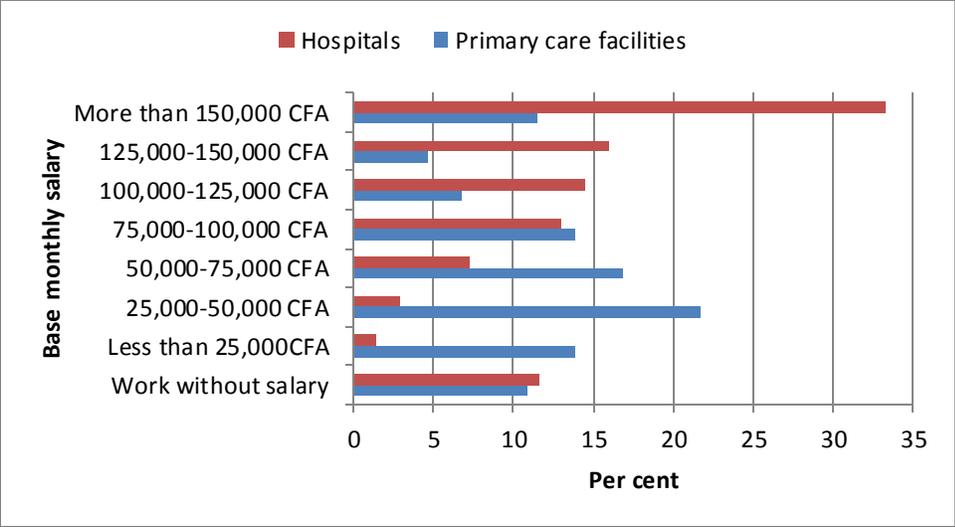
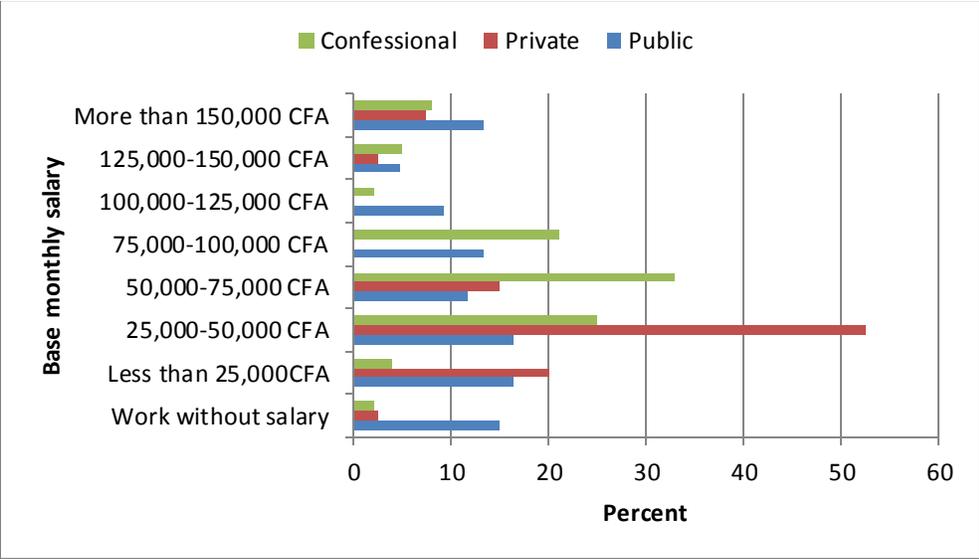


Figure 7: Salary Range, primary care facilities and hospitals



Job benefits received by health workers at primary care facilities and hospitals are described in Table 8. The most common job benefit at both levels of facility is free or subsidized housing. 26.77% of respondents at the primary care level and 37.14% of hospital level respondents reported receiving this benefit. At the primary care level, the second most common benefit was receiving health care and/ or medicines, with 21.48% respondents mentioning this, 14.06% of hospital respondents mentioned this as an important benefit. The third most common benefit was receipt of uniform for work, which was mentioned by 18.32% of respondents at the primary care level. At the hospital level, this benefit was mentioned by 21.88% of respondents. Transportation between work and home and free/ subsidized schooling for children were mentioned by a small proportion of respondents at either facility level (Table 8).

Table 8: Job benefits received, primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Observations	Hospitals (Non-randomized) (%)	Observations
Free or subsidized housing	26.77	437	37.14	70
Health care benefits and/or medicine	21.48	405	14.06	64
Free food/meals at work	2.23	404	0.00	64
Uniform for your work	18.32	404	21.88	64
Shoes for your work	4.46	404	3.13	64
Transport between work and home	2.23	403	1.56	64
Free schooling or school subsidies for children	2.51	398	0.00	64

Supervision

Table 9 examines supervision at primary care facilities and hospitals. 68.97% of respondents at randomized facilities and 69.57% of respondents at hospitals reported that they had last met their internal supervisor within the past 30 days. At the other extreme, 8.33% of respondents at primary care facilities have never met their internal supervisor; the corresponding figure for hospitals was 5.80%. Nearly 80% of respondents at primary care facilities and approximately 73% of respondents at hospitals felt that there had been some or substantial improvements after they discussed matters with their internal supervisors (Table 9).

Respondents were asked about the role of external supervisors at their facility. At primary care facilities the most common task performed was checking records (69.88%), observing consultations and providing health related instructions (35.96% each) and facility inspection (35.09%). The most common tasks performed by external supervisors at hospitals included checking records (73.81%), providing health related instructions (47.62%) and providing instructions on filling the HMIS forms (42.86%) (Table 9).

Table 9: Supervision, primary care facilities and hospitals

Randomized Facilities (%)	Obsv.	Non Randomized Facilities (Hospitals) (%)	Obsv.
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<i>Timing of last meeting with internal supervisor</i>				
Within the past 30 days	68.97	348	69.57	69
Within the past 31-90 days	13.51	348	14.49	69
Within the past 4- months	4.89	348	0.00	69
More than 6 months ago	4.31	348	10.14	69
Never	8.33	348	5.80	69
<i>Improvements after discussion with internal supervisor</i>				
A lot of improvements	24.69	239	17.31	52
Some improvements	55.23	239	55.77	52
No improvements	20.08	239	26.92	52
<i>Activities conducted by external supervisor</i>				
Brought Supplies / Equipment	14.04	342	19.05	42
Checked Records	69.88	342	73.81	42
Checked Finances	18.13	342	9.52	42
Observed Consultation	35.96	342	33.33	42
Assessed Knowledge	22.87	341	23.81	42
Provided Health-Related Instruction	35.96	342	47.62	42
Provided Administrative Instruction	22.81	342	35.71	42
Provided Instruction On Filling HMIS Forms	26.61	342	42.86	42
Nothing	3.52	341	2.38	42
Discussed My Performance and/or Career	14.33	342	9.52	42
Inspected Facility	35.09	342	40.48	42
Other, Specify	5.90	339	4.76	42

Secondary employment

31.61% of primary care level respondents and 23.19% of hospital respondents were engaged in employment outside the health facility (Table 10). The most common secondary occupation was farming, with 83.64% of health workers at randomized facilities and 75.00% of respondents at hospitals mentioning this as their secondary employment. 7.27% of primary care level respondents and 12.50% of hospital level respondents claimed to work in a non-health related business other than farming. 1.82% of primary care level respondents and no hospital respondents claimed to work in a private clinic or have a private practice as their secondary employment. This seems to be an understatement of the actual situation. It may be that some of these responses have been recorded in the others category by health workers not wanting to admit to having a private practice or working in another private health facility (Table 10).

By far the most commonly cited reason for secondary employment is the need to supplement income (82.73% of respondents at randomized facilities and 81.25% of respondents at non-randomized facilities). Other reasons include gaining experience, better job environment and making use of free time (Table 10).

Table 10: Secondary employment, primary care facilities and hospitals

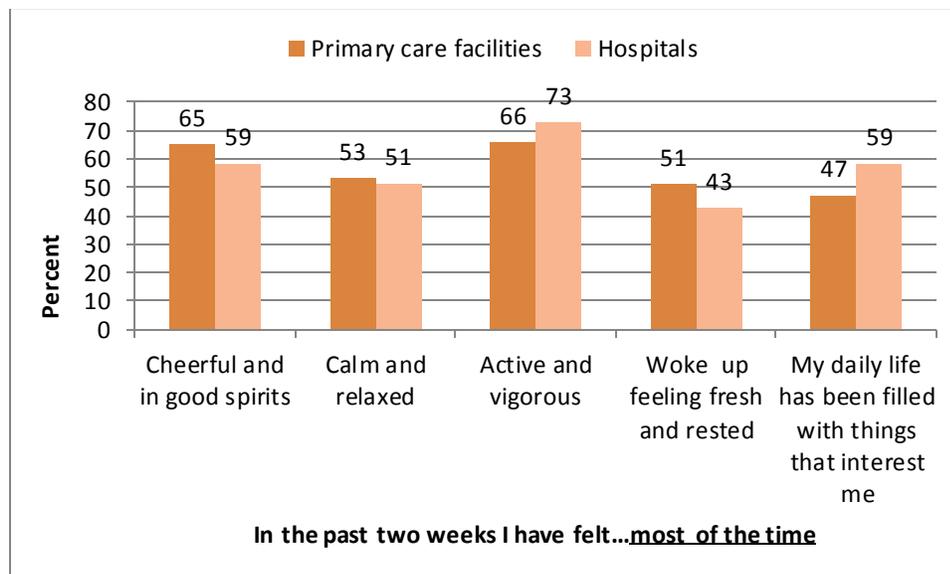
	Randomized Facilities (%)	Obsv.	Non Randomized Facilities (Hospitals) (%)	Obsv.
Respondent has secondary employment	31.61	348	23.19	69
<i>Other places of work</i>				
Work in another Government Facility	0.91	110	0.00	16
Work in Private Clinic or Private Practice	1.82	110	0.00	16
Work in a Pharmacy	0.00	110	0.00	16
Work in Non-Health related business other than Farming	7.27	110	12.50	16
Farming	83.64	110	75.00	16
Other	10.91	110	12.50	16
<i>Reason for working outside the health facility</i>				
I cannot make ends meet on my primary income	82.73	110	81.25	16
Hourly pay is lucrative in this secondary job	1.82	110	0.00	16
I can gain experience that is not available in my primary job.	1.82	110	6.25	16
The secondary job has a better environment.	0.00	110	6.25	16
I can see patients I could not see during working hours.	0.00	110	0.00	16
I have free time.	0.91	110	6.25	16
Others	12.73	110	0.00	16

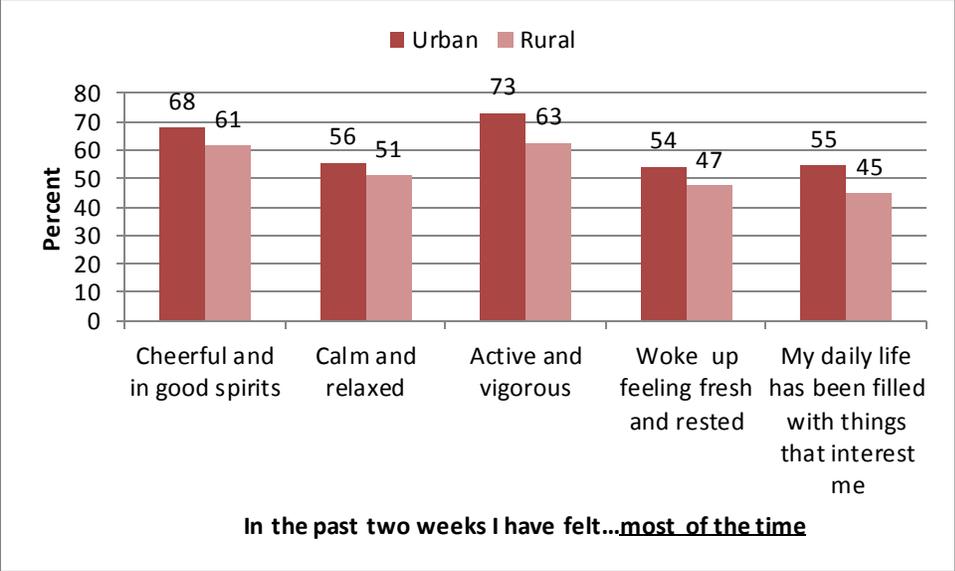
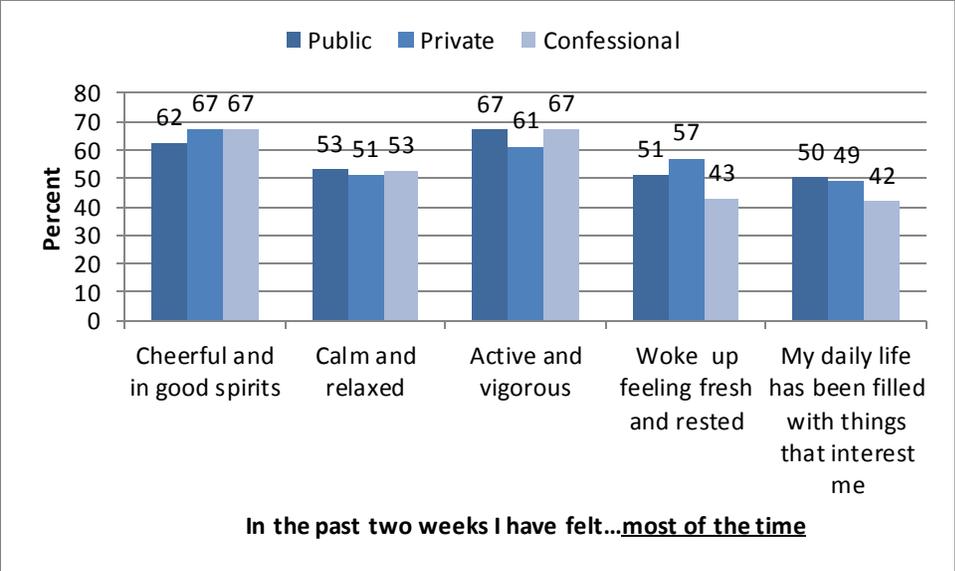
Health worker perceived well-being

Figures 8a-c provide information on health worker well-being, estimated using the WHO Index of well-being. Respondents were asked about how they felt on a number of different dimensions in the two weeks prior to the survey.

Figure 8a examines well-being at primary care facilities and hospitals. 65.00% of respondents at primary care facilities and 59.00% at hospitals felt that they felt cheerful and in good spirits most of the time over the two weeks before the survey. A similar proportion of respondents at both facility levels reported feeling calm and relaxed. 66.00% of primary care respondents and 73.00% of hospital respondents felt active and vigorous, most of the time over the two weeks before the survey. 51.00% of primary care facility workers and 43.00% of hospital based respondents said that they woke up feeling fresh and rested. Finally 47.00% of primary care level workers and 59.00% of hospital workers felt that their daily lives were filled with things that interested them most of the time (Figure 8a).

Figures 8a-8c: WHO Index of Well Being, % responding “most of the time”, by level, sector and urban/rural





Figures 8b and 8c examine well-being of health workers depending on whether they work in public, private or confessional facilities and on urban or rural residence. 61.00% of health workers at private facilities said that they felt active and vigorous most of the time, compared to 67.00% of respondents working at public or confessional facilities. As opposed to this 43.00% of respondents at confessional facilities were of the opinion that they woke up feeling fresh and rested compared to 57.00% at private facilities and 51.00% at public facilities. Similarly, confessional facility workers were less likely to report that their daily lives were filled with things that interested them than those working at public or private facilities (Figure 8b). Urban

health workers were more likely (68.00%) than rural workers (61.00%) to report that they were cheerful and in good spirits most of the time. They were also more likely to report feeling active and vigorous and find daily life interesting (Figure 8c)

Health Worker Satisfaction

Figure 9 displays overall health worker job satisfaction at primary care facilities and hospitals. A similar proportion of respondents at primary care facilities (28.00%) and hospitals (27.00%) reported that they were not satisfied with their job. 36.00% of respondents at primary care facilities and 33.00% of respondents at hospitals were indifferent about their jobs. 35.00% of health workers at the primary care level and 40.00% of those at the hospital level reported that they were satisfied with their current job (Figure 9).

Figure 9: Overall health worker job satisfaction, primary care facilities and hospitals

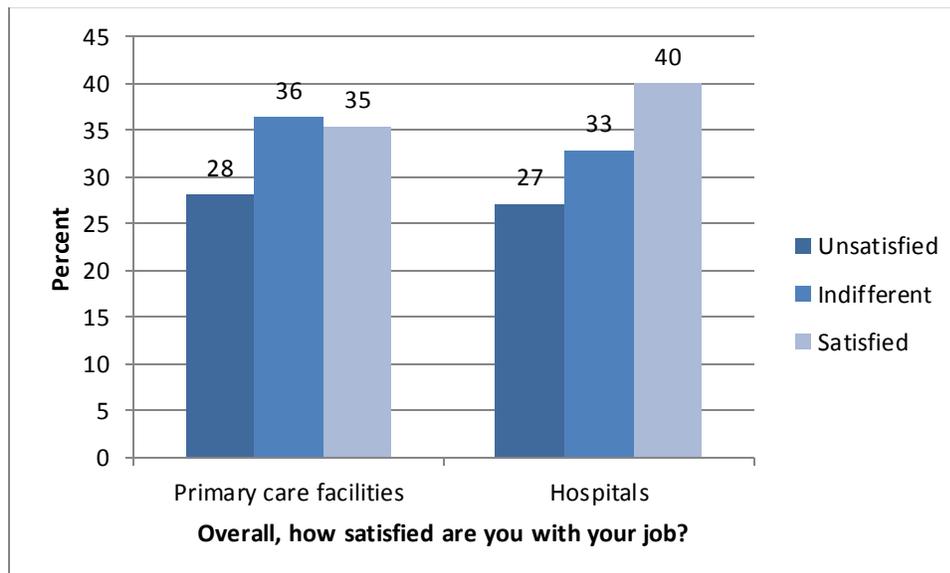


Table 11 examines health worker satisfaction along a number of dimensions. Health workers at primary care facilities were most satisfied with the respect they got in the community (86.93%), with their working relationships with other facility staff (80.97%) and with their working relationships with management staff within the health facility (80.49%). The aspects of the job that dissatisfaction was most widespread about were salary (81.50%), job benefits such as housing, travel allowance and performance bonus (75.57%) and the quantity of equipment available at the health facility (63.82%) (Table 11). The results for hospital level staff are provided in Appendix 2, Table 5.

Table 11: Health worker satisfaction, primary care facilities

	Unsatisfied (%)	Indifferent (%)	Satisfied (%)	Observations
Working relationships with other facility staff	5.80	13.23	80.97	431
Working relationships with District/ Ministry of Health staff	8.63	14.47	76.90	394
Collaboration with the Regional Health Delegation	7.14	33.12	59.74	308
Working relationships with Management staff within the health facility	9.51	10.00	80.49	410
Quality of the management of the health facility by the management staff within the health facility	17.63	19.57	62.80	414
Quantity of medicine available in the health facility	30.93	15.12	53.95	430
Quality of medicine available in the health facility	14.78	9.70	75.52	433
Quantity of equipment in the health facility	63.82	15.44	20.74	434
Quality and physical condition of equipment in the health facility	56.22	14.98	28.80	434
Availability of other supplies in the health facility (compresses, etc.; office supplies)	38.14	15.58	46.28	430
The physical condition of the health facility building	43.91	14.71	41.38	435
Your ability to provide high quality of care given the current working conditions in the facility	21.20	19.35	59.45	434
The relationships between the health facility and local traditional leaders	10.44	20.63	68.93	412
Your level of respect in the community	6.19	6.88	86.93	436
Your opportunities to upgrade your skills and knowledge through training	43.36	18.18	38.46	429
Your opportunity to discuss work issues with your immediate supervisor	13.19	10.19	76.62	432
Your immediate supervisor's recognition of your good work	7.42	12.30	80.28	431
Your opportunity to be rewarded for hard work, financially or otherwise.	45.02	18.96	36.02	422
The opportunities to use your skills in your job.	15.14	12.61	72.25	436
Your salary	81.50	11.00	7.50	400
Your benefits (such as housing, travel allowance, bonus including performance bonus, etc)	75.57	11.08	13.35	397
Your opportunities for promotion	54.72	22.64	22.64	424
Safety and security in the community	20.51	14.98	64.52	434
Living accommodations	55.63	15.02	29.34	426
Available schooling for your children (if applicable)	49.40	12.50	38.10	336
Overall, how satisfied are you with your job?	28.15	36.38	35.47	437

Health worker personal drive

Table 12 displays individual level health worker motivation at the primary care level. A high proportion of health workers felt that they worked hard most of the time (mean score 3.87), were punctual most of the time (3.86) and were proud of the work they were doing in their facility on most occasions (3.75). On the other hand, respondents felt that they spent little time chatting

about things not related to work (1.11), complaining about work related issues (2.14) and focusing on what was wrong rather than on the positive side of things (2.18). The corresponding table for hospital level workers is displayed in Appendix 2- Table 6.

Table 12: Working relationships with colleagues, primary care facilities (On a scale of 0-4; 0 being “never”, 4 being “most of the time”)

	Mean value	Observations
Staff willingly share their expertise with other members	3.59	437
When disagreements occur among staff, they try to act like peacemakers to resolve the situation themselves	3.50	437
Staff willingly give their time to help each other out when someone falls behind or has difficulties with work	3.53	437
Staff talk to each other before taking an action that might affect them	3.30	437
Staff take steps to prevent problems arising between them	3.31	437
Staff focus on what is wrong rather than the positive side	2.18	437
Staff spend their time chatting amongst themselves about things that are not related to work	1.11	436
Staff spend time complaining about work-related issues	2.14	437
My job allows me freedom in how I organize my work and the methods and approaches to use	3.19	437
I am given enough authority by my supervisors to do my job well	3.64	436
It is important for me that the community recognizes my work as a professional	3.68	436
It is important for me that my peers recognize my work as a professional	3.72	435
Changes in the facility are easy to adjust to	3.16	436
Rapid changes are difficult to cope with	2.75	436
Changes bring opportunities to make improvements in the facility	3.58	436
My job makes me feel good about myself	3.72	437
I am proud of the work I'm doing in this facility	3.75	437
I am proud to be working for this health facility	3.37	437
I am glad that I am working for this facility rather than in other facilities in the country	2.92	437
I would prefer to work somewhere else than in this facility	2.61	437
This health facility inspires me to do my very best on the job	3.33	436
I complete my tasks efficiently and effectively	3.71	436
I am a hard worker	3.87	436
I am punctual about coming to work	3.86	437
These days, I feel motivated to work as hard as I can	3.40	437
My facility is a very personal place. It is like an extended family and people share a lot with each other	3.52	436
My facility is very dynamic and an innovative place. People are willing to take risks to do a job well-done	3.49	436
My facility is very formal and structured. Policies and procedures are important for doing our work	3.46	437
In my facility, we focus on achieving daily goals getting our work done. Relationships between staff are less important	2.69	435
The head of my facility is a mentor and a role model	3.43	427
The head of my facility is willing to innovate and take risks in order to improve things	3.43	428
The head of my facility relies too much on policies and procedures	3.31	427

The head of my facility motivates staff to achieve goals	3.04	426
Loyalty and tradition are very important in my facility	3.03	437
Innovation and being first to try something new are important in my facility	3.30	436
Following procedures and rules is very important in my facility	3.73	437
Achieving results and high performance is very important in my facility	3.76	437

Quality of antenatal care: Direct observations (F3)

This section of the report provides information on the quality of antenatal care based on direct observation of patient provider interactions. A total of 316 antenatal care visits were observed. 262 (82.91%) of these were at primary care facilities and 54 visits (17.09%) were observed at hospitals. Rural facilities accounted for a little over 55% of visits observed. The Northwest region accounted for approximately 48% of observed visits, with the Southwest and East regions accounting for 37% and 15% respectively of antenatal visits observed.

Provider Characteristics and Background Questions Asked

At both primary care facilities and hospitals, antenatal care was provided by a wide variety of providers (Table 1). At the primary care level, antenatal consultations were most often performed by the nurse brevet (21.96%), followed by state registered nurses (19.22%). IDE obstetricians performed 11.37% of antenatal consultations (Table 1).

At Hospitals, IDE obstetricians (31.48%) were most likely to provide antenatal consultations, followed by medical doctors (16.67%)(Table 1). Nurse brevets and technician care nurses each performed 12.96% of antenatal consultations at the hospital level. Other health workers performed 37.65% of consultations at primary care facilities and 14.81% of consultations at the hospital level (Table 1).

Table 1: Type of health worker that provided the ante-natal consultation

	Primary care facilities (Randomized) (%) n=255	Hospitals (Non-randomized) (%) n=54
State Registered Nurse (IDE)	19.22	11.11
IDE Obstetrician	11.37	31.48
IDE Childcare	3.92	0.00
Nurse Brevet (IB)	21.96	12.96
Doctor	2.75	16.67
Technician Care Nurses	0.00	12.96
Sage-femme	3.14	0.00
Other	37.65	14.81

Activities performed by health care providers during antenatal consultations

Table 2 provides details of the activities performed by the health care provider during the antenatal consultation observed. Client's age was asked or mentioned 68.20% of the time during primary care facility visits and 83.30% of the time during hospital visits. The date of the client's last menstrual period was asked 70.60% of the time at primary care facility visits, compared to 81.50% of the time at hospital visits. Only 61.30% of respondents at primary care facilities and 67.90% of respondents at hospitals were asked or discussed the number of previous pregnancies at this antenatal visit. Even more surprising was the low level of discussion about other medication taken by the client. Under 30% of respondents at primary care facilities and 43.40% of respondents at hospitals discussed other medication taken by them with their provider (Table 2).

The data in the table shows that in more than half the cases, there appears to have been little discussion on the client's prior pregnancies (Table 2). Respondents were asked about or mentioned the occurrence of a previous stillbirth in 47.30% of visits observed at primary care facilities and 37.00% of visits at hospitals. Similarly discussion on a previous birth resulting in death of the infant within the first week of life occurred in only 34.20% of primary care facility visits and 29.60% of hospital visits. Heavy bleeding, during or after delivery and previous abortions was the aspect about prior pregnancies most frequently discussed. 48.30% of respondents at primary care facilities and 44.40% of respondents at hospitals were asked or mentioned this about their previous delivery. Similarly 40.80% of respondents at primary care facilities and 57.40% of hospital respondents were asked about previous abortions (Table 2).

Regarding the current pregnancy, perception of fetal movement was the most common question asked of the client (Table 2). 32.40% of respondents at primary care facilities and 33.30% of hospital respondents discussed fetal movement with their provider. The other specific aspects commonly discussed at the primary care level were fever (22.20%), swollen face or hands (17.2%) and headache or blurred vision (13.00%). At the hospital level, the most common discussion points were swollen face or hands (27.80%) , fever (24.10%) and headache or blurred vision (22.20%) (Table 2).

Table 2 also examines activities performed by health workers during the examination of the pregnant woman. At the primary care level, checking uterine height (98.90%), recording woman's weight (96.90%), checking fetal presentation (95.80%), recording the woman's blood pressure (94.70%), checking fetal heartbeat (94.30%) and looking at the client's health card (93.00%), were activities performed in more than 90% of the patient provider interactions observed. Only 14.90% of providers checked the vaginal/perinatal area, 59.00% examined the woman's breasts and 78.60% looked at the conjunctiva of the eye or palms for signs of edema and anemia. The proportion of respondents at primary care facilities referred for tests ranged from 43.50% for a blood grouping or Rh factor test to 73.70% for a urine test. At the hospital level, recording the woman's weight and examining the legs/feet for edema were examinations

that were uniformly performed. 98.10% of respondents had their blood pressure taken and uterine height measured. The conjunctiva/palms were examined for anemia in over 90% of cases, whereas fetal presentation (86.80%) and fetal heartbeat (81.50%) were examined less frequently than at the primary care level. This may be due to the more frequent use of ultrasonography at the hospital level when compared to primary care facilities (Table 2).

Iron-folic acid pills were administered during 87.40% of visits at primary care facilities and 85.20% of visits at hospitals (Table 2). While health workers usually explained how to take the pills, their purpose was explained in only 52.20% of cases observed at primary care facilities and at 60.90% of cases observed at the hospital level. Side effects were explained to a mere 7.40% of patients at primary care facilities and to 10.90% of cases at the hospital level. 59.20% of primary care cases and 72.20% of hospital cases were prescribed the tetanus toxoid injection, of which between 50 and 60% were explained its purpose. 68.70% of cases presenting at primary care facilities and 75.90% of those at hospital facilities were given anti-malarial prophylaxis. While 79.50% of cases at hospitals were explained the rationale behind the anti-malarial pills, only 49.20% of cases at primary care facilities were given an explanation and a negligible proportion were told of the side effects of the medication (Table 2)

In 72.50% of cases at the primary care level and 90.20 % of cases at the hospital level, the survey team observed that the first dose of intermittent preventive treatment (IPT) was administered in the facility (Table 2). The importance of the 2nd dose of IPT was explained to 32.40% of those presenting at primary care facilities and 70.70% of those presenting at hospitals. The importance of using an insecticide treated net (ITN) was explained to 28.60% of patients presenting at primary care facilities and 49.10% of patients presenting at hospitals. Close to 20% of respondents at either type of facility were given a voucher for an ITN or given a free ITN. In 57.30% of interactions at the primary care level and 51.90% of those at the hospital level, the patient and provider discussed the appropriate diet for pregnancy (Table 2).

Risk factors which should bring the pregnant woman back to the facility were discussed quite irregularly, particularly at the primary care level (Table 2). Only 46.30% of patients at the hospital level were informed to return to the facility in case of vaginal bleeding, the corresponding figure at primary care facilities was just 22.50%. Other risk factors such as fever and swollen hands and face were mentioned in about one third of patient provider interactions at the hospital level, but less than 20% of interactions at the primary care level. The client was informed about the progress of the pregnancy in 37.00% of cases at the hospital level and only 21.40% of cases at the primary care level. The health worker advised the client to use a skilled health worker for delivery in 8.80% of cases at the primary care level and 24.10% of cases at the hospital level (Table 2).

Only 17.60% of cases at the primary care level and 29.60% at the hospital level were informed about the importance of exclusive breast feeding (Table 2). Family planning was discussed at only 9.20% of patient-provider interactions at the primary care level and 22.20% of interactions

at the hospital level. The mean total duration of consultation was 30.92 minutes at the primary care level and 39.76 minutes at the hospital level (Table 2).

Table: 2 Descriptive statistics of activities performed by health care providers during antenatal consultations, primary care facilities and hospitals

		Primary care facilities		Hospitals (Non-randomized) (%)			
		(Randomized) (%)		Obsv.	Mean	SE	Obsv.
		Mean	SE				
<i>The Provider Asked About or the Client Mentioned</i>	Client's Age	0.682	0.047	261	0.833	0.087	54
	Medications taken by Client	0.292	0.039	260	0.434	0.089	53
	Date of Client's Last Menstrual Period	0.706	0.036	262	0.815	0.089	54
	Number of Prior Pregnancies	0.613	0.041	261	0.679	0.117	53
<i>The Provider or Client Discussed Aspects of Prior Pregnancies</i>	Prior Stillbirth	0.473	0.040	262	0.370	0.102	54
	Infant Dying in First Week of Life	0.342	0.037	260	0.296	0.111	54
	Heavy Bleeding , during or after Delivery	0.483	0.028	261	0.444	0.120	54
	Previous Assisted Delivery(Ventouse, Cesarean or Forceps)	0.185	0.018	260	0.130	0.052	54
	Previous Assisted Delivery	0.392	0.044	260	0.259	0.081	54
	Previous Abortions	0.408	0.034	260	0.574	0.114	54
<i>The Provider or Client Discussed Aspects of the Current Pregnancy</i>	Bleeding	0.065	0.022	262	0.204	0.087	54
	Fever	0.222	0.058	261	0.241	0.107	54
	Headache or Blurred Vision	0.130	0.034	262	0.222	0.094	54
	Swollen Face or Hands	0.172	0.038	262	0.278	0.109	54
	Tiredness or Breathlessness	0.084	0.021	262	0.111	0.052	54
	Client has felt the Baby move	0.324	0.038	262	0.333	0.097	54
	Any Other Symptoms or Problems	0.538	0.033	262	0.426	0.124	54
	Symptoms the Client thinks might be related to Pregnancy	0.179	0.027	252	0.288	0.103	52
<i>Examination</i>	Blood Pressure taken	0.947	0.028	262	0.981	0.018	54
	Weighed	0.969	0.019	262	1.000	0.000	54
	Conjunctiva/Palm Examined for Edema/Anemia	0.786	0.055	262	0.906	0.093	53
	Legs/Feet for Edema	0.885	0.046	262	1.000	0.000	53
	Fetal Presentation	0.958	0.020	260	0.868	0.078	53
	Uterine Height	0.989	0.008	261	0.981	0.018	54
	Fetal Heartbeat	0.943	0.022	261	0.815	0.083	54
	Breasts	0.590	0.070	261	0.648	0.131	54
	Vagina /Perineal Area	0.149	0.029	262	0.167	0.074	54
	Perform/Refer for Anemia Test	0.679	0.061	262	0.685	0.113	54
	Perform/Refer for Urine Test	0.737	0.044	262	0.685	0.101	54
	Blood Group or Rh Factor Test	0.435	0.058	262	0.463	0.116	54
Perform/Refer for Syphilis Test	0.536	0.048	261	0.537	0.105	54	

		Primary care facilities		Hospitals (Non-randomized) (%)			
		(Randomized) (%)		Obsv.	Mean	SE	Obsv.
		Mean	SE				
	Perform/Refer for HIV Test	0.588	0.052	262	0.500	0.112	54
	Provide or refer to Counseling for HIV Test	0.559	0.055	261	0.500	0.115	54
	Look at Client's Health Card	0.930	0.019	257	0.868	0.092	53
<i>Iron-Folic Acid</i>	Prescribed or gave Iron/Folic Acid (IFA) pills	0.874	0.018	261	0.852	0.048	54
	Explained purpose of IFA pills	0.522	0.031	228	0.609	0.118	46
	Explained how to take IFA pills	0.838	0.031	229	0.826	0.070	46
	Explained side effects of Iron pills	0.074	0.027	229	0.109	0.106	46
<i>Tetanus Toxoid</i>	Prescribed or gave Tetanus Toxoid (TT) injection	0.592	0.051	262	0.722	0.075	54
	Explained the purpose of the TT injection	0.516	0.065	157	0.590	0.135	39
<i>Anti-Malarial Prophylaxis</i>	Prescribed or gave Anti-Malarial Prophylaxis	0.687	0.043	262	0.759	0.067	54
	Explained the purpose of preventive treatment for Malaria	0.492	0.062	181	0.795	0.102	39
	Explained how to take the Anti-Malarial medications	0.808	0.040	182	0.838	0.082	37
	Explained possible side effects of Malaria pills	0.011	0.007	182	0.027	0.029	37
<i>Direct Observation</i>	Observed that 1 st dose of IPT given in facility	0.725	0.045	182	0.902	0.057	41
	Importance of 2 nd dose of IPT Explained	0.324	0.070	182	0.707	0.105	41
	Importance of using Insecticide Treated Net(ITN) Explained	0.286	0.070	262	0.491	0.123	53
	Given voucher/free ITN	0.184	0.066	261	0.196	0.095	51
	Bought ITN	0.050	0.020	261	0.000	0.000	51
	Discussed Quantity or Quality of Food to Eat during Pregnancy	0.573	0.053	262	0.519	0.124	54
<i>Mentioned Risk Factors for Women to Return to Facility</i>	Vaginal Bleeding	0.225	0.052	262	0.463	0.131	54
	Fever	0.168	0.036	262	0.352	0.136	54
	Excessive Tiredness of Breathlessness	0.027	0.011	262	0.185	0.077	54
	Swollen Hands and Face	0.122	0.026	262	0.315	0.138	54
	Severe Headache or Blurred Vision	0.111	0.035	262	0.296	0.130	54
	Informed the Client About the progress of the Pregnancy	0.214	0.038	262	0.370	0.128	54
<i>Provider Counseled the Client About</i>	Asked Client place of Delivery	0.122	0.030	262	0.259	0.108	54
	Advised Client to prepare for Delivery	0.267	0.025	262	0.593	0.110	54
	Advised Client to use a Skilled Health Worker for Delivery	0.088	0.034	262	0.241	0.113	54
	Discussed items to have at home for Delivery	0.248	0.035	262	0.463	0.105	54

		Primary care facilities		Hospitals (Non-randomized) (%)				
		(Randomized) (%)						
		Mean	SE	Obsv.	Mean	SE	Obsv.	
		Discussed Importance of Immunization for the Newborn	0.061	0.028	261	0.154	0.098	52
Provider /Discussed	Advised	Exclusive Breastfeeding for 6 months	0.176	0.058	262	0.296	0.103	54
		Family Planning after Delivery	0.092	0.033	262	0.222	0.116	54
		Asked the Client whether she had other questions	0.702	0.048	262	0.759	0.091	54
		Provider used any Visual Aids for Health Education or Counseling	0.073	0.034	262	0.352	0.137	54
		Provider Wrote on Client's Health Card	0.992	0.007	262	1.000	0.000	54
Time Taken in Minutes		1 st part of Consultation	23.373	3.201	260	27.333	3.974	54
		2 nd part of Consultation	7.696	0.740	260	12.426	3.954	54
		Total Consultation Time	30.923	3.217	261	39.759	5.134	54

Figure 1: The provider asked the client about pregnancy history, ANC direct observations

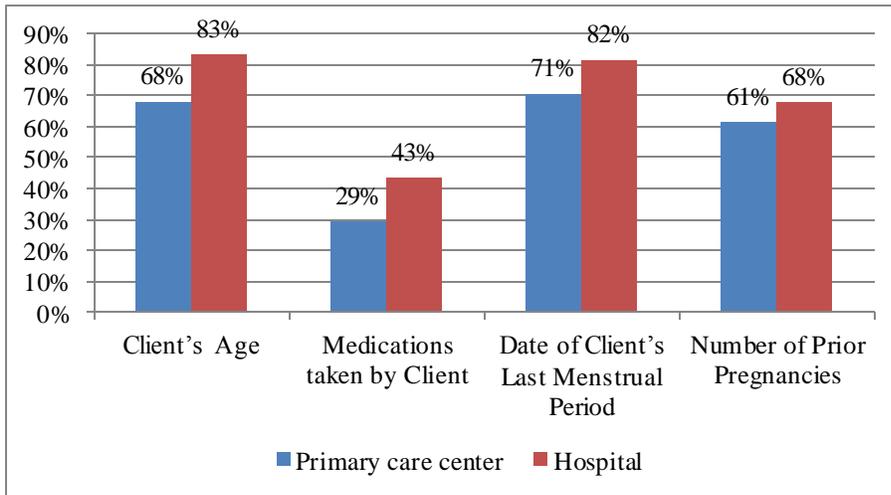


Figure 2: The provider asked the client about current pregnancy, ANC direct observations

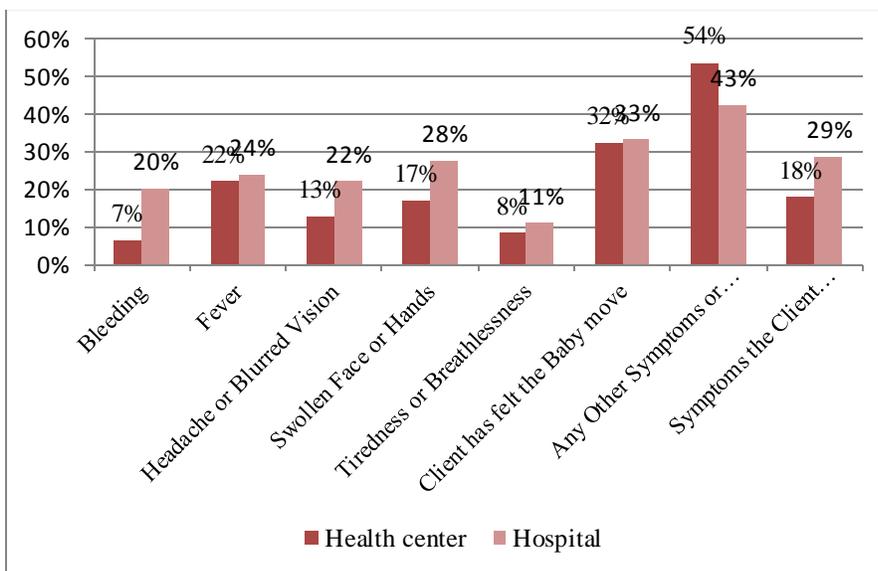


Figure 3: Actions taken during ANC consultation, ANC direct observations

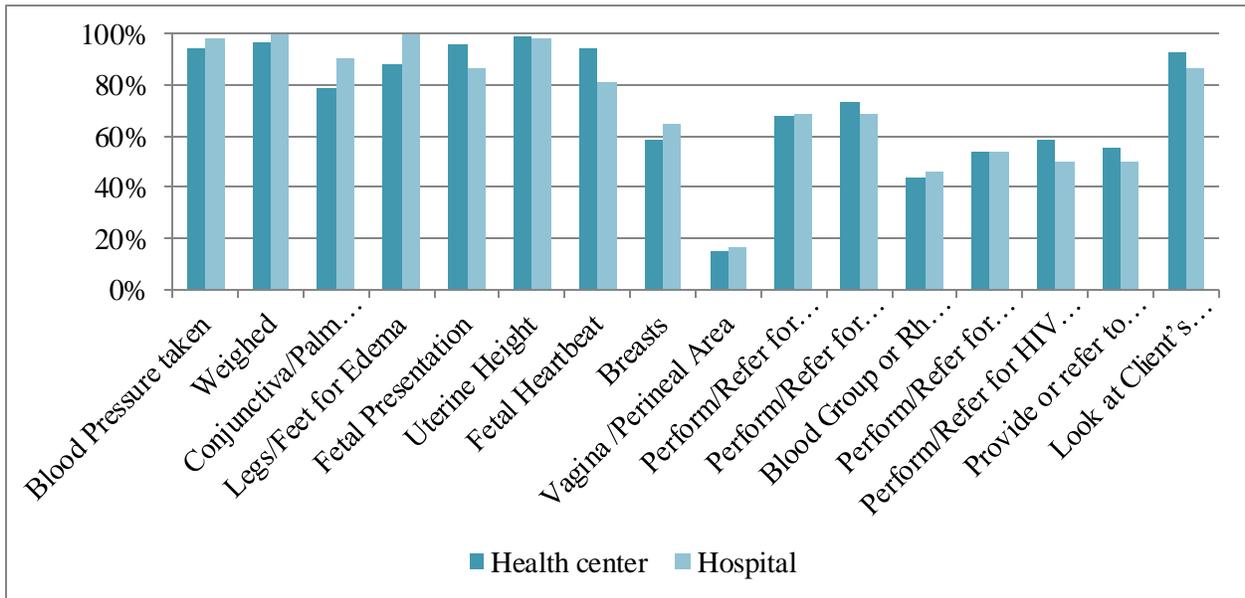


Figure 4: Actions taken during ANC consultation, ANC direct observations

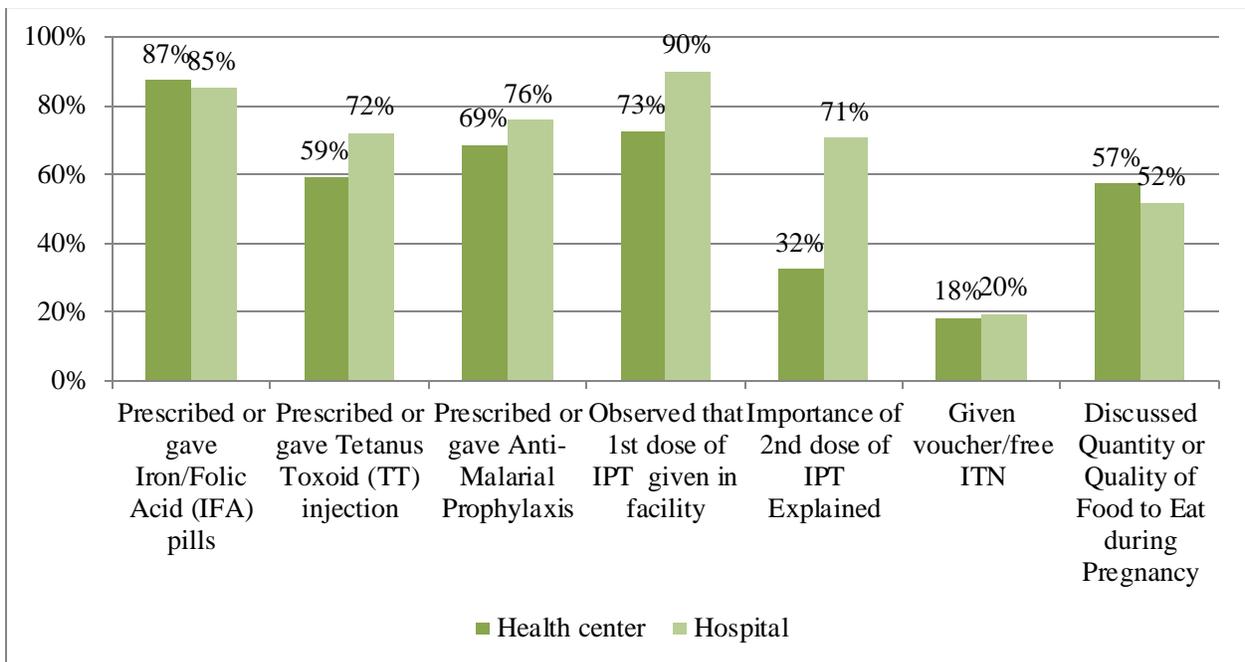
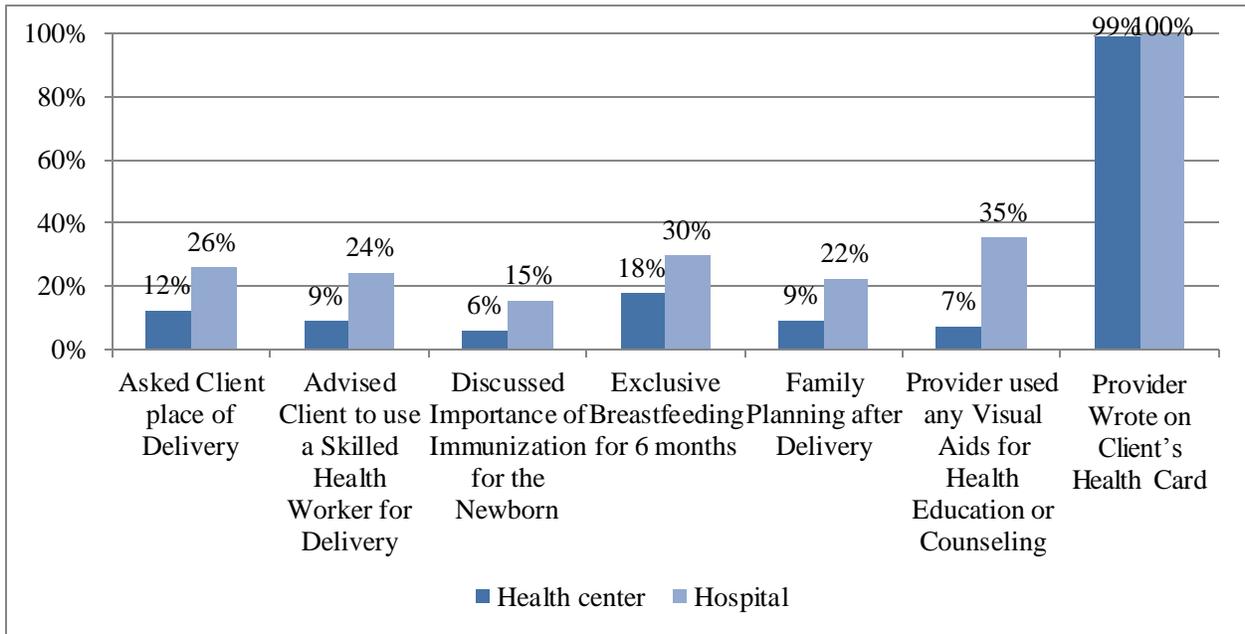


Figure 5: Counseling and advice provided by health worker, ANC direct observations



Quality of antenatal care: Patient exit interviews (F5)

This section provides information on quality of antenatal care assessed using exit interviews of patients who had just completed antenatal visits at primary care facilities and hospitals. A total of 315 exit interviews were completed, 261 (82.86%) of these were at primary care centers and 54 (17.14%) interviews were conducted at hospitals.

Patient characteristics and selected background treatment characteristics

Table 1 describes respondent characteristics at randomized and non-randomized facilities. The mean age of respondents at both facility types was similar, being 25.25 years at randomized facilities and 24.70 years at hospitals. 9.96% of patients at the primary care level had no education as opposed to 3.70% of patient at the hospital level. Overall, patients at hospitals had higher levels of education compared to patients at the primary care level. 9.26% of hospital patients had completed University and 16.67% had completed high school compared to 4.21% and 5.75% of patients at primary care level facilities respectively (Table 1).

Respondents at hospitals were more likely to be single (27.78%) compared to those at randomized facilities (19.92%) (Table 1). 78.93% of respondents at randomized facilities were married/living with their partners as compared to 70.37% of hospital respondents. The proportion of respondents widowed and those divorced/separated was similar across facility type. In line with their own, higher level of education, spouses of respondents at the hospital level had higher levels of education compared to the spouses of primary care level respondents. 18.92% of spouses of hospital level respondents had completed high school and 21.62% had University level education as opposed to 12.63% and 7.37% of spouses of primary care level respondents respectively (Table 1).

Table 2 provides information on background characteristics of respondents as well as information on the facility visit. The literacy rate among those visiting hospitals (87.00%) was much higher than patient literacy at the primary care level (72.60%). The mean number of health workers providing care at the facility was not significantly different across facility type. The mean number of doses of intermittent preventive therapy (IPT) received against malaria was 0.95 at the primary care level and 0.89 at the hospital level. The patient was in her first pregnancy, 27.60% of the time at the primary care level and 36.50% of the time at the hospital level. Patients had made on average, 3.04 antenatal visits at primary care facilities and 2.83 visits at hospitals.

Weight was taken during 98.90% of visits at the primary care level and 98.10% of visits at the hospital level. Height was measured less than 25% of the time at either level of facility. Blood pressure was measured at 93.10% of primary care visits and 87.00% of hospital visits. Urine sample was given at 71.30% of visits at primary care centers and 66.70% of visits at hospitals. Blood samples were given at 75.90% of visits at primary care centers and exactly two thirds of

visits at hospitals. Stomach palpation and measurement of uterine height were performed in over 90% of visits, irrespective of facility type. Delivery date was estimated at 82.80% of primary care visits and 90.70% of hospital visits (Table 2).

Blood type was asked inconsistently, with only 50.00% of hospital respondents and 36.50% of primary care respondents being asked this question (Table 2). Dietary advice was not given universally. 87.70% of respondents at primary care facilities were given iron-folic acid tablets and 65.50% were given anti-malarials, the corresponding figures for hospitals were 83.30% and 63.00% (Table 2).

73.60% of respondents at the primary care level and 74.10% at the hospital level owned an insecticide treated bed net (ITN), with the ITN being used the night prior to the survey by 78.90% of primary care level respondents and 62.50% of hospital level respondents (Table 2). 83.10% of respondents at the primary care level and 81.50% at the hospital level had ever taken a tetanus toxoid immunization, both groups had taken a mean of approximately 2.8 tetanus immunizations over their lifetime (Table 2).

Only 31.40% of respondents at the primary care level and 46.30% of hospital level respondents were informed of the danger signs of pregnancy (Table 2). Family planning was discussed by a mere 10.00% of respondents at the primary care level and 16.70% of respondents at the hospital level (Table 2).

The mean distance from the respondent's home to the facility was 3.37 km in the case of primary care facilities and 7.54 km in the case of hospitals, the mean travel time was similar, this is probably because hospital respondents were less likely to walk to the facility compared to primary care respondents (Table 2). 21.10% of primary care level respondents and 31.50% of hospital respondents felt that the waiting time to see a provider was too long and 68.60% of primary care respondents paid a consultation fee at the facility compared to just 48.10% of hospital respondents. The amount paid at the facility (1016.79 CFA) was higher in the case of primary care facilities than at hospitals (904.00 CFA). This difference is probably explained by the fact that a much smaller proportion of respondents at the hospitals paid any fee, bringing the average fee down. 16.90% of respondents at the primary care level paid an additional amount of money directly to the provider compared to 5.60% of hospital respondents. However, of those who paid an additional amount, the amount paid at hospitals (1766.67 CFA) was much higher than the amount paid at primary care facilities (775.58 CFA) (Table 2).

A laboratory test was performed on 74.30% of respondents at primary care facilities and 72.20% of hospital respondents, leading to mean expenditures of 3567.06 CFA and 4383.33 CFA at the primary care and hospital level respectively (Table 2). 82.40% of primary care respondents and 77.80% of hospital respondents were dispensed medicines. These cost a mean of 1396.52 CFA at the primary care level and 935.00 CFA at the hospital level. Total expenses for the visit,

excluding transportation amounted to 4670.66 CFA for primary care visits and 4931.51 CFA for hospital visits (Table 2).

None of the respondents at the primary care level and a mere 1.90% of respondents at the hospital level were covered under any health insurance scheme (Table 2). A similar proportion of respondents at the primary care (34.50%) and hospital levels (35.20%) knew of any community health workers in their community. Finally, a similar proportion of respondents at primary health centers (14.20%) and hospitals (15.20%) knew any traditional birth attendants in their communities (Table 2).

Table 1: Respondent characteristics for antenatal care

	Randomized Facilities n=261 (%)	Non-Randomized Facilities (Hospitals) n=54 (%)
Age	25.25	24.70
<i>Highest level of education of patient</i>		
None	9.96	3.70
Primary	47.13	24.07
Secondary school	32.95	46.30
High school	5.75	16.67
University	4.21	9.26
<i>Marital status</i>		
Single	19.92	27.78
Married/Living together	78.93	70.37
Widowed	0.77	1.85
Divorced/Separated	0.38	0.00
<i>Highest level of education of spouse/partner</i>		
None	7.37	0.00
Primary	38.42	21.62
Secondary school	34.21	37.84
High school	12.63	18.92
University	7.37	21.62

Table: 2 Background characteristics and activities performed by health workers during antenatal consultations

	Primary care facilities (Randomized)			Hospitals (Non-randomized)		
	Mean	SE	Obsv.	Mean	SE	Obsv.
Age of patient (yrs)	25.253	0.374	261	24.704	0.778	54
Patient is literate	0.726	0.057	259	0.870	0.046	54
Number of Health Workers Providing Care at Facility	2.716	0.200	261	2.444	0.238	54
Received IPT against malaria (mean doses received)	0.946	0.053	261	0.889	0.126	54
First pregnancy of patient	0.276	0.027	261	0.365	0.082	52
First Antenatal Visit to this facility	0.609	0.042	261	0.556	0.120	54
Total Antenatal Visits (this facility)	3.039	0.157	102	2.833	0.244	24
Total Antenatal Visits (other facilities)	0.202	0.065	258	0.519	0.204	54
Weight taken	0.989	0.005	261	0.981	0.018	54
Height measured	0.238	0.062	260	0.222	0.109	54
Blood pressure taken	0.931	0.031	261	0.870	0.085	54
Urine sample given	0.713	0.050	261	0.667	0.104	54
Blood sample given	0.759	0.064	261	0.667	0.119	54
Delivery Scheduled on this visits	0.567	0.068	261	0.741	0.076	54
Stomach palpated	0.966	0.015	261	1.000	0.000	54
Delivery date estimated	0.828	0.030	261	0.907	0.041	54
Uterine height measured	0.958	0.010	260	0.926	0.070	54
Blood type asked	0.360	0.052	261	0.500	0.118	54
Diet advice given	0.556	0.068	261	0.537	0.127	54
Iron- Folic Acid	0.877	0.026	261	0.833	0.055	54
Given Anti Malarials	0.655	0.054	261	0.630	0.061	54
Owns ITN	0.736	0.043	261	0.741	0.065	54
Slept under ITN last night	0.789	0.026	190	0.625	0.089	40
Offered free ITN by health worker	0.215	0.074	261	0.130	0.093	54
Health Worker Offered to sell ITN	0.004	0.004	261	0.019	0.018	54
Health Worker Asked about TT shot	0.596	0.050	260	0.815	0.099	54
Ever taken TT shot	0.831	0.029	261	0.815	0.083	54
Total TT shots ever taken	2.828	0.117	215	2.814	0.260	43
Informed about danger signs of pregnancy	0.314	0.047	261	0.463	0.128	54
Health Worker talked about Family Planning	0.100	0.037	261	0.167	0.111	54
Health Worker discussed Family Planning method	0.077	0.028	261	0.093	0.091	54
Distance of household from facility in km.	3.365	0.900	255	7.538	2.006	52
One way travel time to facility in minutes	28.669	4.454	260	23.611	2.979	54

	Primary care facilities (Randomized)			Hospitals (Non-randomized)		
	Mean	SE	Obsv.	Mean	SE	Obsv.
One way travel cost to facility (FCFA)	287.556	43.540	135	532.051	119.923	39
Waiting time was long	0.211	0.045	261	0.315	0.091	54
Paid consultation fee at facility	0.686	0.045	261	0.481	0.110	54
Amount paid at facility (FCFA)	1016.792	126.1227	173	904	302.7399	25
Additional money paid directly to provider (yes/no)	0.169	0.052	261	0.056	0.039	54
Amount additional payment (FCFA)	775.5814	239.7378	43	1766.667	1044.444	3
Laboratory Test Done	0.743	0.063	261	0.722	0.101	54
Amount Laboratory Test (FCFA)	3567.063	713.8846	189	4383.333	920.0241	39
Ultrasound Done	0.019	0.011	260	0.056	0.038	54
Amount Ultrasound (FCFA)	5250.000	625.000	4	7333.333	888.889	3
Medicines Dispensed	0.824	0.039	261	0.778	0.069	54
Amount Medicines (FCFA)	1396.522	208.0961	207	935	154.575	42
Total Expenditures at facility excluding transport (FCFA)	4670.661	760.6673	257	4931.509	1005.256	53
Covered under Health Insurance	0.000	0.000	261	0.019	0.018	54
Know of any CHWs in community	0.345	0.039	261	0.352	0.088	54
Availed CHW services at facility (last month)	0.111	0.031	90	0.368	0.117	19
Availed CHW services at home (last month)	0.289	0.054	90	0.263	0.095	19
Availed CHW services elsewhere (last month)	0.100	0.040	90	0.263	0.116	19
Know any TBAs in community	0.142	0.036	232	0.152	0.059	46

Table 3 reflects the inadequate involvement of pregnant women in their own care in the Cameroonian health system. Only 31.18% of respondents at primary care facilities and 44.64% of hospital respondents were informed about signs of pregnancy complications. Of those informed of any danger signs, the most commonly mentioned ones at both the primary care and hospital level were vaginal bleeding, fever and severe pain in the lower belly, though the proportion of respondents able to recall these was much lower at the primary care level than at the hospital. Only a small proportion of respondents at primary care facilities could recall important danger signs such as blurred vision (6.10%), reduced or absent fetal movements (8.54%), leakage or break of the water bag (9.76%). At the hospital level too, there was wide variation in the ability of respondents to recall these danger signs (Table 3).

In the vast majority of cases, patients experiencing any of these danger signs were informed to return to the facility (Table 3). Decrease in activity was advised to 2.44% of respondents at primary care facilities and 4.00% of respondents at the hospital level (Table 3). The findings from this table highlight the need for increased and improved training of health workers at peripheral facilities in both basic and emergency obstetric care.

Table 3: Danger signs of pregnancy, primary care facilities and hospitals

	Primary care facilities (Randomized)		Hospitals (Non-randomized)	
	(%)	Obsv.	(%)	Obsv.
Did the health worker talk with you about any signs of pregnancy complications?	31.18	263	44.64	56
% respondents able to mention each sign without prompting				
Any Vaginal Bleeding	69.51	82	79.17	25
Fever	32.93	82	68.00	25
Swollen Face, Hands or Legs	20.73	82	32.00	25
Tiredness or Breathlessness	4.88	82	24.00	25
Severe Headache	19.51	82	56.00	25
Blurred Vision	6.10	82	16.00	25
Convulsions	0.00	82	16.00	25
Light Headedness/ Dizziness/Blackout	2.44	82	0.00	25
Severe Pain In Lower Belly	23.17	82	56.00	25
Baby Stops Moving or Reduced	8.54	82	16.00	25
Bag Of Water Breaks or Leaks	9.76	82	48.00	25
Difficulty Breathing	0.00	82	4.00	25
Other	6.10	82	16.00	25
Actions advised by health worker if respondent experiences any danger signs				
Seek Care at Facility	97.56	82	92.00	25
Decrease Activity	2.44	82	4.00	25
Change Diet	0.00	82	0.00	25
Other	1.22	82	0.00	25

Table 4 reinforces the need for better communication regarding family planning at both the primary care and hospital level. Only 7.66% of respondents at primary care facilities and 9.26% of respondents at hospitals mentioned discussing specific methods of family planning with the health worker after the birth of their baby. When family planning was discussed, the method most frequently mentioned at the primary care level was the male condom (80.00%) followed by injectable contraceptives (30.00%). Hospital respondents were able to mention a wide range of methods available to them, though the small sample size in this group means that the results should be interpreted with caution (Table 4).

Table 4: Family planning advice during antenatal consultation

	Primary care facilities (Randomized)		Hospitals (Non-randomized)	
	(%)	Obsv.	(%)	Obsv.
Did a health worker talk with you about using family planning after the birth of your baby?	7.66%	261	9.26%	54
% respondents able to mention each method without prompting				
Female Sterilization	5.00	20	100.00	5
Male Sterilization	0.00	20	100.00	5
Contraceptive Pill	25.00	20	100.00	5
Intrauterine Device (IUD)	0.00	20	100.00	5
Injectable Contraceptives	30.00	20	100.00	5
Implants	5.00	20	100.00	5
Male Condoms	80.00	20	100.00	5
Female Condoms	25.00	20	100.00	5
Diaphragm	0.00	20	40.00	5
Foam / Jelly	0.00	20	0.00	5
Lactational Amenorrhea	20.00	20	0.00	5
Rhythm Method	5.00	20	0.00	5
Withdrawal	5.00	20	0.00	5
Other	5.26	19	0.00	5

Table 5 examines the main mode of transport used by patients to reach the facility on the day of the interview. 48.84% of respondents at the primary care level walked to the health facility. The corresponding figure for hospitals was 27.78%. This is not surprising, given that the mean distance from the facility to respondent's homes was 7.54km for hospitals as opposed to 3.37km for primary care facilities. At the primary care level, 16.28% of respondents used a public car/bus to access the facility and 12.02% used a private motorcycle. Public car/bus was used to access the facility by 40.74% of hospital respondents. 9.26% of these respondents used a private motorcycle and 5.56% used a private care to access the health facility (Table 5).

Table: 5 Primary mode of transportation to health facility on day of interview, % respondents traveling by each mode), primary care facilities and hospitals

	Primary care facilities (Randomized) (%) n=258	Hospitals (Non- randomized) (%) n=54
By foot	48.84	27.78
Bicycle	1.94	0.00
Animal	0.00	0.00
Private car	1.16	5.56
Private motorcycle	12.02	9.26
Public car/Bus	16.28	40.74
Other	19.77	16.67

At both primary care facilities and hospitals, savings or the regular household budget was the most common source of money for paying for antenatal care (Table 6). For partners living separately, the partner or father of the child paid for the visit in 33.88% of cases at the primary care level and 29.79% of cases at the hospital level. Other members of the family paid for the visit in 14.46% of primary care visits and 12.77% of hospital visits. The sale of household possessions was a source of money for a small fraction of respondents. None of the respondents paid for the visit using credit or through a health insurance mechanism (Table 6).

Table: 6 Source of money used to pay for health services on day of interview, % respondents using each source), primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Obsv.	Hospitals (Non- randomized) (%)	Obsv.
Savings or regular household budget (for partners living together)	46.50	243	51.06	47
Partner/child father (for partners living separately)	33.88	242	29.79	47
Member of the family	14.46	242	12.77	47
Friends	10.74	242	6.38	47
credit	0.00	241	0.00	47
Selling household possessions	0.41	241	2.13	47
Health Insurance	0.00	241	0.00	47

Table 7 examines the most important reason behind facility choice for respondents at both primary care facilities and hospitals. For respondents at the primary care level, location close to home (48.28%), trust in providers/ high quality (29.12%) and low cost (7.66%) were the most commonly cited reasons for choosing the given facility. For hospital respondents, location close

to home (29.63%) was less important than trust in providers/ high quality (42.59%). Recommendation of others (12.96%) was important to a far greater proportion of respondents than low cost, which was mentioned as the most important reason by a mere 3.70% of respondents (Table 7).

Table 7: Most important reason respondent chose the facility, primary care facilities and hospitals

	Primary care facilities (Randomized) (%) n=261	Hospitals (Non- randomized) (%) n=54
Location Close to Home	48.28	29.63
Low Cost	7.66	3.70
Trust In Providers / High Quality	29.12	42.59
Availability of Drugs	1.92	1.85
Availability of Female Provider	0.38	0.00
Recommendation	6.13	12.96
Referral	1.15	1.85
Other	5.36	7.41

Patient satisfaction

Overall patient satisfaction with facilities was high, particularly at the primary care level. 93.87% of respondents at primary care facilities and 83.33% of hospital respondents felt that the overall quality of services provided was satisfactory (Table 8, Appendix 4, Table A3). 95.02% of respondents felt that the facility staff was courteous and respectful and 90.80% each felt that health workers did a good job of explaining their condition and facility hours were adequate to meet their needs. 90.42% were of the opinion that it was easy to get the medicine that health workers prescribed (Table 8).

On the other hand 13.65% of respondents felt that it was inconvenient to travel from their homes to the health facility, 13.04% felt that lab fees charged at the facility were not reasonable and 10.73% of respondents were of the opinion that the time they had to wait to see the health worker was not reasonable (Table 8). Details of patient satisfaction at the hospital level are provided in Appendix 4, Table A3.

Table 9 examines patient perceptions of security and trust in the health facility at the primary care level. More than 95% of respondents were of the opinion that health workers at the facility were honest and respected their patients. 93.10% felt that they were extremely thorough and careful and 92.34% believed that health workers at the facility were friendly and approachable. 23.35% of respondents expressed concern at the security situation in the health facility area, and agreed that it was a barrier to facility usage by the community and 22.05% of respondents felt that health workers at the facility acted differently towards rich people and poor people (Table 9).

Table : 8 Patient satisfaction with health care facility, primary care facilities

	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Not Applicable (%)	Observations
It is convenient to travel from your house to the health facility	73.09	9.64	13.65	3.61	249
The health facility is clean	78.54	14.56	6.90	0.00	261
The health staff are courteous and respectful	95.02	3.83	1.15	0.00	261
The health workers did a good job of explaining your condition	90.80	7.66	1.53	0.00	261
It is easy to get medicine that health workers prescribe	90.42	6.13	2.68	0.77	261
The registration fees of this visit to the health facility were reasonable	74.02	15.35	4.72	5.91	254
The lab fees of this visit to the health facility were reasonable	61.26	15.81	13.04	9.88	253
The medication fees of this visit to the health facility were reasonable	71.76	14.12	9.41	4.71	255
The transport fees for this visit to the health facility were reasonable	59.11	14.57	10.12	16.19	247
The health workers don't ask for presents as additional payment	88.89	1.15	9.96	0.00	261
The amount of time you spent waiting to be seen by a health provider was reasonable	74.33	14.94	10.73	0.00	261
You had enough privacy during your visit	87.74	6.13	6.13	0.00	261
The health worker spent a sufficient amount of time with you	83.91	11.88	4.21	0.00	261
The hours the facility is open are adequate to meet your needs	90.80	8.05	0.77	0.38	261
The overall quality of services provided was satisfactory	93.87	5.36	0.77	0.00	261

Table: 9 Patient’s perceptions on security and trust with the facility, primary care facilities

	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Not Applicable (%)	Observations
The level of security in the health facility area makes it difficult for people in the community to use available health services	23.35	19.84	55.64	1.17	257
The health workers in this facility are honest and respect patients	95.40	3.83	0.77	0.00	261
The health workers in this facility are extremely thorough and careful	93.10	6.51	0.38	0.00	261
You trust in the skills and abilities of the health workers of this facility	91.92	7.69	0.38	0.00	260
You completely trust the health worker’s decisions about medical treatments in this facility	90.80	8.43	0.77	0.00	261
The health workers in this facility are very friendly and approachable	92.34	6.90	0.77	0.00	261
The health workers in this facility are easy to make contact with	88.51	10.73	0.77	0.00	261
The health workers in this facility care about your health just as much or more than you do	79.62	14.62	5.77	0.00	260
The health workers in this facility act differently toward rich people than toward poor people	22.05	12.60	64.57	0.79	254

Between 14 and 15% of respondents at primary care and hospital level facilities were provided services by the Community Health Worker (CHW) in the month leading up to the survey (Table 10). The services most commonly provided at the primary care level were health education and promotion (59.46%) and the provision of preventive anti-malarial pills (21.62%). At the hospital level, health education and promotion was the most common service provided (62.50%). The provision of tetanus toxoid immunization, preventive anti-malarial pill distribution and information on danger signs during pregnancy were services provided to 12.50% of respondents respectively (Table 10).

Table: 10 Services provided by community health workers, primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Obsv.	Hospitals (Non-randomized) (%)	Obsv.
In the last month, has any community health worker provided services to you while you were elsewhere in your community?	14.18	261	14.81	54
<i>Types of services the community health worker provided in the month preceding the survey</i>				
Provide Iron / Folic Acid Tablets	5.41	37	0.00	8
Provide Tetanus Toxoid Immunization	2.70	37	12.50	8
Provide Preventive Anti-malarial Pills	21.62	37	12.50	8
Information On Danger Signs During Pregnancy	0.00	37	12.50	8
Advice On Exclusive Breastfeeding	0.00	37	0.00	8
Health Education Or Promotion	59.46	37	62.50	8
Referral To Health Facility	0.00	37	0.00	8
Other	23.68	37	25.00	8

Table 11 examines knowledge and utilization of traditional birth attendants (TBA) by respondents. A similar proportion of respondents at the primary care level and hospital level were aware of TBAs in their communities. However, of those aware, a far greater proportion (28.57%) of hospital respondents had used TBA services in the month leading up to the survey, compared to respondents at the primary care level (6.06%) (Table 11).

Table 11: Utilization of TBA services in the community, primary care facilities

	Primary care facilities (Randomized) (%)	Obsv.	Hospitals (Non-randomized) (%)	Obsv.
Do you know of any traditional birth attendants in your community	14.22	232	15.22	46
Have you used Traditional Birth Attendant services in the last month?	6.06	33	28.57	7

Quality of external consultations for children under five years of age: Direct observations (F4)

A total of 230 external consultations were observed for children under the age of five years. 188 (81.74%) of these were at primary care facilities and 42 (18.26%) of them were at hospitals. 46 (20%) of the consultations were observed at facilities in the East region. 85(36.96%) consultations were observed in the Northwest region and 99 consultations (43.04%) were observed in the Southwest region. 53.91% of consultations occurred at rural facilities and 46.09% of consultations were observed at urban facilities.

Health Worker Characteristics

Table 1 displays the type of health workers providing consultations for under five patients at primary care facilities and hospitals. Directors or the chiefs of the health unit were responsible for 24.19% of the consultations at primary care facilities and 11.90% of hospital consultations. Nursing aides, state registered nurses and brevete nurses were responsible for 19.89%, 14.52% and 13.98% of consultations provided to patients under the age of five years respectively. By contrast, 78.57% of hospital consultations were provided by medical doctors, with state registered nurses responsible for a mere 4.76% of consultations (Table 1).

Table: 1 Type of Health Worker providing external consultations for under-5 patients, % for each category

	Primary care facilities (Randomized) (%) n=186	Hospitals (Non-randomized) (%) n=42
Director or Chief of Health Unit	24.19	11.90
Medical Doctor	8.06	78.57
Senior Nurse	0.00	2.38
Chief Nurse- Pediatrics	0.00	2.38
Chief Nurse-Surgery	0.54	0.00
State Registered Nurse(IDE)	14.52	4.76
State Registered Nurse- Nursery	1.08	0.00
TMS-ENT	0.54	0.00
Brevete Nurse	13.98	0.00
Assistant Midwife	4.30	0.00
Laboratory Technician Assistant	4.30	0.00
Nursing Aides	19.89	0.00
Others	8.60	0.00

Treatment Characteristics

Table 2 displays primary and secondary presenting complaints made by caregivers of patients under the age of five years at both primary care facilities and hospitals. Fever was the most common primary complaint at both levels of facilities being mentioned by 29.79% of respondents at primary care facilities and 28.57% of respondents at hospitals as their chief complaint. It was also the most common secondary complaint across facility type. Cough or difficulty in breathing was the second most common primary complaint at the primary care level (24.47%) and at hospitals (19.05%). It was also the second most common secondary complaint, mentioned by 23.37% of patients at primary care facilities and 21.43% of hospital respondents. Diarrhoea was the third most common primary and secondary complaint across facility type. Pain in the ear/ otitis media and injury were relatively less common complaints. Other complaints, not specifically mentioned in the survey instrument accounted for 15.43% and 26.19% of primary complaints at the primary care and hospital level respectively and over 30% of secondary complaints at both facility levels (Table 2).

Table: 2 Primary and secondary complaints or symptoms for external consultations for under-5 patients, % for each category

	Primary complaint		Secondary complaint	
	Primary care facilities (Randomized) (%) n=188	Hospitals (Non-randomized) (%) n=42	Primary care facilities (Randomized) (%) n=185	Hospitals (Non-randomized) (%) n=42
Diarrhea	15.96	11.90	7.91(n=177)	4.88 (n=41)
Fever	29.79	28.57	24.73(n=182)	33.33
Cough/Difficulty in Breathing	24.47	19.05	23.37(n=184)	21.43
Skin Disease	12.23	9.52	5.98(n=184)	4.76
Tonsillitis/ Sore Throat	0.00	0.00	0.00	0.00
Pain in Ear/ Otitis Media	0.53	2.38	1.08	0.00
Injury	1.60	2.38	0.00	4.76
Other	15.43	26.19	31.35	35.71

The completeness of history taking and examination for common presenting complaints is displayed in Table 3. The health worker asked about diarrhea in 56.90% of cases presenting at primary care facilities and 50.00% of cases presenting at the hospital level. Among those who had diarrhea, the health worker asked about the duration of diarrhea in 97.10% of cases at primary care facilities and 100.00% of cases at the hospital level. History of blood in stool was asked in only 61.80% of cases at the primary care level and 62.50% of cases at the hospital level. There appears to be considerable scope for improvement in examination of patients reporting with diarrhea. Skin pinch was checked in only 38.20% of diarrhea cases reporting at the primary care level and in none of the cases at the hospital level (Table 3).

Care givers were questioned about cough/ difficulty in breathing in 72.00% of cases at the primary care level and 59.50% of cases at the hospital level (Table 3). Among those who had a cough/difficulty in breathing, duration of cough was asked in 90.80% of primary care visits and 89.50% of hospital visits. There exists much scope for more complete history taking and examination. Health workers asked about stridor/wheeze in only 21.80% of cases at the primary care level and 31.60% of cases at the hospital level. There was a great amount of variation in carrying out basic examination steps. Health workers at primary care facilities listened to the chest using a stethoscope in 46.50% of cases and checked the patient's respiratory rate in only 39.10% of cases. Even though hospitals performed better on these indicators, there needs to be greater emphasis placed on health workers carrying out these basic steps in all cases (Table 3).

Among fever patients, temperature was checked in 90.70% of cases at the primary care level and 84.00% of cases at the hospital level (Table 3). Duration of fever was enquired about in 82.40% of cases at the primary care level and 84.00% of cases at the hospital level. In only 7.00% of cases at the primary care level and 11.90% of cases at the hospital level were caregivers asked about the child's history of measles. Examination of the child for a rash, looking at the patients eyes and looking for a runny nose were not routinely performed. Summarizing these findings, it appears that history taking and basic examination were inadequate. Health workers were not doing enough to rule out important conditions that would be missed by not asking these questions and carrying out basic examination steps (Table 3).

Given the lack of importance given to complete history taking and examination, the findings in Table 4 should not come as a surprise. Health workers failed to provide patients with a specific diagnosis in over 50% of cases where the patient had diarrhea, fever or cough or difficulty in breathing. 51.52% of diarrhea cases were not provided a diagnosis, 12.12% were diagnosed with amoebiasis, 9.09% each were diagnosed as having moderate or severe dehydration and 3.03% were diagnosed as having no dehydration. 66.27% of patients with cough or difficulty in breathing were not given a diagnosis. 13.25% were diagnosed as cases of severe pneumonia, 9.64% were diagnosed as suffering from bronchiolitis and 4.82% were informed that they did not have pneumonia. Of those who had fever, 34.83% were diagnosed to have malaria with 55.62% not being provided any diagnosis. Rhinitis (1.12%), Measles (0.56%) and very severe febrile disease (0.56%) were some of the other diagnosis provided (Table 4).

Table 3: History taking and examination for various illnesses for under-5 patients, primary care facilities and hospitals

	Primary care facilities (Randomized) (%)			Hospitals (Non-randomized) (%)		
	Mean	SE	Obsv.	Mean	SE	Obsv.
<i>Diarrhea</i>						
Health Worker Asked About Diarrhea	0.569	0.032	188	0.500	0.077	42
Patient Has Diarrhea	0.181	0.046	188	0.190	0.054	42
Health Worker Asked Duration of Diarrhea	0.971	0.026	34	1.000	0.000	8
Health Worker Asked About Blood in Stools	0.618	0.097	34	0.625	0.198	8
Health Worker Checked Skin Pinch	0.382	0.105	34	0.000	0.000	7
<i>Complaints of Cough/Difficulty in Breathing</i>						
Health Worker Asked About Cough/Difficulty Breathing	0.720	0.042	186	0.595	0.114	42
Patient has Cough/Difficulty Breathing	0.463	0.026	188	0.452	0.053	42
Health Worker Asked Duration of Cough/Difficulty Breathing	0.908	0.034	87	0.895	0.076	19
Health Worker Asked Stridor/Wheezing	0.218	0.055	87	0.316	0.123	19
Health Worker Checked Respiratory Rate	0.391	0.084	87	0.579	0.115	19
Health Worker Lifted Shirt	0.563	0.066	87	0.556	0.170	18
Health Worker listened with Stethoscope	0.465	0.083	86	0.895	0.076	19
<i>Fever</i>						
Health Worker Asked About Fever in past 24 hours	0.803	0.046	188	0.810	0.069	42
Patient Had Fever in past 24 hours	0.574	0.033	188	0.595	0.076	42
Health Worker Checked Temperature	0.907	0.040	107	0.840	0.089	25
Asked Duration of Fever	0.824	0.052	108	0.840	0.089	25
Asked for History of Measles	0.070	0.021	187	0.119	0.062	42
Checked Fontanelle	0.086	0.032	175	0.095	0.053	42
Examined Patient's Eyes	0.636	0.060	187	0.500	0.101	42
Looked for Runny Nose	0.342	0.053	187	0.500	0.131	42
Looked for Rash	0.290	0.043	186	0.381	0.058	42

Table: 4 Diagnosis provided by health worker for under-5 cases, % for each category

	Primary care facilities (Randomized) (%)	Hospitals (Non-randomized) (%)
<i>Diarrhea</i>	<i>n=33</i>	<i>n=8</i>
No Diagnosis Mentioned	51.52	50.00
Severe Dehydration	9.09	0.00
Moderate Dehydration	9.09	0.00
No Dehydration	3.03	12.50
Typhoid	0.00	12.50
Amoebiasis	12.12	12.50
Other	15.15	12.50
<i>Coughing or difficulty breathing</i>	<i>n=83</i>	<i>n=19</i>
No Diagnosis Mentioned	66.27	68.42
Severe Pneumonia	13.25	0.00
Bronchiolitis	9.64	26.32
No Pneumonia	4.82	0.00
Other	6.02	5.26
<i>Fever</i>	<i>n=178</i>	<i>n=42</i>
No Diagnosis Mentioned	55.62	40.48
Very Severe Febrile Disease	0.56	0.00
Malaria	34.83	35.71
Flu	0.00	2.38
Rhinitis	1.12	0.00
Measles	0.56	2.38
Other	7.30	19.05

Explanation to caregivers about care for the child at home was provided in a minority of cases (Table 5). Only 42.55% of caregivers at primary care facilities and 47.62% of those at hospitals were provided instructions on what to do for the child at home. In the cases where instructions were given, the most common specific instruction was to avoid giving medications other than those prescribed at that visit (28.75%), to continue or increase feeding or breastfeeding (26.25%) and to keep the child warm(13.75%). Other instructions included administering more fluids and giving the child tepid baths for fever. Avoiding other medication was the most common instruction given at the hospital level (50.00%), followed by advice to administer more fluids to the child (30.00%) and continue or increase feeding or breastfeeding (20.00%) (Table 5).

Table 5: Health workers advice (% for each statement), primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Obsv.	Hospitals (Non-randomized) (%)	Obsv.
Does the health worker explain what the mother/caretaker should do at home for the child?	42.55	188	47.62	42
<i>Advice to patient's caretaker</i>				
Give more fluids	12.50	80	30.00	20
Continue or Increase Feedings and /or Breast Feeding	26.25	80	20.00	20
Tepid Baths for Fever	6.25	80	15.00	20
Keep the Child Warm	13.75	80	5.00	20
Avoid giving medications other than those prescribed today	28.75	80	50.00	20
Other	45.00	80	45.00	20

Over 90% of patients at both the primary care and hospital levels were given a prescription of medication to administer to the child at home (Table 6). 97.67% of primary care cases and 92.11% of hospital cases who were given prescriptions were explained how to take their medicines. However, only approximately 70% of caregivers at either level of facility were told the name of the medicine they were being prescribed. A mere 1.75% of caregivers at primary care facilities and 2.63% of caregivers at the hospital level were informed about the possible side effects of the medication that they were administering to the child and how to address these side effects (Table 6).

Table 6: Health worker information about prescription (% for each statement), primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Obsv.	Hospitals (Non-randomized) (%)	Obsv.
Does the health worker give mother/caretaker a prescription or medicine to give at home?	91.49	188	90.48	42
<i>Information on prescription</i>				
Tell mother/caregiver the name of medicine	70.35	172	71.05	38
Explain how to take medicine	97.67	172	92.11	38
Informs about side effects and how to address them	1.75	171	2.63	38

In line with the findings in the tables above, Table 7 reflects the relatively low extent to which health workers involve caregivers in the management of the sick child. Caregivers were informed

of danger signs to look out for in only 14.89% of cases at primary care facilities and 28.57% of cases at hospital facilities. The most common danger sign mentioned at both the primary care and hospital level was fever, either its appearance or persistence. Change in fever pattern was mentioned as a danger sign in 82.14% of cases at the primary care level and 58.34% of cases at the hospital level. The persistence of diarrhea was mentioned as a danger sign in 17.86% of cases at the primary care level and 8.33% of cases at the hospital level. Non-specific advice, which classified the appearance of new symptoms as a danger sign was mentioned in 10.71% of cases at the primary care level and 25.00% of cases at the hospital level (Table 7).

Table: 7 Health workers advice (% for each statement), primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Obsv.	Hospitals (Non-randomized) (%)	Obsv.
Does the health worker mention danger signs that the caregiver should look out for?	14.89	188	28.57	42
<i>Danger signs</i>				
Fever does not go away after certain time	50.00	28	16.67	12
Fever develops	32.14	28	41.67	12
Child unable to drink or drinking poorly	7.14	28	8.33	12
Change in consciousness	7.14	28	0.00	12
Diarrhea persists	17.86	28	8.33	12
Rapid Breathing	7.14	28	8.33	12
Child becomes sicker for any reason	7.14	28	0.00	12
New Symptoms Develop	10.71	28	25.00	12
Other	21.43	28	25.00	12

Figure 1: History taking and examination for diarrhea, under-5 direct observations

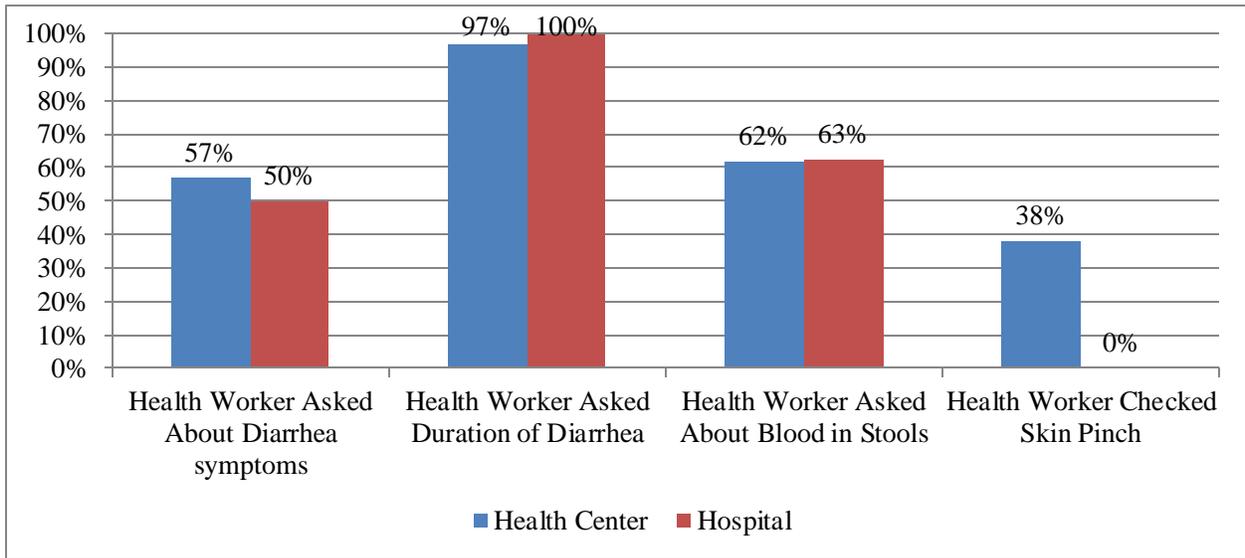


Figure 2: History taking and examination for cough or difficulty in breathing, under-5 direct observations

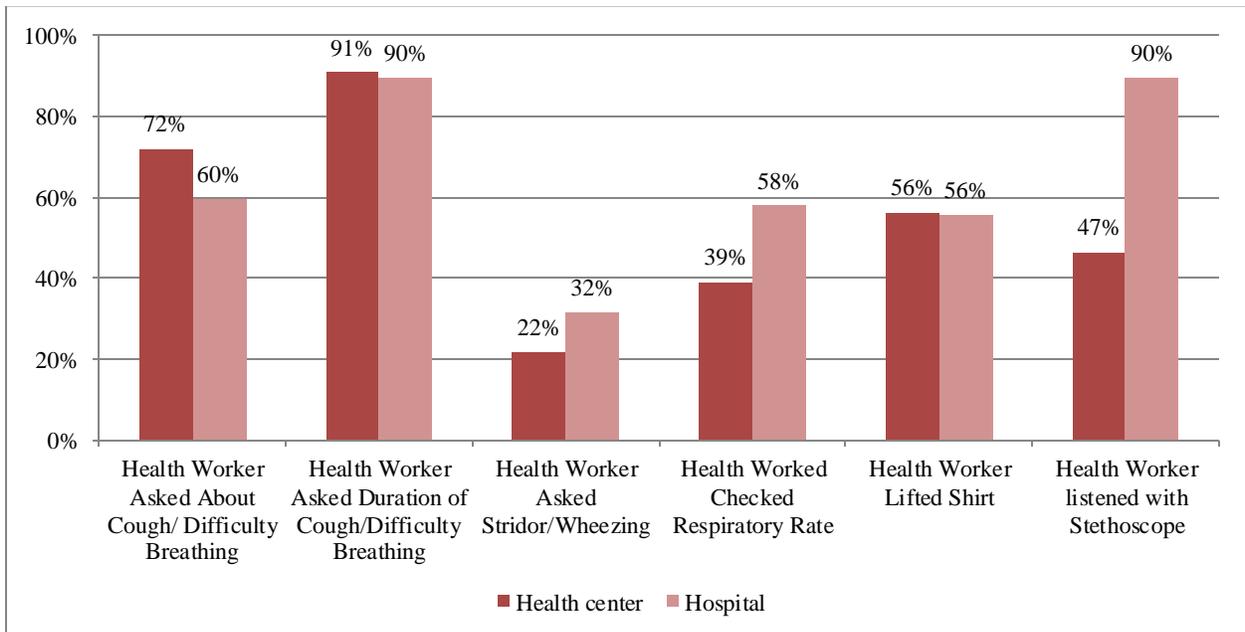
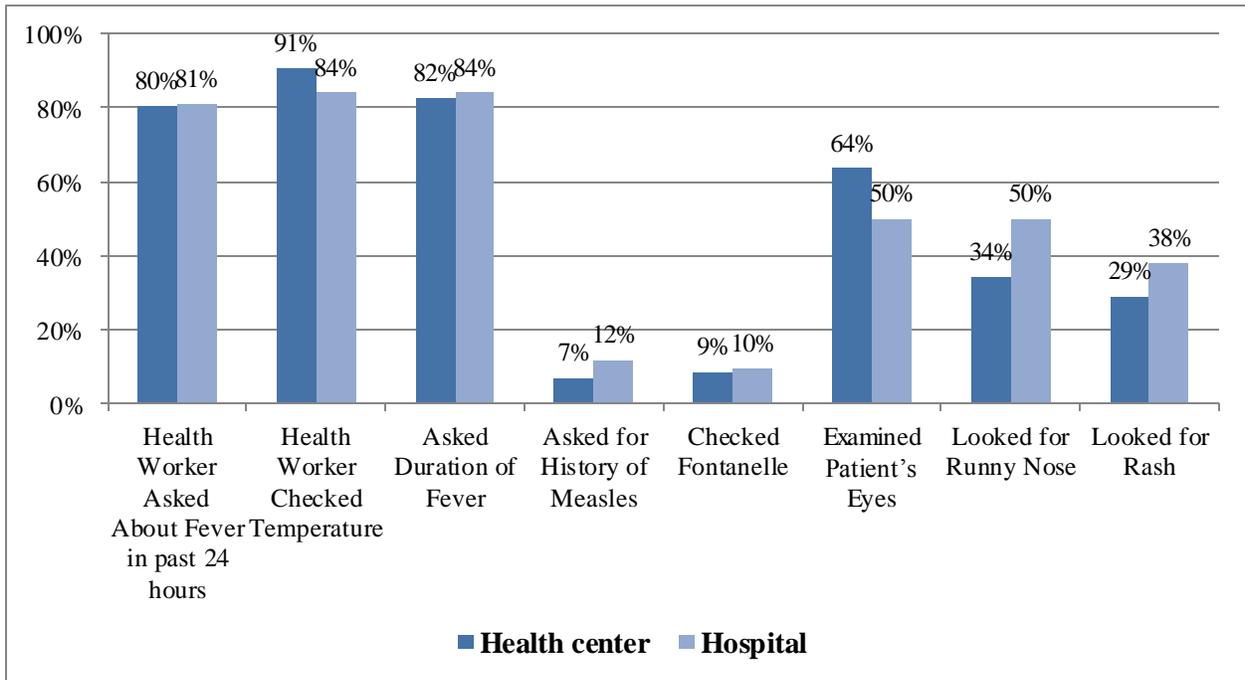


Figure 3: History taking and examination for fever, under-5 direct observations



Quality of external consultations for children under five years of age: Patient exit interviews (F6)

This section uses patient exit interviews to assess the quality of consultation for children under the age of five years. Interviews were completed for 232 respondents. 190 (81.90%) of these were at primary care facilities and 42 (19.10%) were completed at hospitals. 19.91% of the sample was drawn from the East region, 38.10% from the Northwest region and 41.99% from the Southwest region.

Patient Characteristics and Consultation Tasks Performed and Provider Characteristics

42.30% of health workers at primary care facilities and 64.30% of health workers at hospitals were male (Table 1). 48.90% of patients at primary care facilities were male as opposed to 59.50% of patients at hospitals. The reason for predominance of male patients at the hospital level needs further investigation. Respondent literacy was 74.20% at primary care facilities and 70.70% at hospitals and the mean age of the patient was 20 months at primary care facilities as opposed to nearly 25 months at hospitals (Table 1).

Nearly 98% of respondents across facility type were asked the age of the child (Table 1). Disturbingly, the child was weighed at less than 80% of primary care facilities, where this should be standard practice. More than 95% of children who were examined at hospitals were weighed. Only 1.10% of primary care facilities measured the height of the patient and none of the respondents interviewed after a hospital visit reported child height being measured. Given this, it is particularly surprising that in more than 10% of primary care facility visits the growth monitoring chart was reportedly filled up. Spot checks, both at the facility level and within the community are needed to verify the accuracy and completeness of these charts (Table 1).

Only 76.30% of patients at primary care facilities and 80.50% of respondents at hospitals underwent a Physical Examination (Table 1). Treatment advice for follow up care at home was given to less than 43% of respondents at primary care facilities and 41.50% of respondents at Hospitals. Patients were prescribed an average of 3.70 medicines at primary care facilities and 3.64 medicines at hospitals. While health workers explained how to take medicine in most cases (93.5% of primary care facilities and over 87% of hospitals), they failed to mentioned side effects in over 95% of cases across facility type (Table 1).

The child's immunization card was available with only 15.00% of respondents at primary care facilities and 14.60% of hospitals (Table 1). The mean distance from the respondent's home to the health facility was a little under 4km for primary care facilities to a little over 6km for

hospitals. These took 28.28 and 32.29 minutes to reach respectively from the respondents' home on average (Table 1).

85.30% of respondents at primary care facilities and 92.70% of respondents at hospitals were charged a consultation fee (Table 1). Respondents paid a mean of 379.01 CFA for a primary care facility visit and a mean of 744.74 CFA for a hospital visit. 11.11% of respondents at primary care facilities and a little over 17% of respondents at hospitals reported paying additional money at the facility. The mean amount of additional money paid ranged from 385.71 CFA at hospitals to 461.19 CFA at primary care facilities (Table 1).

58.50% of respondents at hospitals and 45.30% of respondents at primary care facilities underwent a laboratory test (Table 1). This cost an average of 1760.40 CFA at primary care facilities and 3045.65 CFA at hospitals. 90.00% of respondents at primary care facilities and 73.20% of respondents at hospitals received medicines from the facility, the estimated cost of these medicines ranged from 2155.15 CFA at primary care facilities to 3556.83 CFA at hospitals. Total expenditures, excluding transport, ranged from 3105.60 CFA at primary care facilities to 5196.22 CFA at hospitals (Table 1).

Finally, health insurance programs covered only 2.70% of patients at primary care facilities and 9.80% of respondents at hospitals (Table 1).

Table 2 displays patient and respondent characteristics stratified by facility level and region. Across both levels of facility and all regions, the patient's mother was the most likely respondent. The mother was the respondent in 60.87% of cases in the East region compared to 86.60% of cases in the Southwest region. The patient's father was the second most common respondent across facility type and region. Male caregivers other than fathers were respondents in an unusually high proportion of cases in the East region, accounting for 17.39% of respondents in this region (Table 2).

Examining the highest education of the respondent, we found that most respondents had completed primary or secondary schooling, 69.52% of respondents at primary care facilities and 68.29% of hospital respondents fitted into one of these two categories (Table 2). The percentage of respondents with no education varied from 2.06% in the Southwest region to 17.65% in the Northwest region. Over 11% of respondents in the Southwest region had been to University as opposed to none of the respondents in the East region (Table 2).

Across facility type and region, most respondents were married or living with their partners (Table 2). Between 15 and 30% of respondents (depending on facility type and region) were single. Widowed and divorced or separated respondents accounted for a relatively small proportion of the total with no great differences seen across facility type or region (Table 2).

Across all regions and facility types, child illness was by far the most common reason to visit to the facility (Table 2). The proportion of children who presented at the facility chiefly for the purpose of vaccination was at most 2.27%, seen in the Northwest region. The most common presenting complaint was fever. At the primary care level, more than half the respondents (51.85%) mentioned this as the main reason for the facility visit. At Hospitals, over 63% of respondents mentioned this as the main reason for their visit. Respiratory illness, characterized by cough and difficulty in breathing was the chief complaint of 44.21% of respondents at the primary care level and 29.27% of respondents at the hospital level. Diarrhea was the main reason for the facility visit for 18.18% of respondents at primary care facilities and 17.07% of respondents at hospitals. While fever and cough/difficulty in breathing were the most common presenting complaints in the Northwest and Southwest regions, diarrhoea was a major presenting complaint (41.30%) in the East region, mentioned as frequently as cough/ difficulty in breathing, and only marginally behind fever (45.65%) which was the main presenting complaint in common with the other regions (Table 2).

Over 95% of respondents across facility type and Region went to the facility either directly on their own or on the advice of their relatives. Close to 5% of respondents at Hospitals were referred from another health facility (Table 2).

Table 1: Descriptive statistics of patient characteristics and under 5 consultation tasks performed, primary care facilities and hospitals

	Primary care facilities (Randomized) (%)			Hospitals (Non-randomized) (%)		
	Mean	SE	Obsv.	Mean	SE	Obsv.
Male (health worker)	0.423	0.058	189	0.643	0.147	42
Male (child)	0.489	0.048	188	0.595	0.091	42
Age of child in months	20.005	1.532	185	24.825	2.738	40
Respondent Literate	0.742	0.053	190	0.707	0.089	41
Age of child asked at facility	0.979	0.016	190	0.976	0.022	41
Child weighed	0.795	0.031	190	0.951	0.037	41
Child height measured	0.011	0.010	190	0.000	0.000	41
Growth monitoring chart filled	0.101	0.026	189	0.000	0.000	41
Physical Exam performed	0.763	0.045	190	0.805	0.113	41
Health worker informed that something was wrong	0.537	0.036	190	0.415	0.093	41
Health worker gave advice for treatment at home	0.428	0.039	187	0.415	0.063	41
Health worker mentioned to bring back if child got worse	0.251	0.040	187	0.390	0.092	41
Number of medicines prescribed	3.703	0.152	185	3.641	0.296	39
Health worker explained how to take medicines	0.935	0.020	185	0.872	0.062	39
Health worker explained side effects	0.037	0.016	187	0.000	0.000	41
Immunization Card Available	0.150	0.029	187	0.146	0.051	41
Distance of household from facility	3.989	1.170	189	6.366	3.231	41
One way travel time to facility in	28.279	3.563	190	32.293	6.791	41

minutes						
One way travel cost to facility (FCFA)	286.765	53.447	153	460.972	120.205	36
Waiting time in minutes	20.958	1.973	189	46.951	8.740	41
Waiting time was too long	0.179	0.035	190	0.439	0.051	41
Consultation time in minutes	12.725	0.907	189	10.875	1.656	40
Consultation time was too long	0.037	0.016	190	0.073	0.043	41
Consultation fee charged	0.853	0.045	190	0.927	0.055	41
Amount paid for consultation	379.012	39.695	162	744.737	110.831	38
Additional money charged at facility (yes/no)	0.111	0.034	190	0.171	0.098	41
Amount additional payment	461.191	149.719	21	385.714	80.295	7
Laboratory Test Done	0.453	0.051	190	0.585	0.093	41
Amount Laboratory Test	1760.40	299.791	86	3045.65	578.475	23
X Ray Done	0.000	0.000	190	0.024	0.023	41
Medicines Dispensed	0.900	0.025	190	0.732	0.115	41
Amount Medicines	2155.15	313.293	171	3556.83	680.883	30
Total Expenditures at facility excluding transport	3105.60	488.856	189	5196.22	490.225	41
Covered under Health Insurance	0.027	0.014	187	0.098	0.054	41
Know of any CHWs in community	0.463	0.042	190	0.244	0.111	41

Table: 2 Patient and respondent characteristics, categorical variables, by level of facility and Region

	Primary care facilities (Randomized) (%) n=190	Hospitals (Non-randomized) (%) n=41	East Region n=46 (%)	Northwest Region n=88 (%)	Southwest Region n=97 (%)
<i>Relationship of respondent to child</i>					
Mother	78.42	87.80	60.87	82.95	86.60
Father	11.05	9.76	21.74	10.23	6.19
Female family member caregiver	5.26	2.44	0.00	5.68	6.19
Male family member caregiver	5.26	0.00	17.39	1.14	1.03
Other	0.00	0.00	0.00	0.00	0.00
<i>Highest education of respondent</i>					
None	10.70	9.76	15.22	17.65	2.06
Primary	39.04	39.02	26.09	49.41	36.08
Secondary school	30.48	29.27	34.78	22.35	35.05
High school	13.90	14.63	23.91	7.06	15.46
University	5.88	7.32	0.00	3.53	11.34
<i>Marital status of respondent</i>					
Single	24.60	19.51	26.09	15.29	29.90
Married/Living together	72.73	78.05	67.39	81.18	70.10
Widowed	2.14	2.44	4.35	3.53	0.00
Divorced/separated	0.53	0.00	2.17	0.00	0.00
<i>Purpose of visit to health center</i>					
Vaccination	1.07	0.00	0.00	2.27	0.00
Child Growth Monitoring	0.00	0.00	0.00	0.00	0.00
Child Illness	98.42	100.00	100.00	96.59	100.00

Reason for bringing the child to the facility					
Diarrhoea	18.18	17.07	41.30	17.65	7.92
Fever	51.85	63.41	45.65	57.65	56.44
Cough/ Difficulty Breathing	44.21	29.27	41.30	44.71	40.59
Skin Infection/Pus Wound	15.79	2.44	10.87	8.24	17.82
Tonsillitis/ Sore Throat	0.00	0.00	0.00	0.00	0.00
Otitis Media/ Pain in Ear	1.05	0.00	0.00	1.18	0.99
Injury	1.58	2.44	2.17	2.35	0.99
Other	44.39	56.1	50.00	47.06	43.56
Patient referral pattern					
Came directly on own	92.63	87.80	91.30	90.91	92.78
Advice by a relative	6.84	7.32	6.52	7.95	6.19
Referred by health worker in another facility	0.53	4.88	2.17	1.14	1.03
Referred by a CHW	0.00	0.00	0.00	0.00	0.00

Table 3 highlights the importance of nurses and other non-physician cadres in the Cameroonian health system for the provision of primary care. Only 13.83% of patients at Primary care facilities were examined by a medical doctor. 35.11% of patients were examined by assistant nurses and another 22.34% were examined by state registered nurses. At hospitals, on the other hand, more than 90% of patients were examined by medical doctors with the rest of the patients being examined by nurses (Table 3).

Table: 3 Technical cadre of health worker who provided care for under 5 consultation, primary care facilities and hospitals

	Primary care facilities (Randomized) (%) n=188	Hospitals (Non- randomized) (%) n=42
Medical Doctor	13.83	90.48
Nurse (principal)	0.53	4.76
Nurse(Senior technician)	0.53	0.00
State Registered Nurse	22.34	2.38
SRN Anesthetist	0.00	0.00
SRN midwife	1.60	0.00
SRN Child Welfare	0.00	0.00
SRN Ophthalmology	0.00	0.00
Medical technician	0.00	0.00
Medical technician – Laboratory	0.00	0.00
Medical technician-	0.00	0.00

Odontostomatology		
Medical technician- ORL	0.00	0.00
Medical technician- Pharmacist	0.00	0.00
Assistant Medical technician	0.00	0.00
Maintenance technician	0.00	0.00
Sanitary Engineering Technician	0.00	0.00
Nursing school graduate first cycle	3.19	0.00
Assistant midwife	4.26	0.00
Assistant technician- Laboratory	4.79	0.00
Assistant nurse	35.11	2.38
Other	13.83	0.00

Treatment Characteristics

The findings from Table 4 potentially reflect an under appreciation of the need for diagnosis to drive treatment and the possible overuse of symptomatic treatment. Only 55.26% of respondents at randomized Facilities and 41.46% of respondents at non-randomized facilities were informed by the health worker of a specific diagnosis. Malaria was the most common diagnosis at both randomized (47.62%) and non randomized facilities (41.18%). At both types of facility, fever was the second most common diagnosis, accounting for 24.76% of diagnosis made at randomized facilities and 23.53% of diagnosis made at non randomized facilities. Upper respiratory illness was the third most common diagnosis at randomized Facilities (12.75%). Upper respiratory illness, measles and parasitic Infections accounted for 11.76% each of the diagnosis made at non-randomized facilities (Table 4).

Table: 4 Health Workers Diagnosis (% for each statement)

	Randomized Facilities (%)	Observations	Non Randomized Facilities (%)	Observations
Did the health worker inform diagnosis?	55.26	190	41.46	41
<i>Diagnosis</i>				
Malaria	47.62	105	41.18	17
Fever	24.76	105	23.53	17
Measles	1.90	105	11.76	17
Dehydration	4.76	105	0.00	17
Viral Infection/Flu	0.95	105	0.00	17
Diarrhoea	7.62	105	5.88	17
Dysentery	2.86	105	0.00	17
Cold /Upper Respiratory	12.75	102	11.76	17

Pneumonia	5.88	102	0.00	17
Malnutrition	2.94	102	5.88	17
Parasitic Infections	8.82	102	11.76	17
Milking of the teeth	0.98	102	0.00	17
Skin Infection	9.80	102	5.88	17
Others	20.59	102	35.29	17

The lack of adequate instructions by health workers to caregivers in a large number of cases is highlighted by Table 5. At both primary care facilities and hospitals, only a little over 40% of respondents were explained what to do at home for the child. The most common instruction was telling the caretaker to avoid giving medications other than those prescribed at the health facility. 35.44% of respondents at primary care facilities and 35.29% of respondents at hospitals were given this information. The next most commonly given instruction at primary care facilities was to continue or increase feeding and /or breast feeding (18.99%) and to keep the child warm (17.72%). At the Hospital level, 11.76% respondents mentioned that they were instructed to give more fluids and another 11.76% respondents were instructed to give the child tepid baths for fever (Table 5).

Table: 5 Health workers advice (% for each statement), primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Obsv.	Hospitals (Non-randomized) (%)	Obsv.
Does the health worker explain what the mother/caretaker should do at home for the child?	42.02	190	41.46	41
<i>Advice to patient's caretaker</i>				
Give more fluids	15.19	79	11.76	17
Continue or Increase Feedings and /or Breast Feeding	18.99	79	5.88	17
Tepid Baths for Fever	2.56	78	11.76	17
Keep the Child Warm	17.72	79	0.00	17
Avoid giving medications other than those prescribed today	35.44	79	35.29	17
Other	45.00	80	76.47	17

Table 6 examines the primary mode of transportation used by patients to visit the facility. Almost half the respondents (47.62%) at primary care facilities walked from their homes. 23.28% used a public car/ bus and another 10.05% used a private motorcycle. On the other hand, only 14.63% of hospital respondents walked to the facility and 46.34% used a public car/bus with 12.20% using a private motorcycle. There were regional variations to this pattern, with a much greater proportion of respondents in the Northwest region walking to the facility (59.77%) compared to the southwest Region (28.87%). Conversely, 47.42% of respondents in the Southwest used a

public car/bus to access the facility, compared to just 10.87% of respondents in the East region and 13.79% of respondents in the Northwest region (Table 6).

Table: 6 Primary mode of transportation for patients visiting facility for under-five consultations

	Primary care facilities (Randomized) (%) n=190	Hospitals (Non-randomized) (%) n=41	East Region n=46 (%)	Northwest Region n=88 (%)	Southwest Region n=97 (%)
By foot	47.62	14.63	34.78	59.77	28.87
Bicycle	1.59	0.00	0.00	3.45	0.00
Animal	0.53	0.00	0.00	1.15	0.00
Private car	1.59	0.00	0.00	2.30	1.03
Private motorcycle	10.05	12.20	17.39	8.05	9.28
Public car/bus	23.28	46.34	10.87	13.79	47.42
Other	15.34	26.83	36.96	11.49	13.40

At both primary care facilities and hospitals, and across Regions, respondents most often used their savings or regular household budget to pay for their healthcare expenses (Table 7). 72.93% of respondents at primary care facilities and 68.29% of respondents at hospitals, close to 69% of respondents in the Southwest and Northwest regions and almost 85% of respondents in the East region mentioned this as the primary source of money to pay for healthcare. At both facility types and across regions, borrowing from friends or relatives was the second most frequently mentioned source of money for healthcare, varying from 8.70% in the East region to 26.97% in the Southwest region and 29.27% among respondents at hospitals. Borrowing from others, selling household possessions and health insurance were mentioned relatively infrequently (Table 7).

Table: 7 Source of Money for Healthcare (% respondents stating each source), primary care facilities and hospitals

	Primary care facilities (Randomized) (%) n=190	Hospitals (Non-randomized) (%) n=41	East Region n=46 (%)	Northwest Region n=88 (%)	Southwest Region n=97 (%)
Savings or regular household budget	72.93	68.29	84.78	68.97	68.54
Health Insurance	1.66	4.88	0.00	3.45	2.25
Selling Household Possessions	3.31	0.00	4.35	4.60	0.00
Mortgaging or selling land	0.00	0.00	0.00	0.00	0.00
From a friend or relative	18.78	29.27	8.70	20.69	26.97
Borrowed from someone other than friend or family	3.31	2.44	0.00	4.60	3.37

Other	3.31	4.88	2.17	3.45	4.49
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Table 8 examines respondent's most important reason for choosing the facility they did. Location close to home (39.47%) and trust in providers/ high quality (35.79%) were the most commonly cited reasons behind facility choice by respondents at primary care facilities. While the same two factors lay behind facility choice for respondents at hospitals, trust in providers/ high quality (56.10%) was a far more important determinant of facility choice than location close to home (21.95%). Other factors including availability of drugs, place of delivery, recommendations of others were less important determinants of facility choice. In both the East (36.96%) and Southwest (46.39%) regions, Trust in providers/high quality were more important than location of facility. The reverse was true in the Northwest region where location close to home (44.32%), was the most important determinant of facility choice (Table 8).

Table 8: Most Important reason for choosing this facility, under-five consultations

	Primary care facilities (Randomized) (%) n=190	Hospitals (Non-randomized) (%) n=41	East Region n=46 (%)	Northwest Region n=88 (%)	Southwest Region n=97 (%)
Location Close to Home	39.47	21.95	34.78	44.32	29.9
Low Cost	4.74	4.88	4.35	7.95	2.06
Trust In Providers / High Quality	35.79	56.10	36.96	32.95	46.39
Availability of Drugs	3.68	2.44	6.52	2.27	3.09
Availability of Female Provider	1.05	0.00	2.17	1.14	0.00
Referral	1.58	2.44	4.35	1.14	1.03
Recommendation	3.68	2.44	2.17	2.27	5.15
Place of Delivery	1.58	4.88	0.00	1.14	4.12
Nature of Illness	0.53	0.00	0.00	0.00	1.03
Other	7.89	4.88	8.70	6.82	7.22

Patient Satisfaction

Respondent's expressed a high degree of satisfaction with the health facilities they visited (Table 9). 90.53% of respondents at primary care facilities agreed that the overall quality of services was satisfactory, as opposed to 1.05% of respondents who were not satisfied. 94.21% of respondents felt that the facility was open for adequate hours to meet their needs. 91.01% of

respondents were of the opinion that facility staff was respectful and courteous and 87.37% of respondents stated that the health workers didn't ask for presents as additional payments. On the other hand, 13.16% of respondents believed that they did not have adequate privacy at the health facility. 12.97% of respondents felt that it was not convenient to travel from their homes to the facility and 8.95 % felt that the waiting time to see the provider was not reasonable (Table 9). Overall satisfaction of respondents at hospitals was over 95%. Detailed information on patient satisfaction at the hospital level is provided in Appendix 6 Table A3.

Table 10 displays patient perceptions on security and trust with the health facility. Over 90% of respondents at primary care facilities believed that health workers at the facility were honest and respected patients, that they were extremely thorough, and they had the skills and abilities to be trusted. A similar proportion of respondents (92.63%) said that they completely trusted the health worker's decisions about medical treatment. Over 85% of the respondents were of the opinion that facility health workers were friendly and approachable and over 80% agreed with the statement that facility health workers were easy to contact. 15.26% of respondents felt that security in the health facility area made it difficult for people in the community to use health services and over 92% of respondents also felt that health workers in the facility treated rich and poor people the same. Patient perceptions on security and trust with the health facility at the hospital level are displayed in Appendix 6 Table A4.

Table: 9 Patient Satisfaction, primary care facilities (% for each statement)

	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Not Applicable (%)	Observations
It is convenient to travel from your house to the health facility.	77.84	7.57	12.97	1.62	185
The health facility is clean.	86.32	10.00	3.68	0.00	190
The health staff are courteous and respectful.	91.01	7.41	1.59	0.00	189
The health workers did a good job of explaining your condition.	80.95	14.81	4.23	0.00	189
It is easy to get medicine that health workers prescribe.	84.21	8.42	6.84	0.53	190
The registration fees of this visit to the health facility were reasonable.	79.68	6.42	2.67	11.23	187
The lab fees of this visit to the health facility were reasonable.	39.08	14.37	6.32	40.23	174
The medication fees of this visit to the health facility were reasonable.	70.88	9.34	8.79	10.99	182
The transport fees for this visit to the health facility were reasonable.	53.98	11.36	7.39	27.27	176
The health workers don't ask for presents as additional payment	87.37	1.58	9.47	1.58	190

The amount of time you spent waiting to be seen by a health provider was reasonable.	82.63	6.84	8.95	1.58	190
You had enough privacy during your visit.	74.21	12.63	13.16	0.00	190
The health worker spent a sufficient amount of time with you.	81.05	13.16	5.79	0.00	190
The hours the facility is open are adequate to meet your needs.	94.21	3.68	1.58	0.53	190
The overall quality of services provided was satisfactory.	90.53	7.89	1.05	0.53	190

Table 10: Patient’s perceptions on security and trust with the facility, primary care facilities

	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Not Applicable (%)	Observations
The level of security in the health facility area makes it difficult for people in the community to use available health services.	15.26	26.32	56.84	1.58	190
The health workers in this facility are honest and respect patients	92.11	6.84	1.05	0.00	190
The health workers in this facility are extremely thorough and careful.	92.11	7.37	0.53	0.00	190
You trust in the skills and abilities of the health workers of this facility.	93.16	5.79	1.05	0.00	190
You completely trust the health worker’s decisions about medical treatments in this facility.	92.63	6.84	0.53	0.00	190
The health workers in this facility are very friendly and approachable.	88.36	8.47	3.17	0.00	189
The health workers in this facility are easy to make contact with.	81.58	13.68	4.21	0.53	190
The health workers in this facility care about your health just as much or more than you do.	8.51	22.87	68.09	0.53	188
The health workers in this facility act differently toward rich people than toward poor people.	92.63	5.26	2.11	0.00	190

Community Health Workers

There was a great deal of variation in respondent knowledge and use of Community Health Workers (CHWs) across facility level and regions (Table 11). 46.32% of respondents at the primary care level knew of CHWs in their community as opposed to just 19.51% of respondents at the hospital level. 31.68% of respondents in the Southwest region were aware of CHWs in their community as opposed to 51.14% of respondents in the Northwest region (Table 11).

Usage of CHW services in the month preceding the survey varied from a little over 38% of respondents aware of CHWs in their community in the East region to over 65% of similarly aware respondents in the Southwest region. The services most commonly provided by CHWs included health education and promotion (37.50%) and the provision of anti-malarial pills (18.75%) at the primary care level and health education and promotion (50.00%), advice on exclusive breastfeeding (25.00%) and the provision of tetanus toxoid immunization (25.00%) at the hospital level (Table 11).

Table 11: Services provided by community health workers, primary care facilities and hospitals

	Primary care facilities (Randomized) (%) (n=190)	Hospitals (Non-randomized) (%) (n=51)	East Region (%) (n=46)	North-West Region (%) (n=88)	South-West Region (%) (n=101)
Do you know of any community health workers (CHW) in your community?	46.32	24.39	45.65	51.14	31.68
<i>If yes, used services the community health worker provided in the month preceding the survey</i>	<i>n=88</i>	<i>n=10</i>	<i>n=21</i>	<i>n=45</i>	<i>n=32</i>
Yes, at own home	32.95	40.00	19.05	35.56	40.63
Yes, at health facility	7.95	0.00	0.00	11.11	6.25
Yes, in the community	12.50	0.00	14.29	4.44	18.75
Yes, both at home and in the health facility	0.00	0.00	0.00	0.00	0.00
Yes, both at home and in the community	1.14	0.00	4.76	0.00	0.00
Yes, both in the health facility and in the community	0.00	0.00	0.00	0.00	0.00
Yes, both at home, in the health facility and the community	0.00	0.00	0.00	0.00	0.00
No	45.45	60.00	61.90	48.89	34.38
Services Provided by CHW	n=48	n=4			
Provide Iron / Folic Acid Tablets	0.00	0.00	-	-	-
Provide Tetanus Toxoid Immunization	4.17	25.00	-	-	-
Provide Preventive Anti-malarial Pills	18.75	0.00	-	-	-
Information On Danger Signs During Pregnancy	0.00	0.00	-	-	-
Advice On Exclusive Breastfeeding	0.00	25.00	-	-	-
Health Education Or Promotion	37.50	50.00	-	-	-
Referral To Health Facility	2.08	0.00	-	-	-

Quality of external consultations for patients aged five years and above: Patient exit interviews (F7)

This chapter discusses results from exit interviews of patients over the age of five years performed at both primary care facilities and hospitals. A total of 333 interviews were completed, 265 (79.58%) at the primary care level and 68 (20.42%) at the hospital level. 16.82% of the observations were from the East region, 42.04% were from the Northwest region and 41.14% were from the Southwest region.

Patient Characteristics and Consultation Tasks Performed and Provider Characteristics

52.10% of respondents at primary care facilities were seen by male health workers as opposed to over 85% of respondents at the hospital level (Table 1). This is probably a reflection of the higher concentration of females among the AS and IDE nursing cadres compared to physicians. Males accounted for a little over one third of the patient sample at both types of facilities. The mean age of patients was close to 30 years at both Primary care facilities and hospitals. 69.40% of respondents at Primary care facilities were literate, compared to 75.00% at hospitals (Table 1).

74.10% of respondents reported being weighed at primary care facilities, the corresponding figure for Hospitals was close to 90% (Table 1). Respondent height was measured at merely 3.00% of primary care facility visits and a little over 4% of hospital visits. More alarmingly, only 51.90% of respondents at primary care facilities and 64.20% of respondents at hospitals reported that they had undergone a physical examination on this visit to the health facility. Only 39.00% of respondents at primary care facilities and 22.10% of respondents at hospitals were given advice regarding treatment at home (Table 1).

On average, patients were prescribed 3.60 medicines at primary care facilities and 2.97 medicines at hospitals per visit (Table 1). While health workers explained how to take medicines in most cases (over 88% of cases at primary care facilities and 85.10% of cases at hospitals), side effects were infrequently explained to patients (7.70% at Primary care facilities and 3.00% at Hospitals) (Table 1).

Primary care facilities were on average, at a distance of 6.29 km from respondent's homes (Table 1). The mean distance to the hospital from a respondent's homes was 27.45 km. Mean one way travel time from respondent's homes was 25.83 minutes to the primary care facility to 56.09 minutes to the hospital (Table 1).

Respondents were charged a consultation fee 83.80% of the time at primary care facilities and over 95% of the time at hospitals (Table 1). The mean consultation amount varied from 508.18

CFA at primary care facilities to 813.08 CFA at hospitals. 6.00% of respondents at primary care facilities and over 16% of respondents at hospitals reported paying additional money at the facility (Table 1).

A laboratory test was performed on 48.70% of respondents at primary care facilities and on 50.00% of respondents at hospitals, with respondents paying a mean amount of 2591.30 CFA and 4700.75 CFA respectively at each level of facility (Table 1). Over 90% of respondents at primary care facilities and 73.50% of respondents at hospitals were prescribed medicines. Expenditure on these medicines amounted to 3113.28 CFA at Primary care facilities and 4530.10 CFA at hospitals. The mean total expenditure (excluding transportation) was estimated at 4577.30 CFA for a primary care facility visit and 7509.40 CFA for a hospital visit (Table 1).

Table 2 examines selected patient and respondent characteristics stratified by facility type and region. 8.93% of respondents in the East region had no formal education as opposed to 20.71% in the Northwest region. 58.40% of respondents in the Southwest region had completed either primary or secondary school; the corresponding figure for the East region was 80.35%. No respondents in the East region had completed University; on the other hand, 12.41% of respondents in the Southwest region had completed University (Table 2).

The proportion of respondents who were married/living together, the proportion of single respondents and respondents who stated that they were divorced or separated did not show much variation across facility type and region (Table 2). 10.71% of respondents in the Northwest region were widowed as opposed to just 1.79% in the East region (Table 2).

Treatment of an illness was by far the most important reason for the facility visit across facility type and region (Table 2). Family planning, child nutrition and post-natal care were only rarely cited as reasons for the visit. The most common specific conditions that brought patients to the facility, both primary care centers and hospitals were fever, body pains and headache. At primary care centers, these conditions were responsible for 37.50%, 31.82% and 25.00% of facility visits respectively, the same conditions led to 34.33%, 33.82% and 20.59% of hospital visits respectively. Body pains (67.86%) were the leading cause of visits in the East region, with headache a distant second (23.21%). On the other hand, in both the Northwest (41.13%) and Southwest regions (39.73%), fever was the most common reason behind the visit to the facility. Among the list of conditions asked about, sore throat, pain in the ear and weight loss were relatively uncommon reasons for respondents to visit the facility (Table 2).

Irrespective of region or facility type, over 95% of respondents came to the facility on their own, without referral either from another health facility or from a health worker in the community (Table 2).

Table 1: Descriptive statistics of patient characteristics and adult consultation tasks performed, primary care facilities and hospitals

	Primary care facilities (Randomized) (%)			Hospitals (Non-randomized) (%)		
	Mean	SE	Obsv.	Mean	SE	Obsv.
Male (health worker)	0.521	0.035	265	0.853	0.077	68
Male (patient)	0.358	0.028	265	0.338	0.044	68
Age of patient in years	31.792	1.478	265	30.559	2.571	68
Respondent Literate	0.694	0.054	265	0.750	0.061	68
Age asked at facility	0.875	0.026	263	0.926	0.039	68
Weighed	0.741	0.036	263	0.897	0.060	68
Height measured	0.030	0.012	264	0.044	0.024	68
Physical Exam performed	0.519	0.051	262	0.642	0.081	67
Health worker informed that something was wrong	0.428	0.026	264	0.412	0.086	68
Health worker gave advice for treatment at home	0.390	0.044	264	0.221	0.041	68
Health worker mentioned to bring back if patient got worse	0.300	0.044	263	0.132	0.024	68
Number of medicines prescribed	3.597	0.139	258	2.970	0.161	67
Health worker explained how to take medicines	0.888	0.023	260	0.851	0.075	67
Health worker explained side effects	0.077	0.022	261	0.030	0.022	67
Health worker gave follow up date	0.266	0.033	263	0.412	0.081	68
Distance of household from facility	6.287	1.847	265	27.448	15.105	67
One way travel time to facility in minutes	25.826	3.707	264	56.088	19.758	68
One way travel cost to facility (FCFA)	264.691	68.023	210	1226.81	457.277	55
Waiting time in minutes	26.627	4.914	263	68.015	8.614	68
Waiting time was too long	0.205	0.034	264	0.500	0.053	68
Consultation time in minutes	13.064	1.351	264	11.382	1.240	68
Consultation time was too long	0.034	0.010	265	0.103	0.036	68
Consultation fee charged	0.838	0.043	265	0.956	0.022	68
Amount paid for consultation	508.176	80.900	222	813.077	65.685	65
Additional money charged at facility (yes/no)	0.060	0.017	265	0.162	0.058	68
Amount additional payment	458.438	154.683	16	327.273	96.340	11
Laboratory Test Done	0.487	0.058	265	0.500	0.067	68
Amount Laboratory Test	2591.30	354.274	127	4700.75	698.171	33
Medicines Dispensed	0.906	0.025	265	0.735	0.094	68
Amount Medicines	3113.28	342.125	239	4530.10	660.569	50
Total Expenditures at facility excluding transport	4577.30	520.718	263	7509.40	1285.96	67
Covered under Health Insurance	0.061	0.020	244	0.015	0.013	67
Know of any CHWs in community	0.432	0.023	264	0.338	0.055	68

Table: 2 Patient and respondent characteristics for adult consultations, categorical variables, by level of facility and Region

	Primary care facilities	Hospitals (Non-randomized) (%)	East Region n=56	Northwest Region	Southwest Region
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	(Randomized) (%) n=265	n=68	(%)	n=140 (%)	n=137 (%)
<i>Highest education of respondent</i>					
None	15.47	11.76	8.93	20.71	10.95
Primary	41.13	41.18	44.64	50.71	29.93
Secondary school	23.02	27.94	35.71	15.00	28.47
High school	13.58	13.24	10.71	10.00	18.25
University	6.79	5.88	0.00	3.57	12.41
<i>Marital status of respondent</i>					
Single	39.46	38.24	41.07	35.71	42.11
Married/living together	53.26	54.41	55.36	52.14	54.14
Widowed	6.51	5.88	1.79	10.71	3.76
Divorced/separated	0.77	1.47	1.79	1.43	0.00
<i>Purpose of visit to health center</i>					
Treatment of an illness	93.58	94.12	87.50	93.66	96.58
Family Planning	0.78	0.00	0.00	1.41	0.00
Child nutrition	0.39	0.00	0.00	0.00	0.68
Post-natal care	0.00	0.00	0.00	0.00	0.00
Other	7.11	5.88	12.50	5.63	6.16
<i>Reason for visit to the facility</i>					
Diarrhoea	4.55	2.94	5.36	4.26	4.11
Fever	37.5	34.33	16.07	41.13	39.73
Cough/ Difficulty Breathing	12.12	13.24	10.71	12.06	13.01
Skin Infection/Pus Wound	6.44	8.82	3.58	5.67	8.90
Tonsillitis/ Sore Throat	1.14	0.00	1.79	1.42	0.00
Otitis Media/ Pain in Ear	0.38	1.47	0.00	1.42	0.00
Vomiting	4.55	2.94	5.36	4.26	4.11
Exhaustion	5.30	1.47	10.71	4.26	2.05
Headache	25.00	20.59	23.21	27.66	22.60
Body Pains	31.82	33.82	67.86	26.24	22.60
Refusal to Eat	5.30	1.47	5.36	3.55	5.48
Weight Loss	1.52	2.94	1.79	1.42	2.05
Injury	3.03	1.47	1.79	4.26	1.37
Other	48.09	61.76	39.29	51.77	53.10
<i>Patient referral pattern</i>					
Came directly on own	96.21	98.51	94.64	95.68	98.53
Referred by health worker in another facility	1.52	1.49	1.79	2.16	0.74
Referred by a community health worker	2.27	0.00	3.57	2.16	0.74

Table 3 examines the provision of services by different technical cadres of health workers at both the primary care and hospital levels. The importance of non-physician clinicians in the provision of primary care in Cameroon is notable. Only 18.63% of respondents at primary care facilities were seen by a medical doctor, with nearly 31% of respondents examined by an assistant nurse and another 22.05% of respondents examined by state registered nurses. On the other hand, most respondents at hospitals were provided care by medical doctors (79.10%) and principal nurses (13.43%) (Table 3).

Table: 3 Technical cadre of health worker who provided care for adult consultations, primary care facilities and hospitals

	Primary care facilities (Randomized) (%) n=263	Hospitals (Non- randomized) (%) n=67
Medical Doctor	18.63	79.1
Nurse (principal)	3.80	13.43
Nurse(Senior technician)	0.00	0.00
State Registered Nurse	22.05	1.49
SRN Anesthetist	0.00	0.00
SRN midwife	1.90	0.00
SRN Child Welfare	0.00	0.00
SRN Ophthalmology	0.00	1.49
Medical technician	0.00	0.00
Medical technician – Laboratory	0.76	0.00
Medical technician- Odontostomatology	1.52	0.00
Medical technician- ORL	0.00	0.00
Medical technician- Pharmacy	0.00	0.00
Assistant Medical technician	0.00	0.00
Maintenance technician	0.00	0.00
Sanitary Engineering Technician	0.00	0.00
Nursing school graduate first cycle	2.66	2.99
Assistant midwife	2.28	0.00
Assistant technician- Laboratory	1.90	0.00
Assistant nurse	30.80	1.49
Other	13.69	0.00

Treatment Characteristics

The lack of a clear diagnosis in a large proportion of cases is in line with results seen in earlier sections of this report (Table 4). Only 42.80% of respondents at randomized facilities and 41.18% of respondents at hospitals were provided with a diagnosis by the health worker. At randomized facilities, the most common diagnosis, in cases where a diagnosis was provided to the patient was malaria (31.25%), followed by fever (14.29%), and STI (7.96%). On the other hand, patients at hospitals, when provided a diagnosis, were most commonly informed that they were suffering from malaria (14.81%), fever (11.11%) and hypertension (10.71%). The importance of arriving at a diagnosis to guide treatment must be emphasized at every level of the health system and the overuse of symptomatic treatment avoided (Table 4).

Table 4: Health Workers Diagnosis for adult consultations, (% for each statement)

	Randomized Facilities (%)	Observations	Non Randomized Facilities (%)	Observations
Did the health worker inform diagnosis?	42.80	264	41.18	68
<i>Diagnosis</i>				
Malaria	31.25	112	14.81	27
Fever	14.29	112	11.11	27
Measles	0.00	112	0.00	27
Dehydration	0.89	112	0.00	27
Viral Infection/Flu	2.68	112	3.70	27
Diarrhoea	0.89	112	0.00	27
Dysentery	1.79	112	0.00	27
Cold /Upper Respiratory	5.31	113	0.00	27
Pneumonia	0.89	112	0.00	27
Malnutrition	0.00	112	0.00	27
Parasitic Infections	7.14	112	0.00	27
Diabetes	1.79	112	3.57	28
Hypertension	7.14	112	10.71	28
Wound	1.79	112	3.57	28
STI	7.96	113	3.57	28
Others	45.95	111	75.00	28

The lack of adequate instructions by health workers to caregivers is evident from the results displayed in Table 5. Less than 40% of health workers at primary care facilities and merely 22.06% of health workers at hospitals gave caregivers instructions of what to do at home for the child. At both levels of facilities, the single most commonly given instruction appears to have been to not give medications other than those prescribed by the provider. The lack of clear instructions to caregivers is an area where much improvement is needed. The implementation of protocols such as standard treatment guidelines may be useful in addressing this issue (Table 5).

Table: 5 Health workers advice for adult consultations (% for each statement), primary care facilities and hospitals

	Primary care facilities (Randomized) (%)	Obsv.	Hospitals (Non-randomized) (%)	Obsv.
Does the health worker explain what the mother/caretaker should do at home for the child?	39.02	264	22.06	68
Advice to patient				
Give more fluids	6.80	103	6.67	15
Rest	15.53	103	6.67	15
Tepid Baths for Fever	0.97	103	6.67	15
Keep the Child Warm	0.00	103	6.67	15
Avoid giving medications other than those prescribed today	28.16	103	40.00	15
Other	63.37	101	53.33	15

Table 6 displays the primary mode of transportation used by respondents to reach the health facility. Nearly half (47.55%) the respondents walked to the primary care facility, with another 40.00% making use of public transportation. Approximately 8% of respondents at the primary care level used a private motorcycle to access the facility. On the other hand, exactly a quarter of hospital respondents walked from their homes to the facility with nearly 62% using a public car or bus to access the Hospital. The differences in mode of transport to the two levels of facilities can be explained by the fact that the average distance to primary care facilities is much less than that to the closest hospital (Table 6).

There were substantial regional differences in the primary mode of transportation (Table 6). The percentage of respondents in the Southwest region who walked to the health facility (29.20%) was much lower than either the East (44.64%) or the Northwest (55.71%) regions. Conversely, more than 60% of respondents in the Southwest used a public car/ bus to access the health facility as opposed to 31.43% in the Northwest and 37.50% in the East regions respectively (Table 6).

Table 6: Primary mode of transportation for patients visiting facility for adult consultations

	Primary care facilities (Randomized) (%) n=265	Hospitals (Non-randomized) (%) n=68	East Region n=56 (%)	Northwest Region n=140 (%)	Southwest Region n=137 (%)
By foot	47.55	25.00	44.64	55.71	29.20
Bicycle	1.51	0.00	0.00	2.86	0.00
Animal	0.00	0.00	0.00	0.00	0.00
Private car	1.89	2.94	1.79	2.86	1.46
Private motorcycle	7.92	5.88	8.93	5.71	8.76

Public car/bus	40.00	61.76	37.50	31.43	60.58
Other	1.13	4.41	7.14	1.43	0.00

Table 7 examines the sources of money used by respondents to pay for the just concluded facility visit. Savings or using money from the regular household budget was the most common source of funding across facility types and regions with between 65 and 70% of respondents mentioning this as the source of funding. Borrowing from family and friends was the second most common source of funding across facility type and region. Borrowing from others was the third major source of funding, across facility type and region. Selling possessions was as important a source of funding as borrowing from others for hospital respondents. 4.48% of respondents at hospitals as opposed to 0.41% of respondents at primary care facilities reported selling household possessions to fund their medical expenses. This is not surprising given that average expenditures at hospitals tended to be higher than expenditures at primary care facilities as displayed in Table 1 (Table 7).

Table 7: Source of Money for health care for adult consultations (% respondents stating each source), primary care facilities and hospitals

	Primary care facilities (Randomized) (%) n=265	Hospitals (Non-randomized) (%) n=68	East Region n=56 (%)	Northwest Region n=140 (%)	Southwest Region n=137 (%)
Savings or regular household budget	68.44	65.67	66.67	70.00	65.81
Health Insurance	1.64	1.49	0.00	1.43	2.56
Selling Household Possessions	0.41	4.48	0.00	2.86	0.00
Mortgaging or selling land	0.00	0.00	0.00	0.00	0.00
From a friend or relative	21.72	17.91	22.22	17.14	24.79
Borrowed from someone other than friend or family	5.74	4.48	1.85	7.14	5.13
Other	4.92	9.09	9.26	5.04	5.13

Table 8 highlights the limited role of health insurance as a financing mechanism in the Cameroonian Health System. Nearly 94% of primary care facilities were not participating in any health insurance program, with approximately 5% accepting private health insurance. The situation among hospitals sampled was even more acute, with only one of the 68 hospitals accepting any form of health insurance. There were no noticeable regional differences in this trend (Table 8).

Table 8: Type of health insurance for adult consultations, primary care facilities and hospitals

	Primary care facilities (Randomized) (%) n=265	Hospitals (Non-randomized) (%) n=68	East Region n=56 (%)	Northwest Region n=140 (%)	Southwest Region n=137 (%)
None	93.85	98.51	96.30	95.77	93.60
Public	0.41	0.00	0.00	0.00	0.07
Private	5.33	0.00	3.57	2.86	5.11
Mutual Health	0.41	1.49	0.00	1.43	0.00
More than one type	0.00	0.00	0.00	0.00	0.00

Table 9 highlights respondent's most important reason for choosing the facility that they did. Among respondents at primary care facilities, 42.42% chose the facility they did due to its proximity to their home. Another 26.52% mentioned trust in providers/ quality of service as the number one reason for their choice and 6.44% relied on the recommendation of others to make their decision. On the other hand, trust in providers/ quality of care was the most commonly mentioned reason for choosing a given hospital (54.41%). Facility location (23.53%) and recommendation of others (11.76%) was the second and third most commonly cited reason for facility choice among hospital respondents. Referral practices, nature of illness, availability of drugs and cost did not appear to be particularly important factors determining facility choice, particularly for hospital respondents (Table 9).

There appears to be a degree of regional variation in the determinants of facility choice (Table 9). While in the Northwest region, location close to home is clearly the most important determinant of facility choice, in both the East and Southwest regions, this factor is a close second behind trust in providers/ facility quality. Another finding is that while cost does not appear to be the most important factor driving facility choice in the Northwest and Southwest regions, it is relatively important in the East region where up to 11% of respondents mentioned it as the most important reason for choosing the facility that they did (Table 9).

Table 9: Most Important reason for choosing this facility, adult consultations

	Primary care facilities (Randomized) (%) n=265	Hospitals (Non-randomized) (%) n=68	East Region n=56 (%)	Northwest Region n=140 (%)	Southwest Region n=137 (%)
Location Close to Home	42.42	23.53	34.55	48.57	29.93
Low Cost	5.68	0.00	10.91	3.57	2.92

Trust In Providers / High Quality	26.52	54.41	36.36	32.14	30.66
Availability of Drugs	5.30	2.94	0.00	4.29	7.30
Availability of Female Provider	0.00	0.00	0.00	0.00	0.00
Referral	0.76	0.00	0.00	0.71	0.73
Recommendation	6.44	11.76	9.09	6.43	8.03
Nature of Illness	2.27	0.00	0.00	1.43	2.92
Other	10.61	7.35	9.09	2.86	17.52

Patient Satisfaction

Respondent Satisfaction with primary care facilities was high both in terms of overall quality of services as well as along more specific dimensions (Table 10). Over 89% of respondents felt that overall, the quality of services provided was satisfactory with a little under 2% of respondents disagreeing with this statement. Respondents overwhelmingly felt that health workers at the facility did not ask for additional gifts as payment (92.02%), that staff was courteous and respectful (91.29%), and that facility opening hours were adequate (90.87%). Over 13% of respondents felt that the facility was inconvenient to travel to from their homes. A little over 11% felt that medication fees at the facility were not reasonable and close to 9% of respondents were of the opinion that transport fees to the facility were an unreasonable burden on them. At the hospital level, over 82% of respondents felt that the overall quality of services provided was satisfactory. Details on satisfaction scores at the hospital level are provided in Appendix Table A3.

Table 11 displays patient perceptions on security and trust in the health facility. More than 90% of the respondents at the primary care level stated that they completely trusted health workers at the facility. More than 90% of respondents felt that the health workers at the facility were honest and respected patients, were thorough and careful and had the required skills and abilities to earn their trust. Over 85% of respondents found health workers at the facility to be friendly and approachable, and easy to contact. 16.09% of respondents felt that security in the health facility area hindered the use of health services by the community and 11.15% of respondents believed that health workers at their primary care facility treated rich and poor people differently (Table 11). At the hospital level, over 88% of respondents expressed complete trust in health workers at the facility. Details on patient perceptions on security and trust at the hospital level are displayed in Appendix Table A4.

It is important to note though, that these high scores on patient satisfaction should not lead to complacency with regard to making systematic improvements in the health system. In resource poor settings with limited access to care, the fact that patients are getting any care at all may lead to high satisfaction scores even with relatively poor quality services.

Table 10: Patient satisfaction with the facility, adult consultations, primary care facilities

	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Not Applicable (%)	Observations
It is convenient to travel from your house to the health facility.	78.68	6.98	13.57	0.78	258
The health facility is clean.	79.09	14.07	6.84	0.00	263
The health staff are courteous and respectful.	91.29	6.44	2.27	0.00	264
The health workers did a good job of explaining your condition.	84.41	9.89	5.32	0.38	263
It is easy to get medicine that health workers prescribe.	90.11	6.08	3.80	0.00	263
The registration fees of this visit to the health facility were reasonable.	78.54	8.43	4.21	8.81	261
The lab fees of this visit to the health facility were reasonable.	44.12	14.71	7.98	33.19	238
The medication fees of this visit to the health facility were reasonable.	64.86	13.90	11.20	10.04	259
The transport fees for this visit to the health facility were reasonable.	59.15	6.81	8.94	25.11	235
The health workers don't ask for presents as additional payment	92.02	0.00	7.22	0.76	263
The amount of time you spent waiting to be seen by a health provider was reasonable.	84.79	6.46	8.37	0.38	263
You had enough privacy during your visit.	86.36	4.17	9.47	0.00	264
The health worker spent a sufficient amount of time with you.	84.09	9.09	6.82	0.00	264
The hours the facility is open are adequate to meet your needs.	90.87	5.32	1.90	1.90	263
The overall quality of services provided was satisfactory.	89.02	9.09	1.89	0.00	264

Table 11: Patient’s perceptions on security and trust with the facility, adult consultations, primary care facilities

	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Not Applicable (%)	Observations
The level of security in the health facility area makes it difficult for people in the community to use available health services.	16.09	20.31	62.07	1.53	261
The health workers in this facility are honest and respect patients	90.46	7.25	2.29	0.00	262
The health workers in this facility are extremely thorough and careful.	90.15	8.71	0.76	0.38	264
You trust in the skills and abilities of the health workers of this facility.	92.05	7.95	0.00	0.00	264
You completely trust the health worker’s decisions about medical treatments in this facility.	91.29	8.33	0.38	0.00	264
The health workers in this facility are very friendly and approachable.	89.35	8.37	2.28	0.00	263
The health workers in this facility are easy to make contact with.	88.59	9.51	1.90	0.00	263
The health workers in this facility care about your health just as much or more than you do.	79.09	17.11	3.80	0.00	263
The health workers in this facility act differently toward rich people than toward poor people.	11.15	14.23	71.54	3.08	260
All in all, you trust the health workers completely in this health facility	90.49	9.51	0.00	0.00	263

Community Health Workers

Respondent knowledge of community health workers in their communities varied across facility type and region (Table 12). A little over 43% of respondents at Primary care facilities knew of CHWs in their community as opposed to nearly 34% of respondents at Hospitals. Respondents in the Southwest region were least (37.96%) and East region, most (50.00%) likely to know of any CHWs in their region respectively.

There was substantial variation in the utilization of CHW services across facility type and region (Table 12). Over 52% of respondents at Hospitals had utilized CHW services in the month preceding the survey, the corresponding figure for respondents at primary care facilities was close to 37%. Respondents in the East region (53.57%) were almost 20 percentage points more likely to have utilized CHW services in the past month compared to those in Southwest region (34.12%) (Table 12).

In common with responses obtained after consultations for children under the age of five years, health education and promotion was the function most commonly performed by CHWs at both levels of facilities (Table 12). 28.57% of respondents at primary care level facilities and 33% at hospitals mentioned this service provided by the CHW. The provision of anti-malarial pills (21.43%) was the second most common service provided to respondents at the primary care level. For respondents interviewed at hospitals, tetanus toxoid immunization was the second most common service (8.33%) performed by CHWs in their area (Table 12).

Table 12: Services provided by community health workers for adult consultation patients, primary care facilities and hospitals

	Primary care facilities (Randomized) (%) n=265	Hospitals (Non-randomized) (%) n=68	East Region n=56 (%)	Northwest Region n=140 (%)	Southwest Region n=137 (%)
Do you know of any community health workers (CHW) in your community?	43.01	33.82	50.00	40.71	37.96
<i>If yes, used services the community health worker provided in the month preceding the survey</i>	<i>n=114</i>	<i>n=23</i>	<i>n=28</i>	<i>n=57</i>	<i>n=52</i>
Yes, at own home	17.54	43.48	35.71	21.05	15.38
Yes, at health facility	4.39	0.00	0.00	5.26	3.85
Yes, in the community	14.04	8.70	14.29	10.53	15.38
Yes, both at home and in the health facility	0.00	0.00	0.00	0.00	0.00
Yes, both at home and in the community	0.00	0.00	0.00	0.00	0.00
Yes, both in the health facility and in the community	0.88	0.00	3.57	0.00	0.00
Yes, both at home, in the health facility and the community	0.00	0.00	0.00	0.00	0.00
No	63.16	47.83	46.43	63.16	65.38
Services Provided by CHW	n=42	n=12			
Provide Iron / Folic Acid Tablets	2.38	0.00	-	-	-
Provide Tetanus Toxoid Immunization	4.76	8.33	-	-	-
Provide Preventive Anti-malarial Pills	21.43	0.00	-	-	-
Information On Danger Signs During Pregnancy	2.38	0.00	-	-	-
Advice On Exclusive Breastfeeding	2.38	0.00	-	-	-
Health Education Or Promotion	28.57	33.33	-	-	-
Referral To Health Facility	0.00	0.00	-	-	-

Internal validity of the study

Balance Tests

The following sections provide tables which were used to estimate balance across different randomization groups. Estimates of balance are provided in Table 1 and information on the proportion of variables where the F and t tests could not be conducted or considered in the estimation of balance is provided in Table 2. F and t tests were taken into account to estimate balance for only those variables where we had 40 observations in each of the groups being compared, i.e. 40 observations for each of the four groups for the F test and 40 observations in the two groups being compared for each of the t tests.

For all sections taken together, the F test was significant ($p < 0.05$) for 13.07% of cases, implying significant differences in variables across randomized groups (Table 1). However, there was substantial variation in the fraction of variables with significant differences across randomization groups based on the section of the survey examined. For the health worker survey, none of the variables were significantly different across the groups at the 5% significance level, similarly for the health facility assessment section, less than 5.00% of variables considered showed significant differences across the randomization arms (Table 1).

On the other hand, the F test was significant for 23.81% of variables for the section that examined direct observation of antenatal care (Table 1). Inadequate sample size led us to not consider F tests for any of the variables in the sections on direct observation of consultations provided to children under the age of five years and exit interviews after consultations provided to children under the age of five years (Table 1).

Comparing the treatment group T with C3 we found that taking all the sections of the survey together, only 3.61% of variables were significantly different from each other at the 5% significance level (Table 1). In four out of the seven survey sections, no variables were significantly different from each other. However, 9.30% of the variables in the section on direct examination of consultations for children under the age of five years and 6.45% of the variables from exit interviews of patients over the age of five years showed significant differences across treatment arms (Table 1). Comparing groups T and C2, T and C1 and C1 and C2 we found that 5.65%, 7.73% and 5.08% of total variables respectively were found to be significantly different across the two groups (Table 1). As with the comparisons mentioned earlier, there was a lot of variation in the proportion of significantly different variables across the sections of the survey (Table 1). On the other hand, only 2.07% and 4.71% of total variables were significantly different when we compared groups C1 and C3, and C2 and C3 respectively (Table 1).

Table 1: Estimate of balance across randomization groups

	Number of Variables	F (%)	TC3 (%)	TC2 (%)	TC1 (%)	C1C3 (%)	C2C3 (%)	C1C2 (%)
Complete Questionnaire	343	13.07 (199)	3.61 (277)	5.65 (283)	7.73 (194)	2.07 (193)	4.71 (276)	5.08 (197)
Health Facility Assessment	82	4.44 (45)	0.00 (43)	0.00 (49)	6.98 (43)	2.44 (41)	7.14 (42)	4.35 (46)
Health Worker Survey	17	0.00 (17)	0.00 (17)	0.00 (17)	0.00 (17)	0.00 (17)	5.88 (17)	0.00 (17)
Direct Observation- Antenatal Care	69	23.81 (63)	5.97 (67)	7.35 (68)	11.29 (62)	3.23 (62)	0.00 (68)	6.45 (62)
Exit Interviews- Antenatal Care	52	13.64 (44)	0.00 (45)	9.09 (44)	4.76 (42)	2.33 (43)	6.67 (45)	2.38 (42)
Direct Observation- Children Under Five Years of Age	55	- (0)	9.30 (43)	13.95 (43)	- (0)	- (0)	4.76 (42)	- (0)
Exit Interviews- Children Under Five Years of Age	35	- (0)	0.00 (31)	3.23 (31)	- (0)	- (0)	6.45 (31)	- (0)
Exit Interviews- Patients Over Five Years of Age	33	10.00 (30)	6.45 (31)	0.00 (31)	10.00 (30)	0.00 (30)	6.45 (31)	10.00 (30)

Table 2 examines the proportion of variables for which tests of balance either could not be performed or were not considered due to inadequate sample size. The first column looks at data for the F test. Taking all the survey sections together, the F test was either not performed or performed and not used in the balance estimation for a substantial 41.98% of the total variables. The sample size was inadequate for performing the F test for any of the variables in the sections pertaining to children under the age of five years. For the health facility assessment section, we were only able to use information from 37 of the 82 variables (45.12%) for estimation of balance. For comparisons between treatment arm (T) and arms C2 and C3, we were able to use most of the variables in the estimation of balance, losing less than 20% of the total variables due to small sample size of the groups. However, comparisons using arm C1 were plagued by small sample size, with over 40% of variables unavailable to us for estimation of balance across groups (Table 2). A large part of this was due to the lack of adequate sample size in some randomization arms of the surveys that were administered to caregivers of children under the age of five years. It is important that future studies pay more attention to developing strategies to ensure adequate

sampling for each of the comparison groups at baseline to reduce the loss of information that ensues from small sample sizes.

Table 2: Proportion of variables for which F or t tests could not be conducted or sample size precluded using in estimation of balance

	Number of Variables	F (%)	TC3 (%)	TC2 (%)	TC1 (%)	C1C3 (%)	C2C3 (%)	C1C2 (%)
Complete Questionnaire	343	41.98	19.24	17.49	43.44	43.73	19.53	42.57
Health Facility Assessment	82	45.12	47.56	40.24	47.56	50.00	48.78	43.90
Health Worker Survey	17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Direct Observation- Antenatal Care	69	8.70	2.90	1.45	10.14	10.14	1.45	10.14
Exit Interviews- Antenatal Care Direct	52	15.38	13.46	15.38	19.23	17.31	13.46	19.23
Observation- Children Under Five Years of Age	55	100.00	21.82	21.82	100.00	100.00	23.64	100.00
Exit Interviews- Children Under Five Years of Age	35	100.00	11.43	11.43	100.00	100.00	11.43	100.00
Exit Interviews- Patients Over Five Years of Age	33	9.09	6.06	6.06	9.09	9.09	6.06	9.09

Health facility assessment

Service delivery characteristics

Table 3: Health and laboratory services offered by health facilities, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.	Mean	SE	Obsv.	Mean	SD	Obsv.	Mean	SE	Obsv.
Facility open 24 hours	0.854	0.056	48	0.800	0.059	55	0.843	0.062	51	0.905	0.043	53
Facility provides Laboratory Services	0.792	0.069	48	0.818	0.063	55	0.784	0.072	51	0.736	0.091	53
Facility can provide Blood Tests	0.553	0.101	38	0.477	0.077	44	0.425	0.074	40	0.342	0.112	38
Facility can provide Malaria Tests	0.974	0.027	38	0.911	0.040	45	1.000	0.000	39	0.974	0.026	39
Facility can provide TB Tests	0.211	0.062	38	0.205	0.072	44	0.275	0.048	40	0.132	0.039	38
Facility can provide HIV Tests	0.342	0.089	38	0.267	0.081	45	0.325	0.047	40	0.205	0.077	39
Facility provides immunization	0.979	0.021	48	0.945	0.027	55	0.961	0.038	51	0.981	0.018	53
Facility provides ANC	1.000	0.000	48	0.982	0.018	55	0.980	0.019	51	0.981	0.018	53
Number of days ANC last month	7.208	1.035	48	6.944	1.407	54	6.680	0.788	50	6.731	0.702	52
Number of meetings with TBA in last six months	0.583	0.180	48	0.426	0.129	54	0.640	0.526	50	0.720	0.320	50
Number of days ANC community outreach	3.063	1.287	48	3.827	1.848	52	2.500	1.122	50	4.000	1.222	50
Facility provides Delivery Services	0.953	0.030	43	0.962	0.037	53	0.920	0.042	50	0.920	0.046	50
Facility provides Post-Partum Care	0.953	0.030	43	0.962	0.037	53	0.940	0.041	50	0.920	0.046	50
Number of days Post-Partum Care last month	18.780	1.992	41	18.020	1.729	51	15.891	1.399	46	17.196	2.396	46
Number of Maternal Deaths at facility last year	0.024	0.023	41	0.020	0.020	51	0.064	0.029	47	0.043	0.030	46
Treated Mosquito Net free for Pregnant Women and Children	0.697	0.110	43	0.833	0.048	54	0.700	0.105	50	0.840	0.065	50
Treated Mosquito Net Available at Facility	0.395	0.061	43	0.481	0.093	54	0.380	0.079	50	0.440	0.069	50
Number of Patients Seen at Facility last month	116.896	17.080	48	150.818	33.496	55	104.240	18.475	50	129.000	21.969	52
Completed Monthly Activity Report Available	0.688	0.044	48	0.764	0.082	55	0.745	0.048	51	0.792	0.057	53
Number of Malaria Cases Treated with ACT last six months	153.348	16.760	46	199.647	40.236	51	85.440	15.565	50	178.500	29.144	48
Number of Free ACT doses for	136.43	85.577	44	49.712	9.481	52	69.449	27.747	49	57.490	14.939	49

Children last six months	2											
Population of Catchment Area	11168.0	1947.7	43	8606.6	1268.2	50	7900.9	1447.1	48	9070.1	1650.6	49
Percentage Drug Cost Charged to Patient	11.400	2.763	45	11.981	2.109	54	16.796	3.230	49	13.608	3.485	51
Exemption Card for Exempt Individuals	0.111	0.062	45	0.220	0.053	50	0.208	0.068	48	0.174	0.070	46
Health Insurance Scheme at Facility	0.188	0.073	48	0.167	0.057	54	0.118	0.046	51	0.189	0.055	53

Table 4: Health and laboratory services offered by health facilities, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Facility open 24 hours	-	-	*	*	-	-	-	0.300	0.190	0.095	0.084	0.530	0.734	0.348
Facility provides Laboratory Services	-	-	-	-	-	-	-	0.715	0.537	0.269	0.495	0.937	0.775	0.611
Facility can provide Blood Tests	-	-	-	-	-	-	-	0.312	0.184	0.135	0.498	0.147	0.530	0.599
Facility can provide Malaria Tests	-	-	-	-	-	-	**	0.140	0.986	0.153	0.333	0.357	0.234	0.045
Facility can provide TB Tests	-	-	-	**	-	-	-	0.124	0.225	0.404	0.043	0.488	0.948	0.452
Facility can provide HIV Tests	-	-	-	-	-	-	-	0.306	0.129	0.177	0.195	0.813	0.709	0.564
Facility provides immunization	-	-	-	-	-	-	-	0.273	0.948	0.149	0.640	0.332	0.379	0.761
Facility provides ANC	-	-	-	-	-	-	-	0.556	0.322	0.824	0.978	0.320	0.333	0.958
Number of days ANC last month	-	-	-	-	-	-	-	0.953	0.691	0.889	0.964	0.679	0.896	0.860
Number of meetings with TBA in last six months	-	-	-	-	-	-	-	0.621	0.734	0.381	0.892	0.905	0.425	0.649
Number of days ANC community outreach	-	-	-	-	-	-	-	0.363	0.526	0.918	0.248	0.649	0.645	0.212
Facility provides Delivery Services	-	-	-	-	-	-	-	0.418	0.583	0.162	1.000	0.549	0.865	0.483
Facility provides Post-Partum Care	-	-	-	-	-	-	-	0.494	0.589	0.152	0.761	0.804	0.865	0.702
Number of days Post-Partum Care last month	-	-	-	-	-	-	-	0.514	0.487	0.767	0.523	0.227	0.774	0.275
Number of Maternal Deaths at facility last year	-	-	-	-	-	-	-	0.474	0.641	0.543	0.602	0.147	0.887	0.251
Treated Mosquito Net free for Pregnant Women and Children	*	-	-	**	-	**	-	0.077	0.109	0.756	0.043	0.760	0.038	0.203
Treated Mosquito Net Available at Facility	**	-	-	-	-	**	-	0.023	0.255	0.588	0.115	0.979	0.012	0.119
Number of Patients Seen at Facility last month	-	-	-	-	-	-	-	0.579	0.670	0.511	0.259	0.543	0.440	0.257
Completed Monthly Activity Report Available	-	-	-	-	-	-	-	0.372	0.114	0.763	0.525	0.321	0.406	0.852
Number of Malaria Cases Treated with ACT last six months	**	-	-	**	**	-	**	0.012	0.355	0.626	0.010	0.022	0.311	0.010
Number of Free ACT doses for Children last six months	-	-	-	-	-	-	-	0.633	0.385	0.604	0.703	0.463	0.324	0.518
Population of Catchment Area	-	-	-	-	-	-	-	0.445	0.259	0.757	0.343	0.150	0.139	0.646
Percentage Drug Cost Charged to	-	-	-	-	-	-	-	0.707	0.601	0.689	0.503	0.295	0.858	0.278

Patient																
Exemption Card for Exempt	-	-	-	-	-	-	-	0.491	0.432	0.423	0.693	0.355	0.147	0.882		
Individuals																
Health Insurance Scheme at Facility	-	-	-	-	-	-	-	0.122	0.990	0.761	0.154	0.298	0.838	0.442		

	* p<0.1	** p<0.05	***p<0.01													

Equipment and drugs

Table 5: Existence of key equipment for external consultations, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.									
Functional Toilet	0.813	0.073	48	0.855	0.071	55	0.824	0.071	51	0.849	0.061	53
Water, towel and soap in Examination Room	0.417	0.071	48	0.564	0.094	55	0.431	0.046	51	0.547	0.116	53
Waste Evacuation System	0.979	0.021	48	0.982	0.018	55	0.922	0.035	51	0.981	0.019	53
Secure Box for Sharps	1.000	0.000	48	1.000	0.000	55	0.941	0.032	51	0.962	0.025	53
User Fees for Consultation Posted	0.333	0.084	48	0.364	0.093	55	0.333	0.087	51	0.377	0.097	53
User Fees for Laboratory Services Posted	0.234	0.066	47	0.365	0.088	52	0.340	0.071	50	0.340	0.081	47
Child Weighing Scale	1.000	0.000	48	0.982	0.017	55	1.000	0.000	51	1.000	0.000	53
Height Measure	1.000	0.000	48	0.927	0.053	55	0.980	0.019	51	0.925	0.039	53
Tape Measure	1.000	0.000	48	1.000	0.000	55	1.000	0.000	51	0.981	0.018	53
Adult Weighing Scale	1.000	0.000	48	1.000	0.000	55	1.000	0.000	51	1.000	0.000	53
Blood Pressure Instrument	1.000	0.000	48	1.000	0.000	55	1.000	0.000	51	0.981	0.018	53
Thermometer	1.000	0.000	48	1.000	0.000	55	1.000	0.000	51	1.000	0.000	53
Stethoscope	1.000	0.000	48	0.982	0.018	55	1.000	0.000	51	1.000	0.000	53
Functional Toilet	0.813	0.073	48	0.855	0.071	55	0.824	0.071	51	0.849	0.061	53

Table 6: Existence of key equipment for external consultations, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Functional Toilet	-	-	-	-	-	-	-	0.938	0.642	0.939	0.702	0.906	0.637	0.729
Water, towel and soap in Examination Room	-	-	-	-	-	-	-	0.435	0.283	0.871	0.306	0.853	0.132	0.193
Waste Evacuation System	-	-	-	*	-	-	-	0.310	0.667	0.981	0.095	0.117	0.930	0.150
Secure Box for Sharps	-	-	-	-	*	-	*	0.113	0.156	0.156	0.647	0.089	-	0.092
User Fees for Consultation Posted	-	-	-	-	-	-	-	0.947	0.758	0.886	0.558	1.000	0.826	0.778
User Fees for Laboratory Services Posted	-	-	-	-	-	-	-	0.600	0.311	0.809	0.995	0.318	0.214	0.804
Child Weighing Scale	-	-	-	-	-	-	-	0.314	-	0.313	-	-	0.313	0.316
Height Measure	-	*	-	-	-	-	-	0.320	0.074	0.940	0.150	0.331	0.189	0.366
Tape Measure	-	-	-	-	-	-	-	0.603	0.322	0.322	0.322	-	-	-
Adult Weighing Scale	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blood Pressure Instrument	-	-	-	-	-	-	-	0.603	0.322	0.322	0.322	-	-	-
Thermometer	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stethoscope	-	-	-	-	-	-	-	0.334	-	0.332	-	-	0.333	0.335

* p<0.1 ** p<0.05 ***p<0.01

Table 7: Availability of tracer drugs, randomized facilities

		C3			C2			C1			T		
		Mean	SD	Obsv.	Mean	SD	Obsv.	Mean	SD	Obsv.	Mean	SD	Obsv.
Essential Drugs	Tetracycline Eye Ointment	76.185	39.055	27	42.900	9.731	30	54.893	12.297	28	25.871	9.205	31
	Paracetamol Tablets	1972.21	295.998	39	2156.37	314.560	43	2185.90	365.623	39	1797.17	322.178	42
	Amoxicillin Tablets/Capsules	1089.61	170.163	38	1164.54	243.306	43	1375.63	256.675	38	1895.30	480.648	44
	Amoxicillin Syrup	42.086	9.324	35	68.821	18.549	39	35.806	7.586	36	29.550	6.716	40
	ORS Packets	99.621	18.728	29	65.649	14.787	37	140.152	58.650	33	81.028	12.022	36
	Iron Tablets (with or without Folic Acid)	1652.41	268.930	27	1481.64	291.904	36	1418.25	239.302	32	1889.84	285.526	37
	Folic Acid Tablets	716.913	299.598	23	457.870	214.262	23	780.500	310.023	20	884.368	349.699	19
	Cotrimoxazole	1454.79	158.448	38	1556.04	237.513	45	1940.38	319.902	37	2054.93	400.390	42
	Vitamin A	373.241	35.356	29	393.091	72.014	33	451.533	162.777	30	370.621	100.301	29
	Family Planning	Condoms (Male or Female)	136.478	43.465	23	164.333	40.868	30	167.259	29.813	27	184.276	56.802
Contraceptive Pills		58.850	10.192	20	84.618	26.137	34	66.037	7.340	27	60.556	5.786	27
Depot Medroxy Progesterone Acetate		37.174	6.430	23	66.781	23.643	32	60.320	8.663	25	37.607	5.910	28
Implant Jadelle		64.176	13.121	17	60.667	10.065	21	85.167	5.725	18	63.800	15.383	15
Intra-Uterine Device (IUD)		68.706	13.129	17	148.211	92.864	19	81.316	6.709	19	40.188	10.053	16
Antimalaria Is	Quinine	941.438	136.779	32	1075.50	198.517	38	1175.00	250.601	31	817.389	146.203	36
	Amodiaquine+ Artesunate (ACT)	143.185	71.303	27	84.103	27.217	39	69.100	8.201	30	107.108	27.481	37
	Lumefantrine +Artesunate (ACT)	66.885	7.076	26	64.806	16.366	31	69.926	8.715	27	157.158	69.610	38
	Lumefantrine +Artesunate (ACT) syrup	69.167	13.862	24	80.815	16.977	27	69.042	6.450	24	57.731	16.506	26
	Fansidar- Sulphadoxine Pyramethamine Tablet	401.400	82.844	30	412.361	90.762	36	529.314	100.667	35	381.000	76.602	36
Vaccine	BCG	49.636	9.555	22	57.294	7.727	34	60.893	8.966	28	114.52	65.126	27
	OPV	108.78	20.147	23	61.788	8.954	33	82.321	18.757	28	102.29	37.633	28
	TT	77.364	12.767	22	55.353	7.104	34	79.107	18.497	28	65.148	12.376	27
	DPT	74.786	10.071	14	89.609	8.465	23	86.750	6.858	20	109.22	20.632	18
	Hepatitis B Tetravalent	74.786	10.071	14	89.091	2.954	22	84.750	5.791	20	95.33	20.813	18
	Measles	96.455	47.683	22	96.867	36.486	30	66.600	14.515	25	70.875	27.965	24
	HiB Vaccine	76.077	9.758	13	89.591	3.988	22	87.500	6.393	20	72.950	8.584	20
	Pentavalent (DPT, Hepatitis B, HiB,	77.565	10.679	23	60.647	7.106	34	90.536	17.820	28	68.429	15.443	28

Table 8: Availability of tracer drugs, randomized facilities, F-tests and t-tests

		Stars for Significant F and t-tests							p values for F and t- tests						
		F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
<i>Essential Drugs</i>	Tetracycline Eye Ointment	***	-	-	**	-	-	-	0.001	0.177	0.100	0.010	0.621	0.414	0.267
	Paracetamol Tablets	-	-	-	-	-	-	-	0.636	0.589	0.415	0.342	0.488	0.644	0.957
	Amoxicillin Tablets/Capsules	-	-	*	-	-	-	-	0.193	0.132	0.093	0.342	0.295	0.817	0.496
	Amoxicillin Syrup	-	-	*	-	-	-	-	0.280	0.314	0.086	0.464	0.599	0.190	0.185
	ORS Packets	-	-	-	-	-	-	-	0.388	0.477	0.414	0.333	0.536	0.195	0.238
	Iron Tablets (with or without Folic Acid)	-	-	-	-	-	-	-	0.687	0.556	0.408	0.254	0.592	0.719	0.814
	Folic Acid Tablets	-	-	-	-	-	-	-	0.175	0.743	0.360	0.857	0.879	0.181	0.329
	Cotrimoxazole	-	-	-	-	-	-	-	0.179	0.250	0.098	0.730	0.237	0.746	0.102
	Vitamin A	-	-	-	-	-	-	-	0.975	0.983	0.844	0.687	0.670	0.833	0.731
<i>Family Planning</i>	Condoms(Male or Female)	-	-	-	-	-	-	-	0.847	0.516	0.744	0.815	0.502	0.649	0.948
	Contraceptive Pills	-	-	-	-	-	-	-	0.676	0.874	0.408	0.612	0.532	0.315	0.512
	Depot Medroxy Progesterone Acetate	*	-	-	**	*	-	-	0.088	0.963	0.257	0.027	0.076	0.252	0.812
	Implant Jadelle	-	-	-	-	-	-	*	0.280	0.979	0.823	0.193	0.198	0.782	0.066
	Intra-Uterine Device (IUD)	***	*	-	***	-	-	-	0.002	0.069	0.250	0.004	0.492	0.429	0.477
<i>Antimalarials</i>	Quinine	-	-	-	-	-	-	-	0.263	0.564	0.101	0.148	0.494	0.603	0.668
	Amodiaquine+ Artesunate (ACT)	-	-	-	-	-	-	-	0.310	0.653	0.571	0.177	0.335	0.476	0.560
	Lumefantrine +Artesunate (ACT)	-	-	-	-	-	-	-	0.641	0.226	0.260	0.227	0.749	0.905	0.807
	Lumefantrine +Artesunate (ACT) syrup	-	-	-	-	-	-	-	0.534	0.595	0.168	0.440	0.994	0.558	0.460
	Fansidar- Sulphadoxine	-	-	-	-	-	-	-	0.406	0.852	0.684	0.235	0.242	0.933	0.478
	Pyramethamine Tablet	-	-	-	-	-	-	-	0.406	0.852	0.684	0.235	0.242	0.933	0.478
<i>Vaccine</i>	BCG	-	-	-	-	-	-	-	0.501	0.356	0.414	0.410	0.380	0.315	0.756
	OPV	-	-	-	-	-	**	-	0.133	0.867	0.289	0.620	0.328	0.035	0.275
	TT	-	-	-	-	-	-	-	0.377	0.450	0.469	0.534	0.937	0.162	0.218
	DPT	-	-	-	-	-	-	-	0.283	0.138	0.300	0.298	0.230	0.330	0.748
	Hepatitis B Tetravalent	-	-	-	-	153	-	-	0.557	0.395	0.773	0.623	0.279	0.189	0.373

Measles	-	-	-	-	-	-	-	0.602	0.324	0.613	0.887	0.562	0.995	0.498
HiB Vaccine	-	-	*	*	-	-	-	0.212	0.760	0.086	0.074	0.235	0.217	0.781
Pentavalent (DPT, Hepatitis B, HiB,	-	-	-	-	-	-	*	0.118	0.663	0.548	0.312	0.529	0.222	0.069

* p<0.1 ** p<0.05 ***p<0.01

Management and supervision

Table 9: Management and supervision characteristics, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.	Mean	SE	Obsv.	Mean	SE	Obsv.	Mean	SE	Obsv.
Hospital Committee in Existence	0.750	0.050	48	0.800	0.060	55	0.765	0.062	51	0.774	0.069	53
Number of Hospital Committee Meetings in last year	5.528	0.700	36	6.651	0.968	43	5.263	0.638	38	5.605	1.254	38
Facility Budget Developed and Seen	0.139	0.078	36	0.250	0.067	44	0.289	0.047	38	0.268	0.082	41
Facility Work Plan Developed and Seen	0.396	0.075	48	0.436	0.083	55	0.510	0.058	51	0.528	0.072	53
Number of Staff Meetings in past 3 months	2.021	0.216	47	2.055	0.199	55	1.740	0.191	50	2.294	0.268	51
All staff have written job descriptions	0.489	0.069	47	0.556	0.074	54	0.500	0.081	50	0.577	0.067	52
Visits last 3 months: District Hospital Representatives	0.813	0.191	48	0.778	0.196	54	0.627	0.156	51	0.698	0.179	53
Visits last 3 months: District Health Management Team	0.875	0.144	48	0.855	0.166	55	1.078	0.326	51	0.849	0.199	53
Visits last 3 months: Community Health Workers	3.255	0.726	47	3.000	0.579	55	2.000	0.348	50	2.686	0.468	51
Number of Internal Assessments : Past 12 months	4.244	0.950	45	4.056	1.097	54	4.660	1.090	47	3.469	0.697	49
Number of External Assessment: Past 12 Months	1.064	0.418	47	1.481	0.326	54	1.725	0.733	51	1.392	0.720	51
Patient Feedback Sought	0.813	0.061	48	0.618	0.058	55	0.804	0.041	51	0.642	0.080	53
Patient Feedback Communicated to Staff	0.667	0.097	39	0.853	0.080	34	0.732	0.058	41	0.853	0.062	34
Patient Feedback led to Change in Past 12 months	0.821	0.053	39	0.824	0.042	34	0.732	0.097	41	0.824	0.065	34
Health Area has Active Community Health Workers(CHWs)	0.792	0.087	48	0.782	0.054	55	0.804	0.057	51	0.792	0.048	53
Number of Active CHWs in Health Area	8.188	1.413	48	10.055	1.273	55	8.780	1.430	50	10.906	1.862	53
Health Facility has Community Health Supervisor (CHS)	0.565	0.083	46	0.642	0.065	53	0.531	0.076	49	0.577	0.073	52

Table 10: Management and supervision characteristics, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Hospital Committee in Existence	-	-	-	-	-	-	-	0.909	0.795	0.798	0.928	0.811	0.492	0.595
Number of Hospital Committee Meetings in last year	-	-	-	-	-	-	-	0.315	0.948	0.228	0.822	0.776	0.273	0.233
Facility Budget Developed and Seen	-	-	-	-	-	-	-	0.453	0.240	0.856	0.746	0.119	0.296	0.652
Facility Work Plan Developed and Seen	-	-	-	-	-	-	-	0.695	0.298	0.438	0.753	0.284	0.715	0.422
Number of Staff Meetings in past 3 months	-	-	-	-	-	-	-	0.418	0.309	0.415	0.121	0.226	0.888	0.204
No staff have written job descriptions	-	-	-	-	-	-	-	0.622	0.283	0.811	0.247	0.882	0.504	0.566
Visits last 3 months: District Hospital Representatives	-	-	-	-	-	-	-	0.752	0.535	0.771	0.734	0.325	0.888	0.544
Visits last 3 months: District Health Management Team	-	-	-	-	-	-	-	0.810	0.883	0.972	0.453	0.393	0.900	0.514
Visits last 3 months: Community Health Workers	-	-	-	-	-	-	-	0.422	0.504	0.659	0.228	0.167	0.726	0.178
Number of Internal Assessments :Past 12 months	-	-	-	-	-	-	-	0.644	0.467	0.655	0.348	0.798	0.912	0.739
Number of External Assessment: Past 12 Months	-	-	-	-	-	-	-	0.845	0.680	0.905	0.716	0.456	0.449	0.757
Patient Feedback Sought	*	-	-	**	-	**	**	0.050	0.132	0.770	0.031	0.894	0.031	0.017
Patient Feedback Communicated to Staff	-	*	-	-	-	-	-	0.237	0.069	1.000	0.157	0.528	0.115	0.338
Patient Feedback led to Change in Past 12 months	-	-	-	-	-	-	-	0.764	0.962	1.000	0.494	0.469	0.967	0.313
Health Area has Active Community Health Workers(CHWs)	-	-	-	-	-	-	-	0.987	0.994	0.879	0.883	0.865	0.896	0.726
Number of Active CHWs in Health Area	-	-	-	-	-	-	-	0.419	0.296	0.742	0.362	0.716	0.261	0.313
Health Facility has Community Health Supervisor (CHS)	-	-	-	-	-	-	*	0.316	0.845	0.451	0.509	0.725	0.461	0.092

* p<0.1 ** p<0.05 ***p<0.01

Health worker survey

Table 11: Health worker survey respondent characteristics, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.									
Male	0.298	0.057	114	0.343	0.074	108	0.324	0.056	108	0.336	0.065	107
Age	38.195	0.783	113	36.598	1.210	107	39.135	1.204	104	36.981	0.831	104
Lives with spouse	0.386	0.039	114	0.411	0.050	107	0.454	0.046	108	0.477	0.052	107
Serving in native district	0.439	0.093	114	0.380	0.055	108	0.415	0.088	106	0.365	0.071	107
Total years worked	10.274	0.597	113	10.057	0.796	105	10.589	0.993	107	9.585	0.731	106
Years worked at current facility	6.432	0.600	111	4.346	0.653	107	4.453	0.304	108	5.429	0.566	105
Number of days absent last month	1.125	0.300	112	0.841	0.215	107	0.981	0.318	108	0.869	0.320	107
Number of hours worked last week	51.128	3.218	110	53.086	2.449	105	51.178	2.170	107	51.738	3.267	107
Ever absent without authorization	0.044	0.019	114	0.056	0.029	108	0.046	0.021	108	0.103	0.057	107
Number of patients seen on last full work day	7.400	1.269	110	5.833	1.027	108	4.248	0.808	105	6.738	1.859	107
Are you tempted to leave your current job ?	0.216	0.045	111	0.200	0.037	105	0.200	0.052	105	0.257	0.066	105
Receive housing allowance	0.169	0.047	89	0.093	0.035	75	0.111	0.043	81	0.160	0.041	75
Receive rural hardship bonus	0.018	0.011	114	0.019	0.017	108	0.000	0.000	108	0.010	0.009	105
Receive travel allowance for outreach	0.241	0.048	112	0.318	0.063	107	0.324	0.066	108	0.257	0.049	105
Discussed job difficulties with supervisor in last month	0.747	0.032	87	0.756	0.070	78	0.757	0.064	70	0.765	0.057	81
Number of meetings with external supervisor in last 12 months	3.134	0.565	82	4.033	0.269	91	4.229	0.668	92	4.494	0.595	87
Respondent is engaged in supplementary jobs	0.272	0.059	114	0.231	0.037	108	0.241	0.058	108	0.271	0.037	107

Table 12: Health worker survey respondent characteristics, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Male	-	-	-	-	-	-	-	0.966	0.633	0.936	0.833	0.684	0.673	0.811
Age	-	-	-	-	-	--	-	0.232	0.138	0.744	0.170	0.539	0.170	0.173
Lives with spouse	-	-	-	-	-	-	-	0.556	0.191	0.402	0.703	0.256	0.695	0.597
Serving in native district	-	-	-	-	-	-	-	0.834	0.483	0.828	0.623	0.833	0.465	0.646
Total years worked	-	-	-	-	-	-	-	0.434	0.226	0.575	0.316	0.787	0.765	0.687
Years worked at current facility	-	-	-	-	*	**	-	0.175	0.125	0.285	0.321	0.073	0.049	0.871
Number of days absent last month	-	-	-	-	-	-	-	0.882	0.513	0.914	0.804	0.759	0.438	0.750
Number of hours worked last week	-	-	-	-	-	-	-	0.921	0.902	0.706	0.891	0.988	0.634	0.533
Ever absent without authorization	-	-	-	-	-	-	-	0.648	0.315	0.257	0.234	0.924	0.728	0.721
Number of patients seen on last full work day	-	-	-	-	*	-	-	0.100	0.783	0.665	0.153	0.060	0.333	0.197
Are you tempted to leave your current job?	-	-	-	-	-	-	-	0.890	0.588	0.449	0.518	0.838	0.751	1.000
Receive housing allowance	-	-	-	-	-	-	-	0.538	0.877	0.267	0.478	0.404	0.179	0.713
Receive rural hardship bonus	-	-	-	-	-	-	-	0.498	0.436	0.282	0.322	0.149	0.943	0.300
Receive travel allowance for outreach	-	-	-	-	-	-	-	0.400	0.830	0.448	0.369	0.310	0.302	0.952
Discussed job difficulties with supervisor in last month	-	-	-	-	-	-	-	0.992	0.793	0.901	0.929	0.880	0.906	0.995
Number of meetings with external supervisor in last 12 months	-	*	-	-	-	-	-	0.271	0.079	0.535	0.729	0.135	0.217	0.763
Respondent is engaged in supplementary jobs	-	-	-	-	-	-	-	0.465	0.986	0.257	0.496	0.522	0.514	0.881

* p<0.1 ** p<0.05 ***p<0.01

Direct observations for antenatal consultations

Table 13a: Direct observation of antenatal consultations, randomized facilities

		C3			C2			C1			T		
		Mean	SE	Obsv.									
<i>The Provider Asked About or the Client Mentioned</i>	Client's Age	0.578	0.085	64	0.586	0.126	70	0.770	0.067	61	0.803	0.089	66
	Medications taken by Client	0.281	0.059	64	0.348	0.067	69	0.311	0.081	61	0.227	0.079	66
	Date of Client's Last Menstrual Period	0.594	0.101	64	0.657	0.107	70	0.758	0.062	62	0.818	0.087	66
	Number of Prior Pregnancies	0.578	0.083	64	0.557	0.138	70	0.607	0.096	61	0.712	0.065	66
<i>The Provider or Client Discussed Aspects of Prior Pregnancies</i>	Prior Stillbirth	0.422	0.060	64	0.443	0.109	70	0.468	0.065	62	0.561	0.079	66
	Infant Dying in First Week of Life	0.270	0.089	63	0.420	0.111	69	0.339	0.084	62	0.333	0.109	66
	Heavy Bleeding , during or after Delivery	0.429	0.063	63	0.471	0.121	70	0.484	0.053	62	0.545	0.060	66
	Previous Assisted Delivery(Ventouse, Cesarean or Forceps)	0.175	0.067	63	0.229	0.080	70	0.180	0.060	61	0.152	0.031	66
	Previous Assisted Delivery	0.302	0.093	63	0.371	0.096	70	0.393	0.074	61	0.500	0.091	66
	Previous Abortions	0.403	0.065	62	0.400	0.096	70	0.387	0.071	62	0.439	0.053	66
<i>The Provider or Client Discussed Aspects of the Current Pregnancy</i>	Bleeding	0.141	0.065	64	0.029	0.021	70	0.097	0.063	62	0.000	0.000	66
	Fever	0.141	0.053	64	0.214	0.057	70	0.098	0.047	61	0.424	0.132	66
	Headache or Blurred Vision	0.156	0.060	64	0.100	0.039	70	0.065	0.038	62	0.197	0.055	66
	Swollen Face or Hands	0.156	0.079	64	0.214	0.071	70	0.177	0.080	62	0.136	0.049	66
	Tiredness or Breathlessness	0.109	0.043	64	0.071	0.042	70	0.081	0.057	62	0.076	0.020	66
	Client has felt the Baby move	0.297	0.053	64	0.243	0.086	70	0.339	0.079	62	0.424	0.110	66
	Any Other Symptoms or Problems	0.547	0.068	64	0.486	0.060	70	0.613	0.133	62	0.515	0.080	66
	Symptoms the Client thinks might be related to Pregnancy	0.117	0.041	60	0.221	0.056	68	0.246	0.086	61	0.127	0.044	63

Table 13b: Direct observation of antenatal consultations, randomized facilities

		C3			C2			C1			T		
		Mean	SE	Obsv.									
<i>Examination</i>	Blood Pressure taken	0.859	0.087	64	0.971	0.031	70	0.984	0.018	62	0.970	0.025	66
	Weighed	0.906	0.072	64	1.000	0.000	70	1.000	0.000	62	0.970	0.023	66
	Conjunctiva/Palm Examined for Edema/Anemia	0.750	0.094	64	0.786	0.101	70	0.887	0.073	62	0.727	0.105	66
	Legs/Feet for Edema	0.797	0.070	64	0.929	0.042	70	0.984	0.017	62	0.833	0.121	66
	Fetal Presentation	0.953	0.049	64	0.986	0.012	69	0.918	0.073	61	0.970	0.025	66
	Uterine Height	0.984	0.013	64	0.986	0.012	70	1.000	0.000	61	0.985	0.016	66
	Fetal Heartbeat	0.922	0.052	64	1.000	0.000	69	0.855	0.075	62	0.985	0.016	66
	Breasts	0.531	0.137	64	0.681	0.084	69	0.581	0.095	62	0.561	0.162	66
	Vagina /Perineal Area	0.109	0.058	64	0.171	0.058	70	0.032	0.030	62	0.273	0.078	66
	Perform/Refer for Anemia Test	0.672	0.110	64	0.771	0.108	70	0.565	0.123	62	0.697	0.093	66
	Perform/Refer for Urine Test	0.719	0.097	64	0.814	0.087	70	0.661	0.101	62	0.742	0.078	66
	Blood Group or Rh Factor Test	0.359	0.090	64	0.486	0.146	70	0.403	0.095	62	0.485	0.091	66
	Perform/Refer for Syphilis Test	0.484	0.091	64	0.529	0.154	70	0.532	0.095	62	0.600	0.112	65
	Perform/Refer for HIV Test	0.547	0.078	64	0.529	0.155	70	0.548	0.090	62	0.727	0.082	66
	Provide or refer to Counseling for HIV Test	0.578	0.101	64	0.443	0.165	70	0.492	0.085	61	0.727	0.090	66
	Look at Client's Health Card	0.859	0.072	64	0.941	0.020	68	0.984	0.015	62	0.937	0.037	63

Table 13c: Direct observation of antenatal consultations, randomized facilities

		C3			C2			C1			T		
		Mean	SE	Obsv.									
<i>Iron-Folic Acid</i>	Prescribed or gave Iron/Folic Acid (IFA) pills	0.825	0.077	63	0.900	0.071	70	0.855	0.038	62	0.909	0.024	66
	Explained purpose of IFA pills	0.472	0.076	53	0.597	0.097	62	0.358	0.069	53	0.633	0.122	60
	Explained how to take IFA pills	0.830	0.079	53	0.857	0.061	63	0.868	0.053	53	0.800	0.098	60
	Explained side effects of Iron pills	0.170	0.102	53	0.095	0.054	63	0.000	0.000	53	0.033	0.025	60
<i>Tetanus Toxoid</i>	Prescribed or gave Tetanus Toxoid (TT) injection	0.578	0.095	64	0.600	0.081	70	0.565	0.098	62	0.621	0.121	66
	Explained the purpose of the TT injection	0.649	0.112	37	0.432	0.146	44	0.314	0.139	35	0.659	0.077	41
<i>Anti-Malarial Prophylaxis</i>	Prescribed or gave Anti-Malarial Prophylaxis	0.750	0.082	64	0.600	0.112	70	0.629	0.073	62	0.773	0.085	66
	Explained the purpose of preventive treatment for Malaria	0.574	0.121	47	0.477	0.118	44	0.308	0.120	39	0.569	0.157	51
	Explained how to take the Anti-Malarial medications	0.813	0.066	48	0.795	0.081	44	0.821	0.089	39	0.804	0.102	51
	Explained possible side effects of Malaria pills	0.042	0.029	48	0.000	0.000	44	0.000	0.000	39	0.000	0.000	51
<i>Direct Observation</i>	Observed that 1 st dose of IPT given in facility	0.604	0.048	48	0.568	0.098	44	0.897	0.065	39	0.843	0.074	51
	Importance of 2 nd dose of IPT Explained	0.375	0.170	48	0.318	0.107	44	0.000	0.000	39	0.529	0.161	51
	Importance of using Insecticide Treated Net(ITN) Explained	0.297	0.123	64	0.214	0.068	70	0.145	0.080	62	0.485	0.129	66
	Given voucher/free ITN	0.125	0.053	64	0.257	0.071	70	0.082	0.072	61	0.258	0.164	66
	Bought ITN	0.032	0.027	63	0.043	0.018	70	0.016	0.015	62	0.106	0.074	66

Table 13d: Direct observation of antenatal consultations, randomized facilities

		C3			C2			C1			T		
		Mean	SE	Obsv.									
Mentioned Risk Factors for Women to Return to Facility	Discussed Quantity or Quality of Food to Eat during Pregnancy	0.531	0.128	64	0.486	0.067	70	0.548	0.096	62	0.727	0.057	66
	Vaginal Bleeding	0.234	0.065	64	0.086	0.061	70	0.387	0.063	62	0.212	0.098	66
	Fever	0.109	0.036	64	0.100	0.036	70	0.129	0.070	62	0.333	0.088	66
	Excessive Tiredness of Breathlessness	0.016	0.013	64	0.043	0.027	70	0.032	0.035	62	0.015	0.017	66
	Swollen Hands and Face	0.141	0.067	64	0.157	0.042	70	0.081	0.045	62	0.106	0.064	66
	Severe Headache or Blurred Vision	0.031	0.017	64	0.157	0.056	70	0.097	0.065	62	0.152	0.089	66
	Informed the Client About the progress of the Pregnancy	0.328	0.093	64	0.171	0.037	70	0.097	0.041	62	0.258	0.074	66
Provider Counseled the Client About	Asked Client place of Delivery	0.047	0.031	64	0.129	0.062	70	0.081	0.046	62	0.227	0.066	66
	Advised Client to prepare for Delivery	0.250	0.064	64	0.386	0.066	70	0.145	0.061	62	0.273	0.064	66
	Advised Client to use a Skilled Health Worker for Delivery	0.094	0.046	64	0.086	0.056	70	0.097	0.046	62	0.076	0.047	66
	Discussed items to have at home for Delivery	0.250	0.088	64	0.314	0.075	70	0.129	0.059	62	0.288	0.075	66
	Discussed Importance of Immunization for the Newborn	0.048	0.040	63	0.100	0.060	70	0.032	0.025	62	0.061	0.047	66
Provider Advised /Discussed	Exclusive Breastfeeding for 6 months	0.188	0.090	64	0.271	0.099	70	0.161	0.098	62	0.076	0.047	66
	Family Planning after Delivery	0.078	0.061	64	0.143	0.074	70	0.016	0.018	62	0.121	0.065	66
	Asked the Client whether she had other questions	0.672	0.095	64	0.614	0.082	70	0.629	0.104	62	0.894	0.056	66
	Provider used any Visual Aids for Health Education or Counseling	0.109	0.065	64	0.057	0.048	70	0.048	0.029	62	0.076	0.075	66
	Provider Wrote on Client's Health Card	1.000	0.000	64	0.971	0.024	70	1.000	0.000	62	1.000	0.000	66
Time Taken in Minutes	1 st part of Consultation	26.281	5.804	64	22.457	6.169	70	17.590	1.455	61	26.923	4.683	65
	2 nd part of Consultation	7.469	1.494	64	8.188	1.545	69	6.623	1.240	61	8.394	1.925	66
	Total Consultation Time	33.641	5.444	64	30.529	6.985	70	24.213	2.359	61	34.909	4.874	66

Table 14a: Direct observation of antenatal consultations, randomized facilities, F-tests and t-tests

		Stars for Significant F and t-tests						p values for F and t- tests							
		F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Provider Asked About or Client Mentioned	Client's Age	**	*	-	-	*	-	-	0.012	0.091	0.117	0.725	0.077	0.970	0.191
	Medications taken by Client	-	-	-	-	-	-	-	0.456	0.615	0.172	0.526	0.746	0.500	0.671
	Date of Client's Last Menstrual Period	**	-	-	-	-	-	-	0.010	0.132	0.184	0.581	0.192	0.757	0.387
	Number of Prior Pregnancies	*	-	-	-	-	-	-	0.086	0.233	0.248	0.406	0.834	0.921	0.769
Provider or Client Discussed Aspects of Prior Pregnancies	Prior Stillbirth	-	*	-	-	-	-	-	0.299	0.092	0.425	0.309	0.638	0.894	0.824
	Infant Dying in First Week of Life	-	-	-	-	-	-	-	0.851	0.607	0.612	0.971	0.555	0.415	0.586
	Heavy Bleeding , during or after Delivery	-	-	-	-	-	-	-	0.361	0.147	0.625	0.505	0.507	0.802	0.921
	Previous Assisted Delivery(Ventouse, Cesarean or Forceps)	-	-	-	-	-	-	-	0.680	0.698	0.450	0.665	0.957	0.687	0.655
	Previous Assisted Delivery	-	*	-	-	-	-	-	0.193	0.064	0.383	0.342	0.474	0.688	0.819
	Previous Abortions	-	-	-	-	-	-	-	0.869	0.467	0.764	0.581	0.857	0.982	0.904
Provider or Client Discussed Aspects of the Current Pregnancy	Bleeding	**	*	-	-	-	-	-	0.023	0.056	0.207	0.144	0.692	0.105	0.275
	Fever	**	**	-	**	-	-	**	0.034	0.021	0.148	0.029	0.525	0.384	0.037
	Headache or Blurred Vision	-	-	-	*	-	-	-	0.249	0.401	0.130	0.064	0.244	0.443	0.478
	Swollen Face or Hands	-	-	*	-	-	-	-	0.809	0.829	0.366	0.625	0.856	0.564	0.714
	Tiredness or Breathlessness	-	-	-	-	-	-	-	0.831	0.385	0.934	0.929	0.672	0.588	0.902
	Client has felt the Baby move	-	-	-	-	-	-	-	0.739	0.382	0.289	0.522	0.656	0.527	0.428
	Any Other Symptoms or Problems	-	-	-	-	-	-	-	0.628	0.825	0.740	0.569	0.691	0.573	0.318
	Symptoms the Client thinks might be related to Pregnancy	*	-	-	*	-	-	-	0.093	0.898	0.223	0.059	0.284	0.235	0.808

* p<0.1 ** p<0.05 *** p<0.01

Table 14b: Direct observation of antenatal consultations, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
<i>Examination</i>														
Blood Pressure taken	-	-	-	-	-	-	-	0.450	0.231	0.965	0.635	0.185	0.228	0.461
Weighed	-	-	-	-	-	-	-	0.201	0.423	0.207	0.207	0.217	0.212	-
Conjunctiva/Palm Examined for Edema/Anemia	-	-	-	-	-	-	-	0.143	0.797	0.754	0.137	0.131	0.827	0.394
Legs/Feet for Edema	*	-	-	-	**	-	-	0.055	0.780	0.470	0.238	0.023	0.155	0.236
Fetal Presentation	-	-	-	-	-	-	-	0.772	0.770	0.601	0.517	0.686	0.566	0.385
Uterine Height	-	-	-	-	-	-	-	0.476	0.983	0.969	0.375	0.263	0.787	0.253
Fetal Heartbeat	-	-	-	-	-	-	*	0.116	0.237	0.375	0.125	0.475	0.156	0.070
Breasts	-	-	-	-	-	-	-	0.833	0.894	0.513	0.866	0.754	0.443	0.417
Vagina /Perineal Area	**	-	-	**	-	-	*	0.015	0.174	0.353	0.010	0.263	0.357	0.051
Perform/Refer for Anemia Test	-	-	-	-	-	-	*	0.291	0.873	0.588	0.448	0.455	0.557	0.095
Perform/Refer for Urine Test	-	-	-	-	-	-	-	0.526	0.867	0.572	0.532	0.676	0.538	0.152
Blood Group or Rh Factor Test	-	-	-	-	-	-	-	0.749	0.378	0.996	0.482	0.699	0.443	0.659
Perform/Refer for Syphilis Test	-	-	-	-	-	-	-	0.844	0.405	0.736	0.614	0.703	0.847	0.985
Perform/Refer for HIV Test	-	-	-	-	-	-	-	0.151	0.219	0.151	0.149	0.989	0.932	0.915
Provide or refer to Counseling for HIV Test	*	-	*	*	-	-	-	0.072	0.373	0.060	0.090	0.521	0.595	0.798
Look at Client's Health Card	**	-	-	-	-	-	**	0.037	0.447	0.920	0.303	0.117	0.284	0.020

* p<0.1 ** p<0.05 *** p<0.01

Table 14c: Direct observation of antenatal consultations, randomized facilities, F-tests and t-tests

		Stars for Significant F and t-tests							p values for F and t- tests						
		F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
<i>Iron-Folic Acid</i>	Prescribed or gave Iron/Folic Acid (IFA) pills	-	-	-	-	-	-	-	0.484	0.374	0.895	0.239	0.771	0.555	0.596
	Explained purpose of IFA pills	-	-	-	-	-	-	-	0.252	0.365	0.835	0.124	0.205	0.359	0.104
	Explained how to take IFA pills	-	-	-	-	-	-	-	0.912	0.820	0.574	0.571	0.709	0.816	0.915
	Explained side effects of Iron pills	*	-	-	-	-	-	-	0.055	0.137	0.362	0.214	0.121	0.584	0.102
<i>Tetanus Toxoid</i>	Prescribed or gave Tetanus Toxoid (TT) injection	-	-	-	-	-	-	-	0.981	0.827	0.870	0.698	0.921	0.850	0.758
	Explained the purpose of the TT injection	**	-	-	*	*	*	-	0.042	0.955	0.315	0.058	0.078	0.080	0.602
<i>Anti-Malarial Prophylaxis</i>	Prescribed or gave Anti-Malarial Prophylaxis	**	-	*	-	-	-	-	0.047	0.883	0.097	0.121	0.318	0.409	0.840
	Explained the purpose of preventive treatment for Malaria	-	-	-	-	-	-	-	0.481	0.977	0.684	0.237	0.165	0.583	0.386
	Explained how to take the Anti-Malarial medications	-	-	-	-	-	-	-	0.996	0.945	0.952	0.893	0.947	0.885	0.835
	Explained possible side effects of Malaria pills	-	-	-	-	-	-	-	0.369	0.179	-	-	0.174	0.173	-
<i>Direct Observation</i>	Observed that 1 st dose of IPT given in facility	***	**	**	-	***	-	**	0.009	0.046	0.017	0.607	0.006	0.760	0.019
	Importance of 2 nd dose of IPT	***	-	-	***	*	-	**	0.000	0.597	0.398	0.007	0.050	0.649	0.011
	Explained Importance of using Insecticide Treated Net(ITN)	***	-	**	***	-	-	-	0.006	0.345	0.031	0.007	0.298	0.558	0.538
	Explained Given voucher/free ITN	***	-	-	-	-	*	*	0.004	0.448	0.998	0.117	0.565	0.086	0.095
	Bought ITN	-	*	-	-	-	-	-	0.603	0.412	0.425	0.275	0.613	0.717	0.347

* p<0.1 ** p<0.05 *** p<0.01

Table 14d: Direct observation of antenatal consultations, randomized facilities, F-tests and t-tests

		Stars for Significant F and t-tests							p values for F and t- tests						
		F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Mentioned Risk Factors for Women to Return to Facility	Discussed Quantity or Quality of Food to Eat during Pregnancy	***	-	***	**	-	-	-	0.003	0.120	0.008	0.019	0.908	0.742	0.553
	Vaginal Bleeding	**	-	-	-	-	*	***	0.032	0.849	0.161	0.114	0.158	0.070	0.006
	Fever	**	**	***	*	-	-	-	0.014	0.023	0.004	0.079	0.802	0.788	0.728
	Excessive Tiredness of Breathlessness	-	-	-	-	-	-	-	0.812	0.984	0.409	0.665	0.654	0.438	0.816
	Swollen Hands and Face	-	-	-	-	-	-	-	0.709	0.727	0.472	0.751	0.469	0.836	0.296
	Severe Headache or Blurred Vision	-	-	-	-	-	*	-	0.171	0.222	0.958	0.661	0.348	0.055	0.290
	Informed the Client About the progress of the Pregnancy	***	-	-	**	**	-	-	0.008	0.543	0.276	0.042	0.026	0.202	0.124
Provider Counseled the Client About	Asked Client place of Delivery	-	*	-	*	-	-	-	0.225	0.061	0.202	0.074	0.547	0.179	0.504
	Advised Client to prepare for Delivery	-	-	-	*	-	-	**	0.181	0.809	0.244	0.088	0.236	0.231	0.045
	Advised Client to use a Skilled Health Worker for Delivery	-	-	-	-	-	-	-	0.982	0.726	0.844	0.741	0.958	0.896	0.862
	Discussed items to have at home for Delivery	-	-	-	*	-	-	-	0.176	0.767	0.808	0.062	0.257	0.587	0.116
	Discussed Importance of Immunization for the Newborn	-	-	-	-	-	-	-	0.545	0.850	0.571	0.651	0.753	0.166	0.314
Provider Advised /Discussed	Exclusive Breastfeeding for 6 months	*	-	*	-	-	-	-	0.078	0.286	0.064	0.213	0.860	0.417	0.382
	Family Planning after Delivery	-	-	-	-	-	-	-	0.212	0.364	0.834	0.145	0.349	0.545	0.119
	Asked the Client whether she had other questions	**	**	**	**	-	-	-	0.012	0.024	0.015	0.036	0.743	0.648	0.913
	Provider used any Visual Aids for Health Education or Counseling	-	-	-	-	-	-	-	0.770	0.761	0.599	0.737	0.404	0.565	0.872
	Provider Wrote on Client's Health Card	-	-	-	-	-	-	-	0.254	-	0.256	-	-	0.257	0.253
Time Taken in Minutes	1 st part of Consultation	-	-	-	*	-	-	-	0.198	0.921	0.398	0.056	0.171	0.700	0.459
	2 nd part of Consultation	-	-	-	-	-	-	-	0.823	0.730	0.916	0.452	0.599	0.789	0.487
	Total Consultation Time	**	-	-	**	-	-	-	0.040	0.870	0.399	0.030	0.133	0.773	0.416

* p<0.1 ** p<0.05 *** p<0.01

Patient exit interviews for antenatal consultations

Table 15a: Exit interviews for antenatal consultations, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.									
Age of patient (yrs)	24.953	0.734	64	25.261	0.669	69	24.952	1.107	62	25.818	0.494	66
Patient is literate	0.667	0.082	63	0.696	0.073	69	0.721	0.100	61	0.818	0.061	66
Number of Health Workers Providing Care at Facility	3.031	0.285	64	2.768	0.193	69	2.387	0.273	62	2.667	0.341	66
Received IPT Against Malaria (Mean Doses Received)	1.000	0.097	64	0.884	0.105	69	0.855	0.159	62	1.045	0.088	66
First Pregnancy	0.328	0.036	64	0.246	0.046	69	0.242	0.030	62	0.288	0.061	66
First Antenatal Visit to this facility	0.594	0.082	64	0.522	0.119	69	0.565	0.083	62	0.758	0.072	66
Total Antenatal Visits (this facility)	3.269	0.306	26	2.455	0.249	33	3.519	0.393	27	3.063	0.195	16
Total Antenatal Visits (other facilities)	0.190	0.152	63	0.261	0.066	69	0.133	0.071	60	0.212	0.163	66
Weight Taken	0.984	0.014	64	1.000	0.000	69	0.984	0.014	62	0.985	0.016	66
Height Measured	0.297	0.084	64	0.116	0.080	69	0.213	0.054	61	0.333	0.143	66
Blood Pressure Taken	0.906	0.074	64	0.971	0.032	69	0.968	0.022	62	0.879	0.083	66
Urine Sample Given	0.719	0.084	64	0.783	0.097	69	0.613	0.111	62	0.727	0.085	66
Blood Sample Given	0.797	0.086	64	0.826	0.078	69	0.629	0.112	62	0.773	0.081	66
Delivery Scheduled on this visits	0.563	0.110	64	0.652	0.099	69	0.484	0.083	62	0.561	0.113	66
Stomach Palpated	0.969	0.020	64	0.957	0.027	69	0.984	0.016	62	0.955	0.035	66
Delivery Date Estimated	0.828	0.075	64	0.768	0.057	69	0.887	0.043	62	0.833	0.070	66
Uterine Height Measured	0.968	0.019	63	0.957	0.021	69	0.984	0.015	62	0.924	0.043	66
Blood Type Asked	0.422	0.147	64	0.304	0.060	69	0.387	0.115	62	0.333	0.041	66
Diet Advice Given	0.438	0.135	64	0.522	0.101	69	0.645	0.088	62	0.621	0.092	66

Table 15b: Exit interviews for antenatal consultations, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.									
Iron- Folic Acid	0.891	0.075	64	0.899	0.063	69	0.823	0.051	62	0.894	0.029	66
Given Anti Malarials	0.641	0.093	64	0.638	0.107	69	0.581	0.065	62	0.758	0.093	66
Owns ITN	0.703	0.055	64	0.754	0.047	69	0.823	0.081	62	0.667	0.106	66
Slept under ITN last night	0.767	0.076	43	0.846	0.043	52	0.745	0.065	51	0.795	0.086	44
Offered free ITN by health worker	0.141	0.068	64	0.333	0.116	69	0.097	0.087	62	0.273	0.161	66
Health Worker Offered to sell ITN	0.016	0.016	64	0.000	0.000	69	0.000	0.000	62	0.000	0.000	66
Health Worker Asked about TT shot	0.587	0.119	63	0.594	0.072	69	0.581	0.115	62	0.621	0.143	66
Ever taken TT shot	0.844	0.053	64	0.826	0.036	69	0.839	0.098	62	0.818	0.091	66
Total TT shots ever taken	2.907	0.097	54	2.661	0.199	56	2.647	0.257	51	3.093	0.257	54
Informed about danger signs of pregnancy	0.422	0.049	64	0.217	0.071	69	0.323	0.095	62	0.303	0.108	66
Health Worker talked about Family Planning	0.094	0.056	64	0.159	0.087	69	0.016	0.018	62	0.121	0.065	66
Health Worker discussed Family Planning method	0.078	0.041	64	0.087	0.043	69	0.016	0.018	62	0.121	0.065	66
Distance of household from facility in km.	4.194	1.532	62	4.500	2.291	68	2.467	0.551	60	2.215	0.706	65
One way travel time to facility in minutes	24.873	4.373	63	30.536	7.124	69	27.081	7.649	62	31.833	8.855	66
One way travel cost to facility (FCFA)	307.42 4	69.942	33	334.37 5	101.10 8	32	204.05 4	29.617	37	315.90 9	76.988	33
Waiting time was long	0.172	0.050	64	0.130	0.041	69	0.177	0.074	62	0.364	0.099	66
Paid consultation fee at facility	0.672	0.065	64	0.667	0.058	69	0.629	0.128	62	0.773	0.064	66
Amount paid at facility (FCFA)	900	146.55 3	43	645.83 3	158.40 3	42	789.74 3	231.26 7	39	1617.9 6	435.80 6	49
Additional money paid at facility (yes/no)	0.188	0.107	64	0.043	0.020	69	0.226	0.077	62	0.227	0.129	66

Table 15c: Exit interviews for antenatal consultations, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.									
Laboratory Test Done	0.797	0.077	64	0.812	0.074	69	0.613	0.115	62	0.742	0.094	66
Amount Laboratory Test (FCFA)	3810.2 94	1002.3 96	51	3263.4 62	419.35 69	52	4227.6 32	1563.7 69	38	3114.5 83	999.07 03	48
Ultrasound Done	0.000	0.000	64	0.014	0.015	69	0.049	0.044	61	0.015	0.012	66
Amount Ultrasound (FCFA)	0.000	0.000	0	4000.0 0	0.000	1	5666.6 7	0.00	3	0.000	0.000	0
Medicines Dispensed	0.797	0.058	64	0.841	0.075	69	0.823	0.061	62	0.833	0.066	66
Amount Medicines (FCFA)	1881.9 6	738.36 2	51	1561.9 8	212.94	53	1112.4 5	232.21	51	1030.3 9	167.65	52
Total Expenditures at facility excluding transport (FCFA)	5461.0 9	1403.0 8	64	4438.9 7	468.26 2	68	4404.5 2	1531.4 4	62	4379.6 8	958.90 6	63
Covered under Health Insurance	0.000	0.000	64	0.000	0.000	69	0.000	0.000	62	0.000	0.000	66
Know of any CHWs in community	0.297	0.068	64	0.377	0.052	69	0.274	0.074	62	0.424	0.038	66
Availed CHW services at facility (last month)	0.053	0.040	19	0.154	0.068	26	0.235	0.132	17	0.036	0.035	28
Availed CHW services at home (last month)	0.263	0.136	19	0.269	0.077	26	0.294	0.147	17	0.321	0.113	28
Availed CHW services elsewhere (last month)	0.053	0.040	19	0.077	0.060	26	0.118	0.081	17	0.143	0.088	28
Know any TBAs in community	0.051	0.019	59	0.219	0.071	64	0.146	0.058	48	0.148	0.055	61

Table 16a: Exit interviews for antenatal consultations, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Age (yrs)	-	-	-	-	-	-	-	0.433	0.197	0.522	0.449	0.999	0.768	0.837
Literate	*	-	**	-	-	-	-	0.099	0.118	0.018	0.400	0.627	0.710	0.818
Number of Health Workers Providing Care at Facility	-	-	-	-	*	-	-	0.170	0.376	0.787	0.374	0.069	0.159	0.255
Received IPT Against Malaria (Mean Doses Received)	-	-	*	-	-	-	-	0.206	0.741	0.075	0.351	0.439	0.460	0.895
First Pregnancy	**	-	-	-	***	-	-	0.029	0.512	0.623	0.448	0.007	0.214	0.932
First Antenatal Visit to this facility	**	-	**	*	-	-	-	0.018	0.215	0.032	0.080	0.821	0.701	0.780
Total Antenatal Visits (this facility)	**	-	*	-	-	*	***	0.023	0.570	0.056	0.210	0.641	0.081	0.008
Total Antenatal Visits (other facilities)	-	-	-	-	-	-	-	0.644	0.929	0.750	0.670	0.726	0.641	0.237
Weight Taken	-	-	-	-	-	-	-	0.323	0.983	0.347	0.964	0.979	0.263	0.277
Height Measured	***	-	-	-	-	***	-	0.000	0.816	0.155	0.370	0.411	0.000	0.325
Blood Pressure Taken	-	-	-	-	-	-	-	0.437	0.802	0.328	0.250	0.427	0.415	0.891
Urine Sample Given	-	-	-	-	-	-	-	0.645	0.949	0.692	0.388	0.447	0.644	0.232
Blood Sample Given	-	-	-	-	-	-	*	0.251	0.825	0.649	0.335	0.147	0.688	0.054
Delivery Scheduled on this visits	-	-	-	-	-	-	-	0.316	0.989	0.554	0.385	0.599	0.238	0.254
Stomach Palpated	-	-	-	-	-	-	-	0.510	0.616	0.969	0.450	0.415	0.711	0.293
Delivery Date Estimated	-	-	-	-	-	-	-	0.512	0.958	0.402	0.616	0.521	0.479	0.184
Uterine Height Measured	*	-	-	-	-	-	-	0.087	0.413	0.581	0.238	0.540	0.610	0.123
Blood Type Asked	-	-	-	-	-	-	-	0.808	0.520	0.579	0.698	0.842	0.395	0.582
Diet Advice Given	-	-	-	-	-	-	-	0.312	0.243	0.360	0.810	0.156	0.633	0.298

* p<0.1 ** p<0.05 *** p<0.01

Table 16b: Exit interviews for antenatal consultations, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Iron- Folic Acid	-	-	-	-	-	-	-	0.518	0.967	0.945	0.180	0.534	0.940	0.397
Given Anti Malarials	*	-	-	**	-	-	-	0.069	0.431	0.234	0.042	0.608	0.984	0.651
Owens ITN	-	-	-	-	-	-	-	0.603	0.692	0.439	0.289	0.213	0.519	0.505
Slept under ITN last night	-	-	-	-	-	-	-	0.497	0.836	0.611	0.715	0.813	0.339	0.223
Offered free ITN by health worker	***	-	-	*	-	*	-	0.005	0.490	0.770	0.062	0.694	0.074	0.117
Health Worker Offered to sell ITN	-	-	-	-	-	-	-	0.345	0.352	-	-	0.352	0.344	-
Health Worker Asked about TT shot	-	-	-	-	-	-	-	0.994	0.890	0.857	0.789	0.972	0.963	0.903
Ever taken TT shot	-	-	-	-	-	-	-	0.978	0.806	0.944	0.902	0.965	0.741	0.889
Total TT shots ever taken	-	-	-	-	-	-	-	0.380	0.534	0.251	0.104	0.398	0.308	0.964
Informed about danger signs of pregnancy	**	-	-	-	-	**	-	0.025	0.239	0.478	0.883	0.273	0.027	0.468
Health Worker talked about Family Planning	*	-	-	-	-	-	-	0.192	0.564	0.744	0.145	0.213	0.544	0.127
Health Worker discussed Family Planning method	-	-	-	-	-	-	-	0.224	0.378	0.684	0.145	0.195	0.886	0.144
Distance of household from facility in km.	-	-	-	-	-	-	-	0.661	0.264	0.365	0.753	0.335	0.894	0.398
One way travel time to facility in minutes	-	-	-	-	-	-	-	0.651	0.522	0.903	0.585	0.812	0.267	0.702
One way travel cost to facility (FCFA)	-	-	-	-	-	-	-	0.420	0.935	0.875	0.246	0.182	0.692	0.248
Waiting time was long	*	*	**	-	-	-	-	0.172	0.084	0.039	0.179	0.946	0.485	0.577
Paid consultation fee at facility	-	-	-	-	-	-	-	0.283	0.360	0.154	0.256	0.738	0.962	0.792
Amount paid at facility (FCFA)	-	*	*	*	-	-	-	0.296	0.075	0.093	0.096	0.670	0.386	0.545
Additional money paid at facility (yes/no)	-	-	-	-	-	-	**	0.106	0.822	0.187	0.989	0.784	0.219	0.033
Amount additional payment (FCFA)	***	-	-	-	-	*	-	0.004	0.196	0.123	0.789	0.137	0.076	0.179

* p<0.1 ** p<0.05 *** p<0.01

Table 16c: Exit interviews for antenatal consultations, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Laboratory Test Done	-	-	-	-	-	-	*	0.242	0.652	0.523	0.428	0.163	0.835	0.074
Amount Laboratory Test (FCFA)	-	-	-	-	-	-	-	0.630	0.256	0.890	0.483	0.780	0.609	0.520
Ultrasound Done	-	-	-	-	-	-	-	0.259	0.252	0.973	0.481	0.283	0.366	0.488
Amount Ultrasound (FCFA)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medicines Dispensed	-	-	-	-	-	-	-	0.835	0.626	0.940	0.875	0.789	0.481	0.865
Amount Medicines (FCFA)	*	-	**	-	-	-	-	0.082	0.265	0.025	0.753	0.350	0.673	0.216
Total Expenditures at facility excluding transport (FCFA)	-	-	-	-	-	-	-	0.812	0.356	0.955	0.986	0.553	0.472	0.982
Covered under Health Insurance	-	-	-	-	-	-	-	0.278	-	-	-	-	-	-
Know of any CHWs in community	-	-	-	**	-	-	-	0.103	0.128	0.449	0.031	0.791	0.322	0.282
Availed CHW services at facility (last month)	-	-	-	-	-	-	-	0.374	0.765	0.179	0.215	0.199	0.259	0.595
Availed CHW services at home (last month)	-	-	-	-	-	-	-	0.987	0.786	0.729	0.853	0.897	0.964	0.878
Availed CHW services elsewhere (last month)	-	-	-	-	-	-	-	0.787	0.393	0.566	0.807	0.449	0.771	0.615
Know any TBAs in community	-	-	-	-	-	**	-	0.170	0.143	0.154	0.980	0.155	0.036	0.310

* p<0.1 ** p<0.05 *** p<0.01

Direct observations for external consultations for children under five years of age

Table 17a: Direct observations for under-5 consultations, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.									
Male Patient	0.520	0.074	50	0.491	0.118	55	0.514	0.097	35	0.417	0.069	48
Male Health Worker	0.440	0.085	50	0.444	0.122	54	0.514	0.076	35	0.417	0.112	48
Received Training in IMCI	0.520	0.081	50	0.400	0.078	55	0.286	0.107	35	0.413	0.121	46
Received Any Training in last 12 months	0.577	0.176	26	0.455	0.184	22	0.400	0.208	10	0.474	0.191	19
Health Worker Greeted Patient	0.900	0.056	50	0.964	0.024	55	0.943	0.057	35	0.979	0.021	48
Health Worker Washed Hands before Examination	0.020	0.019	50	0.145	0.064	55	0.171	0.106	35	0.083	0.042	48
Health Worker Asked Patient's Age	1.000	0.000	50	0.982	0.019	55	1.000	0.000	35	0.979	0.018	48
Patient's Age in Years	1.083	0.196	48	1.444	0.201	54	0.800	0.265	35	1.659	0.213	44
Health Worker Asked About Nature of Complaint	1.000	0.000	48	1.000	0.000	53	1.000	0.000	35	1.000	0.000	46
Duration of Primary Complaint Asked	0.940	0.038	50	0.982	0.018	55	1.000	0.000	35	0.938	0.045	48
Child Weighed	0.740	0.065	50	0.891	0.043	55	0.829	0.088	35	0.646	0.081	48
Child Height Measured	0.000	0.000	50	0.000	0.000	55	0.029	0.027	35	0.021	0.019	48
Health Worker Asked About Child Drinking Water or Breastfeeding	0.520	0.085	50	0.400	0.071	55	0.343	0.083	35	0.375	0.070	48
Health Worker Asked About Vomiting	0.440	0.113	50	0.491	0.076	55	0.429	0.074	35	0.542	0.065	48
Health Worker Asked About Lethargy	0.060	0.032	50	0.055	0.036	55	0.114	0.048	35	0.104	0.048	48
Health Worker Asked About Convulsions	0.020	0.018	50	0.018	0.018	55	0.229	0.060	35	0.083	0.056	48
Health Worker Asked About De-worming in last 6 months	0.400	0.083	50	0.455	0.100	55	0.424	0.088	33	0.417	0.103	48

Table 17b: Direct observations for under-5 consultations, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.									
Health Worker Asked About Diarrhea	0.560	0.137	50	0.600	0.038	55	0.543	0.072	35	0.563	0.078	48
Patient Has Diarrhea	0.160	0.060	50	0.200	0.057	55	0.229	0.062	35	0.146	0.073	48
Health Worker Asked Duration of Diarrhea	1.000	0.000	8	1.000	0.000	11	1.000	0.000	8	0.857	0.137	7
Health Worker Asked About Blood in Stools	0.375	0.198	8	0.909	0.096	11	0.625	0.183	8	0.429	0.291	7
Health Worker Checked Skin Pinch	0.500	0.213	8	0.455	0.156	11	0.250	0.164	8	0.286	0.145	7
Health Worker Asked About Cough/ Difficulty Breathing	0.714	0.103	49	0.745	0.039	55	0.735	0.078	34	0.688	0.056	48
Patient has Cough/Difficulty Breathing	0.560	0.096	50	0.436	0.050	55	0.486	0.064	35	0.375	0.053	48
Health Worker Asked Duration of Cough/Difficulty Breathing	0.929	0.055	28	0.917	0.062	24	1.000	0.000	17	0.778	0.123	18
Health Worker Asked Stridor/Wheezing	0.286	0.080	28	0.125	0.086	24	0.235	0.160	17	0.222	0.110	18
Health Worker Checked Respiratory Rate	0.393	0.171	28	0.292	0.103	24	0.647	0.120	17	0.278	0.124	18
Health Worker Lifted Shirt	0.714	0.103	28	0.542	0.135	24	0.529	0.128	17	0.389	0.136	18
Health Worker listened with Stethoscope	0.536	0.109	28	0.417	0.129	24	0.438	0.156	16	0.444	0.202	18
Health Worker Asked About Fever in past 24 hours	0.840	0.071	50	0.836	0.051	55	0.771	0.082	35	0.750	0.084	48
Patient Had Fever in past 24 hours	0.420	0.073	50	0.618	0.066	55	0.686	0.077	35	0.604	0.056	48
Health Worker Checked Temperature	1.000	0.000	20	0.882	0.074	34	0.917	0.057	24	0.862	0.074	29
Asked Duration of Fever	0.857	0.084	21	0.941	0.041	34	0.625	0.094	24	0.828	0.084	29
Asked for History of Measles	0.100	0.042	50	0.055	0.030	55	0.029	0.029	35	0.085	0.046	47
Checked Fontanelle	0.060	0.044	50	0.104	0.043	48	0.182	0.106	33	0.023	0.023	44
Examined Patient's Eyes	0.600	0.112	50	0.673	0.085	55	0.657	0.116	35	0.617	0.092	47
Looked for Runny Nose	0.360	0.101	50	0.491	0.079	55	0.343	0.079	35	0.149	0.040	47
Looked for Rash	0.286	0.066	49	0.400	0.069	55	0.257	0.093	35	0.191	0.055	47

Table 17c: Direct observations for under-5 consultations, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.									
Health Worker Looks in the Ears	0.300	0.098	50	0.345	0.098	55	0.143	0.075	35	0.104	0.050	48
Health Worker Looks Behind the Ears	0.280	0.094	50	0.327	0.089	55	0.143	0.075	35	0.104	0.055	48
Health Worker asks if Child has Ear Pain or Discharge	0.120	0.079	50	0.164	0.045	55	0.057	0.038	35	0.146	0.049	48
Health Worker Checks Palms for Anemia	0.180	0.060	50	0.127	0.068	55	0.143	0.072	35	0.188	0.064	48
Health Worker Checks feet or ankles for Edema	0.100	0.039	50	0.127	0.065	55	0.057	0.039	35	0.021	0.021	48
Door was closed/ screen used to ensure patient privacy	0.660	0.094	50	0.636	0.067	55	0.514	0.087	35	0.396	0.089	48
Health Worker tells mother/caregiver name of disease	0.360	0.076	50	0.618	0.083	55	0.571	0.096	35	0.617	0.073	47
Health Worker explains about disease	0.240	0.081	50	0.236	0.089	55	0.059	0.038	34	0.319	0.098	47
Health Worker explains home care to be taken	0.500	0.080	50	0.345	0.084	55	0.429	0.112	35	0.447	0.068	47
Health worker gives a prescription or medication for use at home	0.940	0.025	50	0.927	0.032	55	0.971	0.029	35	0.851	0.043	47
Health Worker informs of signs and symptoms of improvement	0.160	0.042	50	0.073	0.042	55	0.257	0.071	35	0.149	0.079	47
Health Worker mentions due date for follow up	0.184	0.058	49	0.218	0.073	55	0.200	0.059	35	0.167	0.062	48
Health worker creates patient record	0.939	0.033	49	0.982	0.019	55	0.943	0.036	35	0.917	0.036	48
Health worker makes record in register	0.959	0.025	49	0.982	0.018	55	0.971	0.027	35	0.958	0.028	48
Duration of 1 st part of consultation(minutes)	13.306	1.823	49	13.473	1.850	55	14.829	2.104	35	12.021	0.679	48
Duration of 2 nd part of consultation(minutes)	3.653	0.709	49	3.436	1.436	55	3.171	1.191	35	5.375	1.156	48
Total Consultation Time(minutes)	16.959	1.878	49	16.909	1.951	55	18.000	2.356	35	17.396	1.448	48

Table 18a: Direct observations for under-5 consultations, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Male Patient	-	-	-	-	-	-	-	0.641	0.287	0.617	0.314	0.957	0.842	0.875
Male Health Worker	-	-	-	-	-	-	-	0.931	0.835	0.841	0.539	0.567	0.973	0.680
Received Training in IMCI	-	-	-	-	-	-	-	0.433	0.394	0.914	0.523	0.159	0.275	0.403
Received Any Training in last 12 months	-	-	-	-	-	-	-	0.919	0.650	0.955	0.789	0.548	0.626	0.828
Health Worker Greeted Patient	-	-	-	-	-	-	-	0.529	0.226	0.663	0.557	0.650	0.328	0.758
Health Worker Washed Hands before Examination	*	-	-	-	-	**	-	0.077	0.215	0.388	0.236	0.197	0.026	0.838
Health Worker Asked Patient's Age	-	-	-	-	-	-	-	0.306	0.283	0.926	0.277	-	0.348	0.348
Patient's Age in Years	-	-	-	*	-	-	**	0.104	0.116	0.527	0.063	0.334	0.154	0.028
Health Worker Asked About Nature of Complaint	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Duration of Primary Complaint Asked	-	-	-	-	-	-	-	0.243	0.968	0.163	0.189	0.143	0.369	0.339
Child Weighed	**	-	**	-	-	*	-	0.031	0.402	0.015	0.123	0.357	0.099	0.592
Child Height Measured	-	-	-	-	-	-	-	0.311	0.296	0.293	0.825	0.308	-	0.311
Health Worker Asked About Child Drinking Water or Breastfeeding	-	-	-	-	-	-	-	0.502	0.287	0.768	0.758	0.162	0.379	0.536
Health Worker Asked About Vomiting	-	-	-	-	-	-	-	0.713	0.511	0.605	0.273	0.939	0.749	0.576
Health Worker Asked About Lethargy	-	-	*	-	-	-	-	0.234	0.305	0.085	0.873	0.354	0.875	0.307
Health Worker Asked About Convulsions	***	-	-	-	***	-	***	0.004	0.305	0.136	0.140	0.004	0.945	0.008
Health Worker Asked About De-worming in last 6 months	-	-	-	-	-	-	-	0.962	0.894	0.811	0.951	0.852	0.629	0.793

* p<0.1 ** p<0.05 *** p<0.01

Table 18b: Direct observations for under-5 consultations, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Health Worker Asked About Diarrhea	-	-	-	-	-	-	-	0.788	0.988	0.663	0.863	0.933	0.768	0.556
Patient Has Diarrhea	-	-	-	-	-	-	-	0.629	0.816	0.402	0.381	0.432	0.376	0.756
Health Worker Asked Duration of Diarrhea	-	-	-	-	-	-	-	0.566	0.315	0.304	0.301	-	-	-
Health Worker Asked About Blood in Stools	**	-	-	-	-	**	-	0.039	0.899	0.120	0.502	0.447	0.039	0.200
Health Worker Checked Skin Pinch	-	-	-	-	-	-	-	0.542	0.349	0.405	0.858	0.379	0.866	0.284
Health Worker Asked About Cough/Difficulty Breathing	-	-	-	-	-	-	-	0.721	0.790	0.397	0.454	0.859	0.798	0.909
Patient has Cough/Difficulty Breathing	-	-	-	-	-	-	-	0.361	0.116	0.490	0.239	0.535	0.359	0.583
Health Worker Asked Duration of Cough/Difficulty Breathing	**	-	-	*	-	-	-	0.047	0.361	0.232	0.093	0.218	0.900	0.203
Health Worker Asked Stridor/Wheezing	-	-	-	-	-	-	-	0.363	0.623	0.581	0.948	0.788	0.168	0.473
Health Worker Checked Respiratory Rate	*	-	-	**	-	-	**	0.082	0.625	0.928	0.034	0.198	0.593	0.029
Health Worker Lifted Shirt	-	*	-	-	-	-	-	0.318	0.089	0.482	0.205	0.220	0.383	0.955
Health Worker listened with Stethoscope	-	-	-	-	-	-	-	0.918	0.705	0.885	0.976	0.629	0.497	0.892
Health Worker Asked About Fever in past 24 hours	-	-	-	-	-	-	-	0.678	0.394	0.304	0.806	0.539	0.968	0.389
Patient Had Fever in past 24 hours	**	*	-	-	**	***	-	0.024	0.068	0.851	0.510	0.049	0.005	0.580
Health Worker Checked Temperature	-	*	-	-	-	-	-	0.173	0.093	0.818	0.516	0.174	0.142	0.722
Asked Duration of Fever	**	-	-	-	-	-	***	0.015	0.706	0.190	0.101	0.113	0.442	0.003
Asked for History of Measles	-	-	-	-	-	-	-	0.491	0.822	0.564	0.314	0.187	0.357	0.530
Checked Fontanelle	-	-	-	-	-	-	-	0.169	0.516	0.128	0.186	0.124	0.511	0.527
Examined Patient's Eyes	-	-	-	-	-	-	-	0.894	0.917	0.664	0.804	0.702	0.521	0.878
Looked for Runny Nose	***	*	***	**	-	-	-	0.001	0.073	0.000	0.042	0.887	0.283	0.177
Looked for Rash	*	-	**	-	-	-	-	0.070	0.252	0.017	0.473	0.798	0.304	0.213

* p<0.1 ** p<0.05 *** p<0.01

Table 18c: Direct observations for under-5 consultations, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Health Worker Looks in the Ears	***	**	**	-	**	-	-	0.000	0.049	0.015	0.648	0.042	0.780	0.175
Health Worker Looks Behind the Ears	***	-	***	-	**	-	-	0.000	0.135	0.004	0.705	0.038	0.757	0.191
Health Worker asks if Child has Ear Pain or Discharge	**	-	-	-	-	-	***	0.010	0.771	0.804	0.190	0.535	0.700	0.003
Health Worker Checks Palms for Anemia	-	-	-	-	-	-	-	0.924	0.937	0.569	0.671	0.657	0.559	0.743
Health Worker Checks feet or ankles for Edema	**	**	-	-	-	-	-	0.038	0.045	0.143	0.202	0.410	0.708	0.365
Door was closed/ screen used to ensure patient privacy	***	**	***	-	-	-	-	0.002	0.017	0.000	0.232	0.205	0.804	0.210
Health Worker tells mother/caregiver name of disease	-	*	-	-	-	*	-	0.195	0.067	0.992	0.698	0.136	0.057	0.641
Health Worker explains about disease	**	-	-	**	*	-	*	0.039	0.613	0.547	0.040	0.089	0.975	0.050
Health Worker explains home care to be taken	-	-	-	-	-	-	-	0.390	0.575	0.404	0.877	0.626	0.102	0.591
Health worker gives a prescription or medication for use at home	-	**	*	**	-	-	-	0.137	0.040	0.082	0.038	0.431	0.742	0.310
Health Worker informs of signs and symptoms of improvement	*	-	-	-	-	-	**	0.071	0.887	0.400	0.399	0.313	0.148	0.029
Health Worker mentions due date for follow up	-	-	-	-	-	-	-	0.957	0.862	0.624	0.731	0.813	0.662	0.776
Health worker creates patient record	-	-	-	-	-	-	-	0.515	0.579	0.160	0.482	0.938	0.268	0.376
Health worker makes record in register	-	-	-	-	-	-	-	0.854	0.982	0.501	0.768	0.759	0.476	0.768
Duration of 1 st part of consultation(minutes)	-	-	-	-	-	-	-	0.628	0.572	0.513	0.216	0.484	0.937	0.588
Duration of 2 nd part of consultation(minutes)	-	-	-	-	-	-	-	0.634	0.245	0.348	0.245	0.692	0.890	0.891
Total Consultation Time(minutes)	-	-	-	-	-	-	-	0.965	0.865	0.873	0.842	0.626	0.974	0.658

* p<0.1 ** p<0.05 *** p<0.01

Patient exit interviews for external consultations for children under five years of age

Table 19a: Exit interviews for under-5 consultations, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.									
Male (health worker)	0.396	0.093	53	0.377	0.134	53	0.486	0.079	35	0.458	0.100	48
Male (child)	0.510	0.075	51	0.463	0.120	54	0.600	0.107	35	0.417	0.076	48
Age of child in months	18.00	2.332	51	22.45	2.540	53	14.14	3.693	34	23.66	2.199	47
Respondent Literate	0			3			7			0		
Health worker informed that something was wrong	0.774	0.060	53	0.685	0.081	54	0.771	0.057	35	0.750	0.090	48
Health worker gave advice for treatment at home	0.943	0.054	54	1.000	0.000	54	1.000	0.000	35	0.979	0.018	48
Health worker mentioned to bring back if child got worse	0.774	0.046	53	0.907	0.047	54	0.829	0.088	35	0.667	0.085	48
Child weighed	0.038	0.036	53	0.000	0.000	54	0.000	0.000	35	0.000	0.000	48
Child height measured	0.038	0.034	53	0.113	0.071	53	0.114	0.056	35	0.146	0.051	48
Growth monitoring chart filled	0.774	0.076	53	0.741	0.079	54	0.943	0.033	35	0.646	0.073	48
Physical Exam performed	0.396	0.086	53	0.556	0.096	54	0.686	0.084	35	0.563	0.095	48
Number of medicines prescribed	0.460	0.086	50	0.389	0.082	54	0.429	0.086	35	0.438	0.079	48
Health worker explained how to take medicines	0.220	0.051	50	0.167	0.040	54	0.343	0.099	35	0.313	0.110	48
Health worker explained side effects	3.780	0.247	50	3.870	0.159	54	3.824	0.405	34	3.340	0.228	47
Immunization Card Available	0.939	0.048	49	0.944	0.030	54	0.914	0.054	35	0.936	0.034	47
Distance of household from facility	0.040	0.025	50	0.037	0.036	54	0.029	0.027	35	0.042	0.045	48
One way travel time to facility in minutes	0.140	0.047	50	0.074	0.031	54	0.229	0.094	35	0.188	0.069	48
	3.962	1.600	53	5.340	3.444	53	4.057	1.438	35	2.479	0.513	48
	31.84	5.714	53	24.31	4.303	54	34.85	9.227	35	24.00	3.781	48
	9			5			7			0		

Table 19b: Exit interviews for under-5 consultations, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.									
One way travel cost to facility (FCFA)	365.26	173.201	39	265.33	77.358	45	341.07	114.388	28	198.537	41.896	41
Waiting time in minutes	17.604	3.646	53	25.648	6.417	54	19.314	3.574	35	20.574	4.156	47
Waiting time was too long	0.132	0.054	53	0.241	0.075	54	0.143	0.056	35	0.188	0.058	48
Consultation time in minutes	12.962	2.368	52	11.667	1.017	54	13.743	1.336	35	12.917	0.860	48
Consultation time was too long	0.038	0.026	53	0.019	0.018	54	0.057	0.039	35	0.042	0.030	48
Consultation fee charged	0.849	0.072	53	0.815	0.062	54	0.914	0.062	35	0.854	0.069	48
Amount paid for consultation	337.78	63.944	45	429.546	40.502	44	350.000	89.580	32	392.683	60.739	41
Additional money charged at facility (yes/no)	0.208	0.081	53	0.056	0.026	54	0.086	0.042	35	0.083	0.058	48
Amount additional payment	412.27	202.371	11	1133.33	933.33	3	383.33	208.83	3	150.000	50.000	4
Laboratory Test Done	0.396	0.065	53	0.444	0.081	54	0.371	0.092	35	0.583	0.087	48
Amount Laboratory Test	1428.57	311.04	21	2632.08	501.36	24	1592.31	423.997	13	1340.18	267.314	28
X Ray Done	0.000	0.000	53	0.000	0.000	54	0.000	0.000	35	0.000	0.000	48
Medicines Dispensed	0.962	0.026	53	0.889	0.054	54	0.800	0.072	35	0.917	0.033	48
Amount Medicines	2105.00	311.36	51	2734.27	717.318	48	2113.75	318.796	28	1607.84	276.978	44
Total Expenditures at facility excluding transport	2921.51	458.99	53	3996.57	1064.64	54	2638.14	479.08	35	2637.66	346.92	47
Covered under Health Insurance	0.019	0.018	53	0.020	0.018	51	0.029	0.027	35	0.042	0.041	48
Know of any CHWs in community	0.434	0.065	53	0.426	0.082	54	0.543	0.108	35	0.479	0.093	48

Table 20a: Exit interviews for under-5 consultations, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Male (health worker)	-	-	-	-	-	-	-	0.808	0.561	0.584	0.865	0.515	0.897	0.539
Male (child)	-	-	-	-	-	-	-	0.566	0.406	0.776	0.231	0.500	0.729	0.350
Age of child in months	-	-	-	*	-	-	**	0.102	0.116	0.750	0.092	0.311	0.146	0.026
Respondent Literate	-	-	-	-	-	-	-	0.224	0.815	0.438	0.812	0.979	0.108	0.405
Age of child asked at facility	-	-	-	-	-	-	-	0.314	0.556	0.280	0.277	0.317	0.319	-
Child weighed	*	-	**	-	-	**	-	0.055	0.333	0.034	0.163	0.608	0.044	0.488
Child height measured	-	-	-	-	-	-	-	0.595	0.323	-	-	0.317	0.319	-
Growth monitoring chart filled	-	-	-	-	-	-	-	0.341	0.103	0.728	0.703	0.292	0.382	0.987
Physical Exam performed	***	-	-	***	*	-	**	0.005	0.260	0.406	0.002	0.070	0.716	0.028
Health worker informed that something was wrong	-	-	-	-	*	-	-	0.157	0.290	0.965	0.333	0.029	0.229	0.304
Health worker gave advice for treatment at home	-	-	-	-	-	-	-	0.834	0.867	0.716	0.916	0.832	0.377	0.777
Health worker mentioned to bring back if child got worse	-	-	-	-	-	-	-	0.328	0.349	0.226	0.851	0.305	0.360	0.152
Number of medicines prescribed	-	-	*	-	-	-	-	0.262	0.145	0.071	0.336	0.926	0.736	0.900
Health worker explained how to take medicines	-	-	-	-	-	-	-	0.975	0.963	0.871	0.767	0.760	0.893	0.666
Health worker explained side effects	-	-	-	-	-	-	-	0.991	0.974	0.940	0.816	0.769	0.947	0.859
Immunization Card Available	-	-	-	-	-	-	-	0.237	0.616	0.138	0.685	0.466	0.261	0.164
Distance of household from facility	-	-	-	-	-	-	-	0.339	0.397	0.375	0.303	0.968	0.718	0.731
One way travel time to facility in minutes	-	-	-	-	-	-	-	0.142	0.124	0.964	0.189	0.763	0.258	0.339

* p<0.1 ** p<0.05 *** p<0.01

Table 20b: Exit interviews for under-5 consultations, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
One way travel cost to facility (FCFA)	-	-	-	-	-	-	-	0.570	0.376	0.495	0.288	0.915	0.601	0.560
Waiting time in minutes	-	-	-	-	-	-	-	0.668	0.564	0.594	0.769	0.745	0.355	0.416
Waiting time was too long	-	-	-	-	-	-	-	0.729	0.476	0.505	0.557	0.879	0.278	0.369
Consultation time in minutes	-	-	-	-	-	-	*	0.283	0.987	0.461	0.621	0.741	0.576	0.064
Consultation time was too long	-	-	-	-	-	-	-	0.832	0.897	0.558	0.682	0.694	0.566	0.420
Consultation fee charged	-	-	-	-	-	-	-	0.382	0.964	0.673	0.405	0.415	0.547	0.131
Amount paid for consultation	-	-	-	-	-	-	-	0.142	0.553	0.476	0.618	0.920	0.108	0.444
Additional money charged at facility (yes/no)	**	-	-	-	-	**	-	0.047	0.220	0.618	0.968	0.276	0.043	0.584
Amount additional payment	-	-	-	-	-	-	-	0.330	0.271	0.389	0.339	0.917	0.476	0.468
Laboratory Test Done	-	-	-	-	-	-	-	0.342	0.117	0.196	0.118	0.827	0.474	0.549
Amount Laboratory Test	**	-	**	-	-	**	-	0.019	0.803	0.018	0.319	0.734	0.022	0.112
X Ray Done	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medicines Dispensed	-	-	-	-	*	-	-	0.220	0.220	0.598	0.177	0.067	0.257	0.360
Amount Medicines	-	-	-	-	-	-	-	0.240	0.196	0.107	0.288	0.985	0.320	0.470
Total Expenditures at facility excluding transport	-	-	-	-	-	-	-	0.446	0.589	0.160	0.999	0.663	0.200	0.281
Covered under Health Insurance	-	-	-	-	-	-	-	0.958	0.628	0.637	0.805	0.776	0.878	0.793
Know of any CHWs in community	-	-	-	-	-	-	-	0.755	0.730	0.674	0.634	0.390	0.947	0.342

* p<0.1 ** p<0.05 *** p<0.01

Patient exit interviews for external consultations for adults

Table 21a: Exit interviews for over-5 consultations, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.									
Male (health worker)	0.507	0.051	67	0.561	0.115	66	0.500	0.085	52	0.513	0.066	80
Male (patient)	0.418	0.044	67	0.333	0.055	66	0.346	0.067	52	0.338	0.060	80
Age of patient in years	32.98 5	2.465	67	28.42 4	2.200	66	36.26 9	2.575	52	30.66 3	1.548	80
Respondent Literate	0.746	0.063	67	0.667	0.089	66	0.692	0.067	52	0.675	0.075	80
Age asked at facility	0.833	0.045	66	0.939	0.033	66	0.765	0.074	51	0.925	0.033	80
Weighed	0.727	0.058	66	0.864	0.048	66	0.673	0.072	52	0.696	0.085	79
Height measured	0.030	0.022	66	0.045	0.028	66	0.038	0.027	52	0.013	0.012	80
Physical Exam performed	0.652	0.083	66	0.508	0.055	65	0.608	0.118	51	0.363	0.051	80
Health worker informed that something was wrong	0.439	0.060	66	0.470	0.073	66	0.442	0.062	52	0.375	0.064	80
Health worker gave advice for treatment at home	0.439	0.073	66	0.333	0.067	66	0.462	0.074	52	0.350	0.046	80
Health worker mentioned to bring back if patient got worse	0.258	0.082	66	0.308	0.060	65	0.365	0.057	52	0.288	0.075	80
Number of medicines prescribed	3.738	0.153	65	3.703	0.246	64	3.500	0.158	52	3.455	0.288	77
Health worker explained how to take medicines	0.939	0.032	66	0.862	0.050	65	0.923	0.036	52	0.844	0.030	77
Health worker explained side effects	0.123	0.037	65	0.030	0.019	66	0.077	0.044	52	0.077	0.036	78
Health worker gave follow up date	0.258	0.047	66	0.258	0.070	66	0.327	0.050	52	0.241	0.077	79

Table 21b: Exit interviews for over-5 consultations, randomized facilities

	C3			C2			C1			T		
	Mean	SE	Obsv.									
Distance of household from facility	2.149	0.358	67	11.091	5.560	66	4.231	1.475	52	7.125	3.585	80
One way travel time to facility in minutes	19.716	4.004	67	32.985	8.911	66	24.846	4.744	52	25.671	3.673	79
One way travel cost to facility (FCFA)	222.71 7	46.215	46	278.90 9	112.02 6	55	310.76 9	116.76 0	39	255.42 9	57.623	70
Waiting time in minutes	18.431	6.134	65	29.030	7.411	66	19.577	2.874	52	35.888	15.752	80
Waiting time was too long	0.152	0.080	66	0.227	0.061	66	0.250	0.074	52	0.200	0.050	80
Consultation time in minutes	12.030	0.773	67	12.424	1.391	66	14.804	2.750	51	13.350	2.013	80
Consultation time was too long	0.015	0.014	67	0.045	0.019	66	0.038	0.023	52	0.038	0.023	80
Consultation fee charged	0.821	0.086	67	0.879	0.053	66	0.885	0.088	52	0.788	0.054	80
Amount paid for consultation	556.36 4	165.27 4	55	722.41 4	231.49 5	58	385.10 9	62.259	46	358.73 0	54.169	63
Additional money charged at facility (yes/no)	0.119	0.070	67	0.030	0.022	66	0.077	0.033	52	0.025	0.018	80
Amount additional payment	704.37 5	430.99 8	8	150.00 0	50.000	2	250.00 0	57.282	4	200.00 0	0.000	2
Laboratory Test Done	0.403	0.064	67	0.500	0.081	66	0.404	0.081	52	0.600	0.065	80
Amount Laboratory Test	3246.1 5	1205.2 4	27	3140.9 1	555.56 5	33	1950.0 0	429.13 0	21	2105.4 4	338.94 2	46
Medicines Dispensed	0.940	0.041	67	0.894	0.057	66	0.923	0.046	52	0.875	0.034	80
Amount Medicines	3072.2 4	585.97 6	63	3110.6 9	528.67 5	58	2721.0 4	605.94 6	48	3421.3 6	519.45 2	70
Total Expenditures at facility excluding transport	4871.4 3	855.31 4	67	5050.3 1	821.14 9	65	3669.5 2	631.07 9	52	4536.2 0	727.04 7	79
Covered under Health Insurance	0.065	0.036	62	0.065	0.044	62	0.064	0.062	47	0.055	0.030	73
Know of any CHWs in community	0.403	0.060	67	0.500	0.088	66	0.423	0.082	52	0.405	0.050	79

Table 22a: Exit interviews for over-5 consultations, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Male (health worker)	-	-	-	-	-	-	-	0.975	0.956	0.706	0.926	0.931	0.668	0.732
Male (patient)	-	-	-	-	-	-	-	0.459	0.221	0.965	0.925	0.418	0.278	0.881
Age of patient in years	*	-	-	**	-	-	**	0.099	0.404	0.287	0.046	0.309	0.109	0.023
Respondent Literate	-	-	-	-	-	-	-	0.872	0.438	0.895	0.763	0.470	0.488	0.782
Age asked at facility	**	*	-	*	-	**	**	0.038	0.070	0.787	0.091	0.439	0.038	0.048
Weighed height measured	*	-	*	-	-	*	*	0.155	0.794	0.094	0.845	0.359	0.097	0.082
Physical Exam performed	-	-	-	-	-	-	-	0.471	0.514	0.344	0.270	0.741	0.672	0.870
Health worker informed that something was wrong	**	**	*	**	-	-	-	0.034	0.022	0.060	0.023	0.740	0.116	0.268
Health worker informed that something was wrong	-	-	-	-	-	-	-	0.850	0.488	0.432	0.497	0.942	0.779	0.795
Health worker gave advice for treatment at home	-	-	-	-	-	-	**	0.130	0.334	0.813	0.183	0.778	0.263	0.023
Health worker mentioned to bring back if patient got worse	-	-	-	-	-	-	-	0.650	0.782	0.771	0.454	0.235	0.599	0.457
Number of medicines prescribed	-	-	-	-	-	-	-	0.308	0.415	0.151	0.909	0.246	0.898	0.557
Health worker explained how to take medicines	-	*	-	-	-	-	-	0.192	0.098	0.776	0.187	0.502	0.114	0.270
Health worker explained side effects	-	-	-	-	-	**	-	0.129	0.203	0.214	1.000	0.396	0.024	0.361
Health worker gave follow up date	-	-	-	-	-	-	-	0.708	0.811	0.876	0.423	0.280	1.000	0.435

* p<0.1 ** p<0.05 *** p<0.01

Table 22b: Exit interviews for over-5 consultations, randomized facilities, F-tests and t-tests

	Stars for Significant F and t-tests							p values for F and t- tests						
	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2	F Test	T and C3	T and C2	T and C1	C1 and C3	C2 and C3	C1 and C2
Distance of household from facility	-	-	-	-	-	-	-	0.164	0.187	0.593	0.474	0.187	0.134	0.175
One way travel time to facility in minutes	-	-	-	-	-	-	-	0.297	0.145	0.396	0.853	0.405	0.137	0.446
One way travel cost to facility (FCFA)	-	-	-	-	-	-	-	0.845	0.684	0.779	0.503	0.470	0.628	0.507
Waiting time in minutes	-	-	-	-	-	-	-	0.325	0.335	0.740	0.299	0.877	0.323	0.308
Waiting time was too long	-	-	-	-	-	-	-	0.771	0.654	0.754	0.482	0.393	0.422	0.797
Consultation time in minutes	-	-	-	-	-	-	-	0.738	0.531	0.525	0.400	0.319	0.814	0.295
Consultation time was too long	-	-	-	-	-	-	-	0.620	0.443	0.815	0.975	0.458	0.250	0.779
Consultation fee charged	-	-	-	-	-	-	-	0.682	0.767	0.319	0.422	0.333	0.491	0.928
Amount paid for consultation	-	-	-	-	-	-	-	0.444	0.264	0.167	0.707	0.283	0.539	0.204
Additional money charged at facility (yes/no)	-	-	-	-	-	-	-	0.484	0.247	0.872	0.251	0.591	0.254	0.300
Amount additional payment	-	-	-	-	-	-	-	0.350	0.297	0.391	0.441	0.353	0.285	0.244
Laboratory Test Done	***	**	*	**	-	-	-	0.008	0.019	0.082	0.025	0.994	0.265	0.316
Amount Laboratory Test	-	-	-	-	-	-	-	0.231	0.365	0.166	0.717	0.225	0.937	0.139
Medicines Dispensed	-	-	-	-	-	-	-	0.666	0.314	0.720	0.372	0.811	0.514	0.661
Amount Medicines	-	-	-	-	-	-	-	0.860	0.654	0.685	0.468	0.671	0.945	0.490
Total Expenditures at facility excluding transport	-	-	-	-	-	-	-	0.504	0.670	0.637	0.372	0.302	0.849	0.159
Covered under Health Insurance	-	-	-	-	-	-	-	0.992	0.815	0.850	0.902	0.993	1.000	0.993
Know of any CHWs in community	-	-	-	-	-	-	-	0.825	0.983	0.445	0.857	0.863	0.380	0.541

* p<0.1 ** p<0.05 *** p<0.01

Conclusions and recommendations for follow-up survey

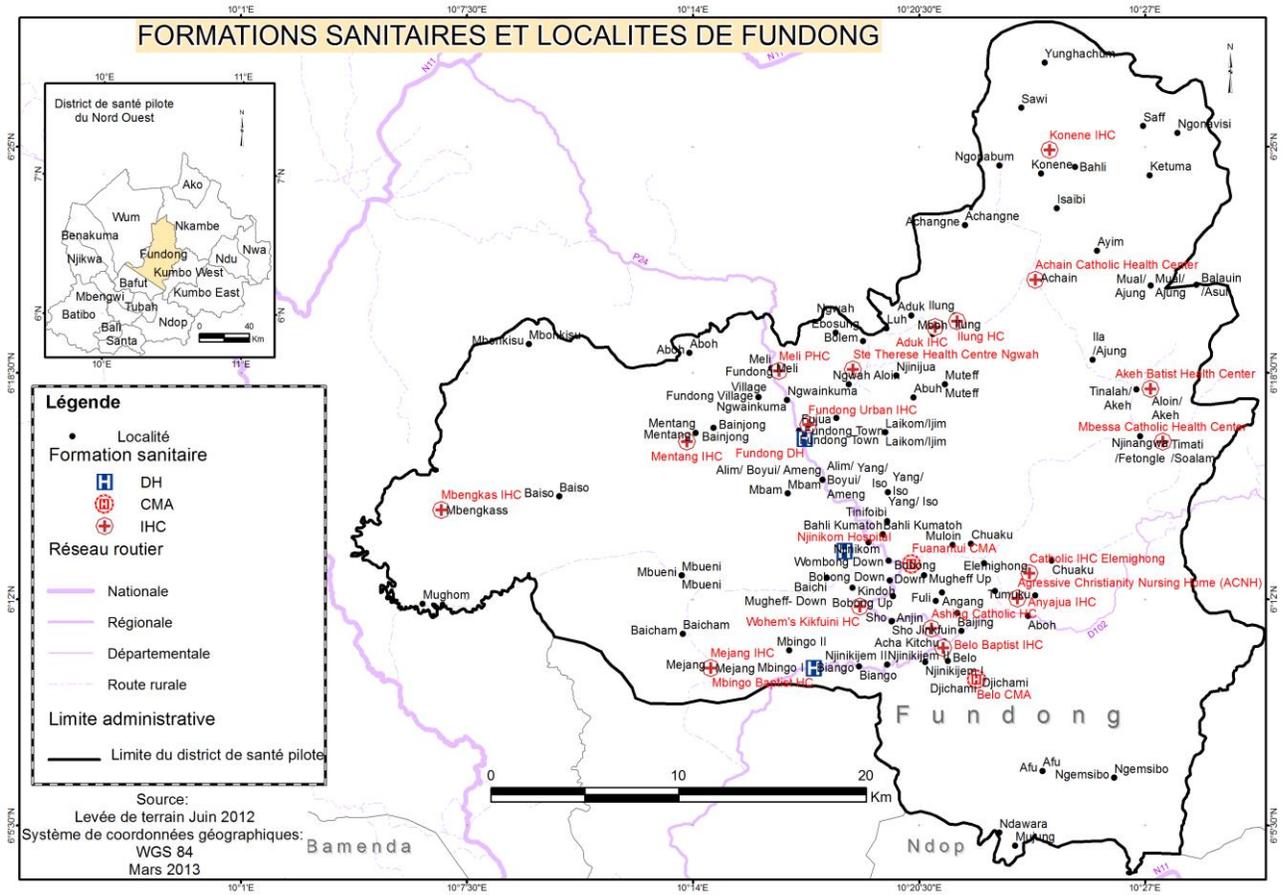
The datasets for the study were coded accurately with skip patterns followed in most instances. However, there remains scope for improvement in the quality of data. First, there needs to be greater consistency on how missing variables are coded. While for a number of variables these were coded to 99 or 999, there were other instances where 95 or 995 were used. There was also the frequent use of abbreviations like nd and nsp and these were variously coded as 95, 98 or 999. In addition some questions were clearly coded inaccurately. For example, questions on the number of days that ANC care and post-partum care were offered in the last 30 days were often coded to values greater than 30.

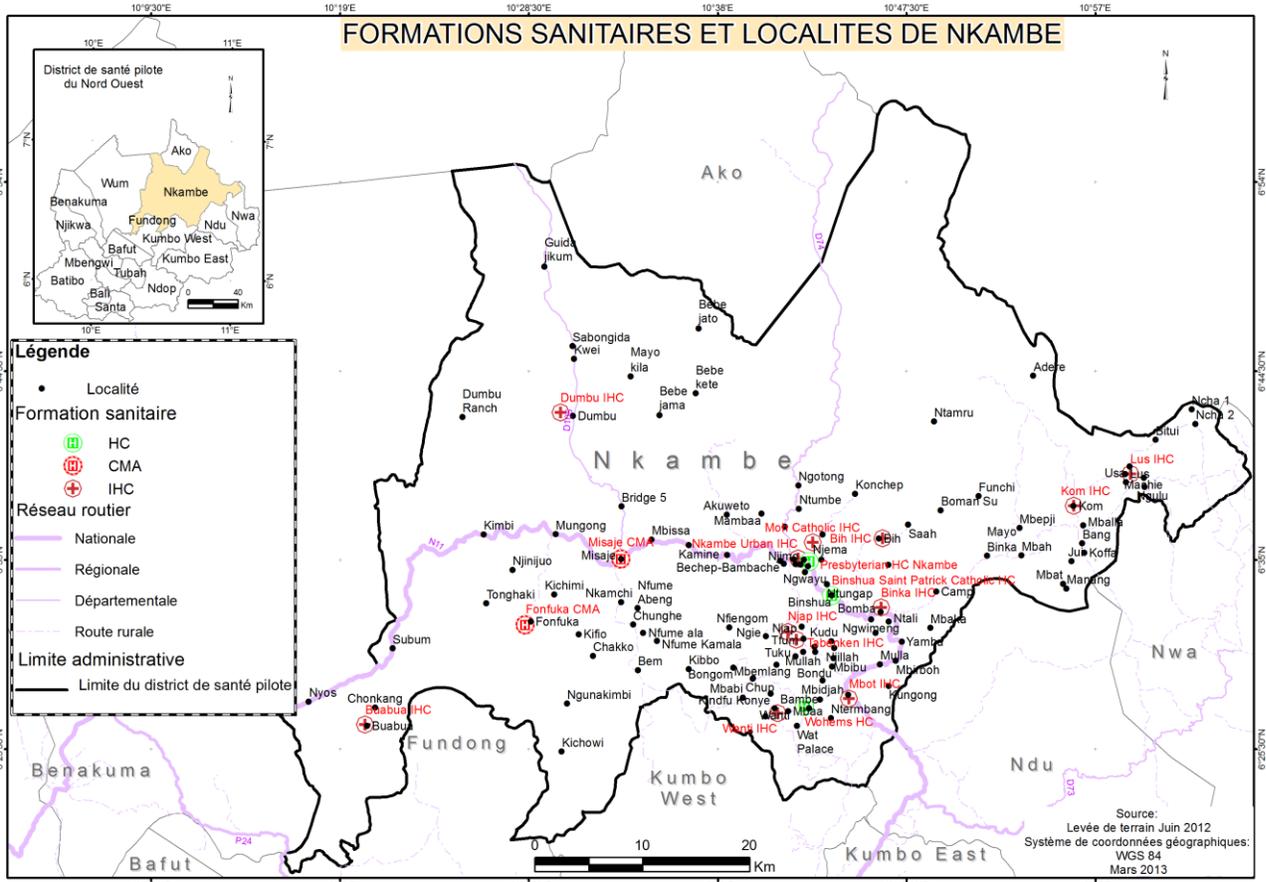
The second concern is regarding how some of the questions were understood. For example, a number of respondents in the health worker survey claimed to have worked 168 hours in the previous week, which is of course difficult to imagine since that would entail working 24 hours a day for 7 days at a stretch. Another question that appears to have been understood differently across the various sections of the survey instrument is that which asks people if health workers at the facility act differently toward rich people than toward poor people. While 22.05% of respondents in the antenatal care exit interview agreed with this statement, over 92% of respondents from the exit interviews for consultations for children under the age of five agreed with the statement. The inter-rater validity and reliability of questions like these would be worth following up.

Appendices

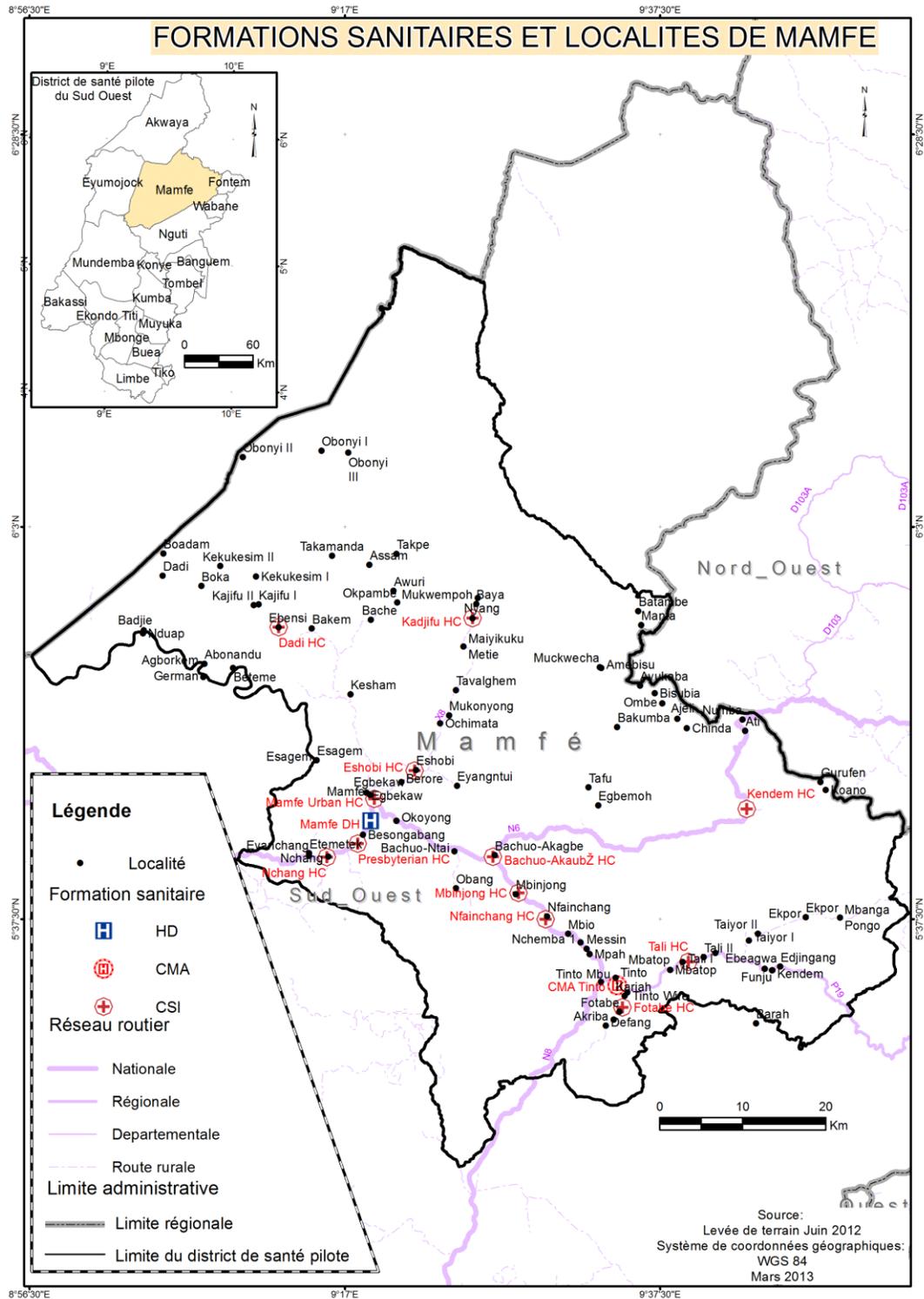
GIS district-level maps

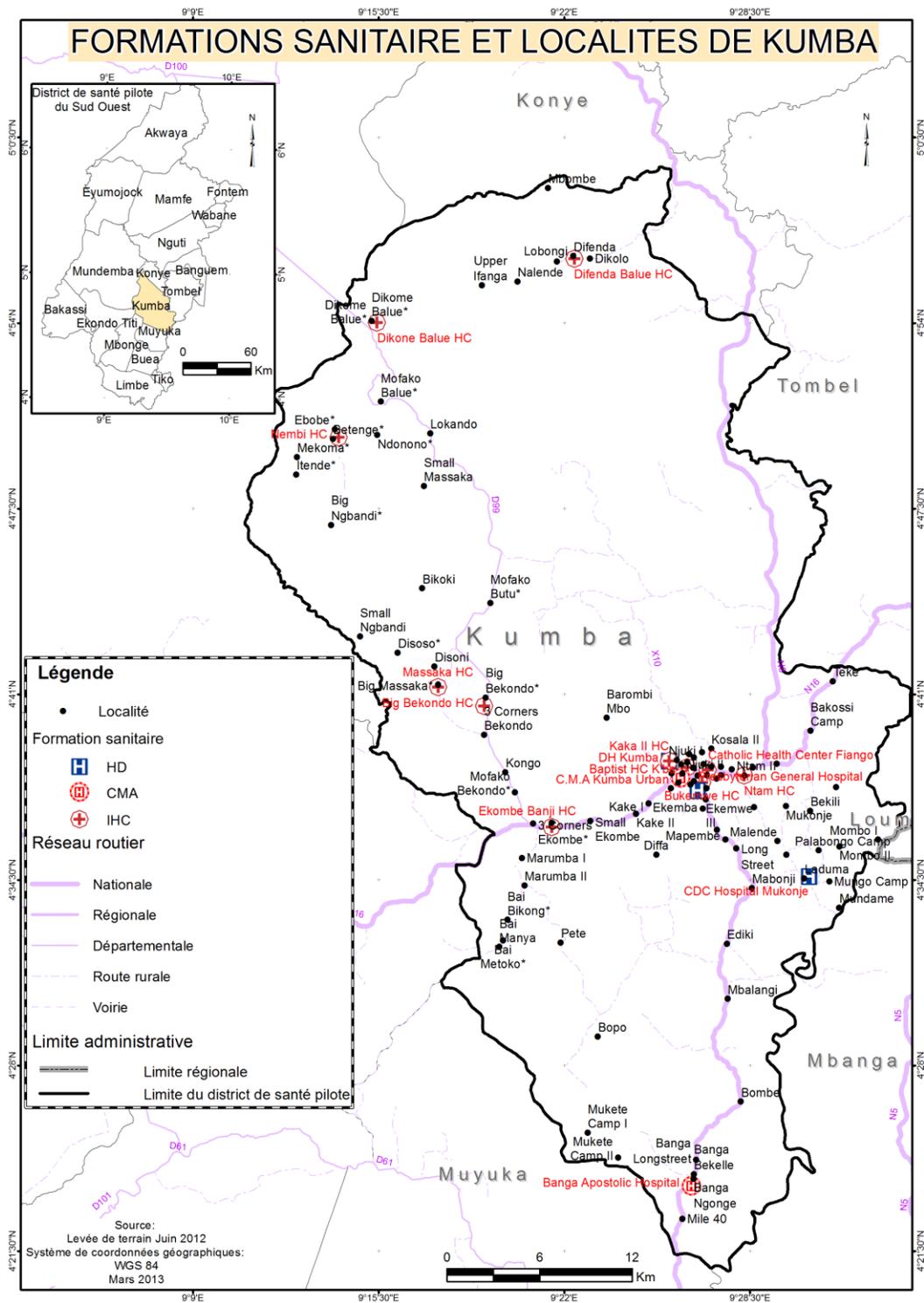
North-West

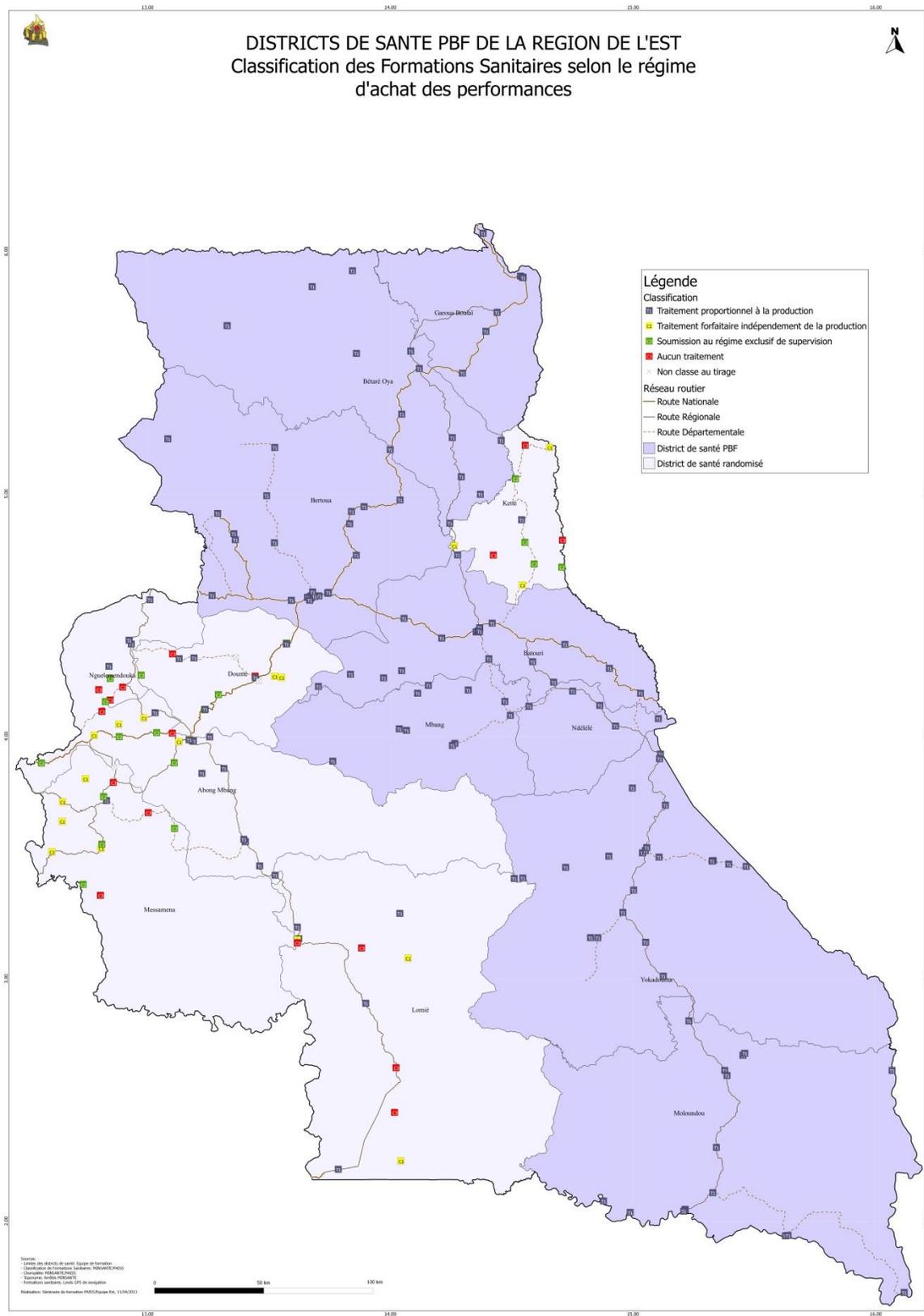


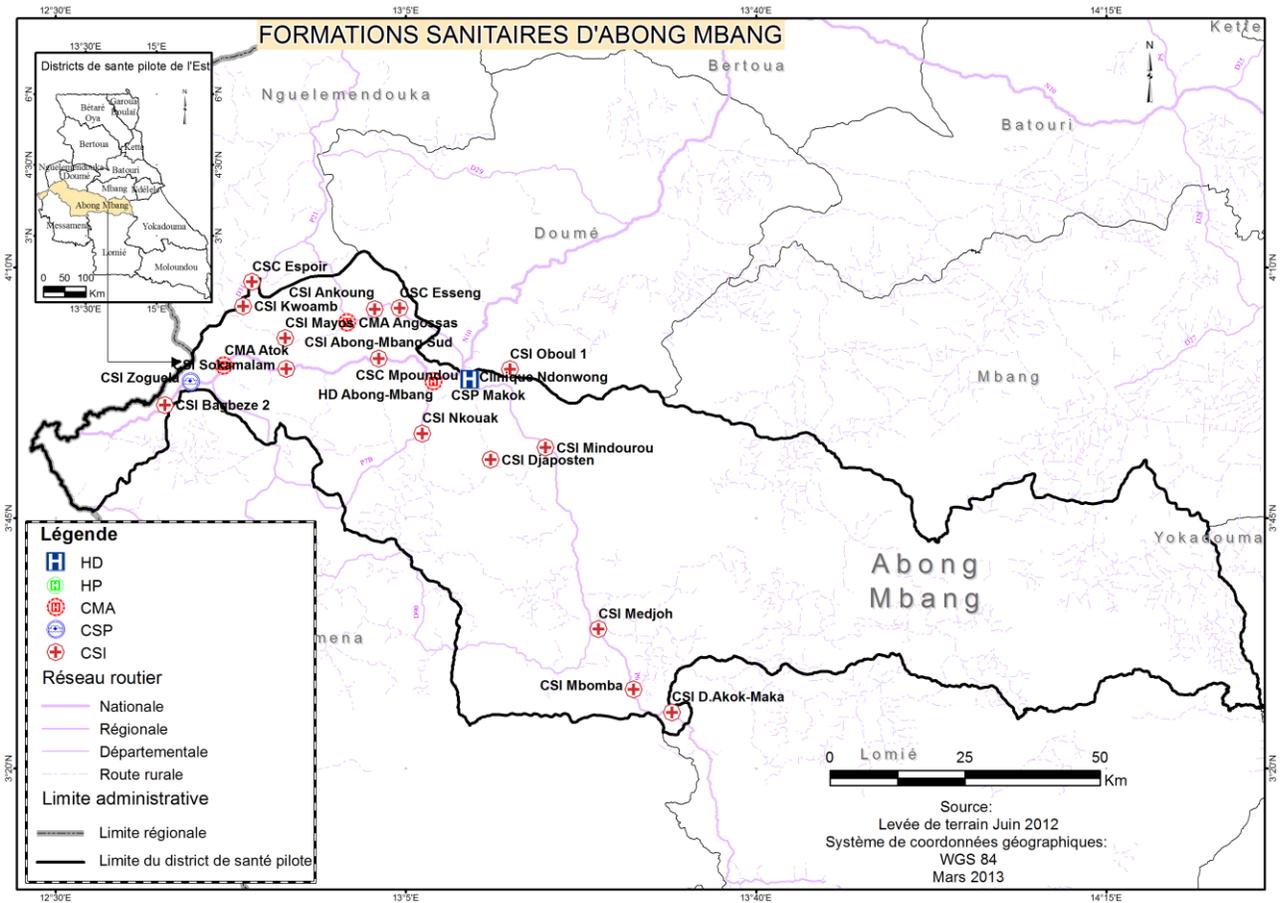


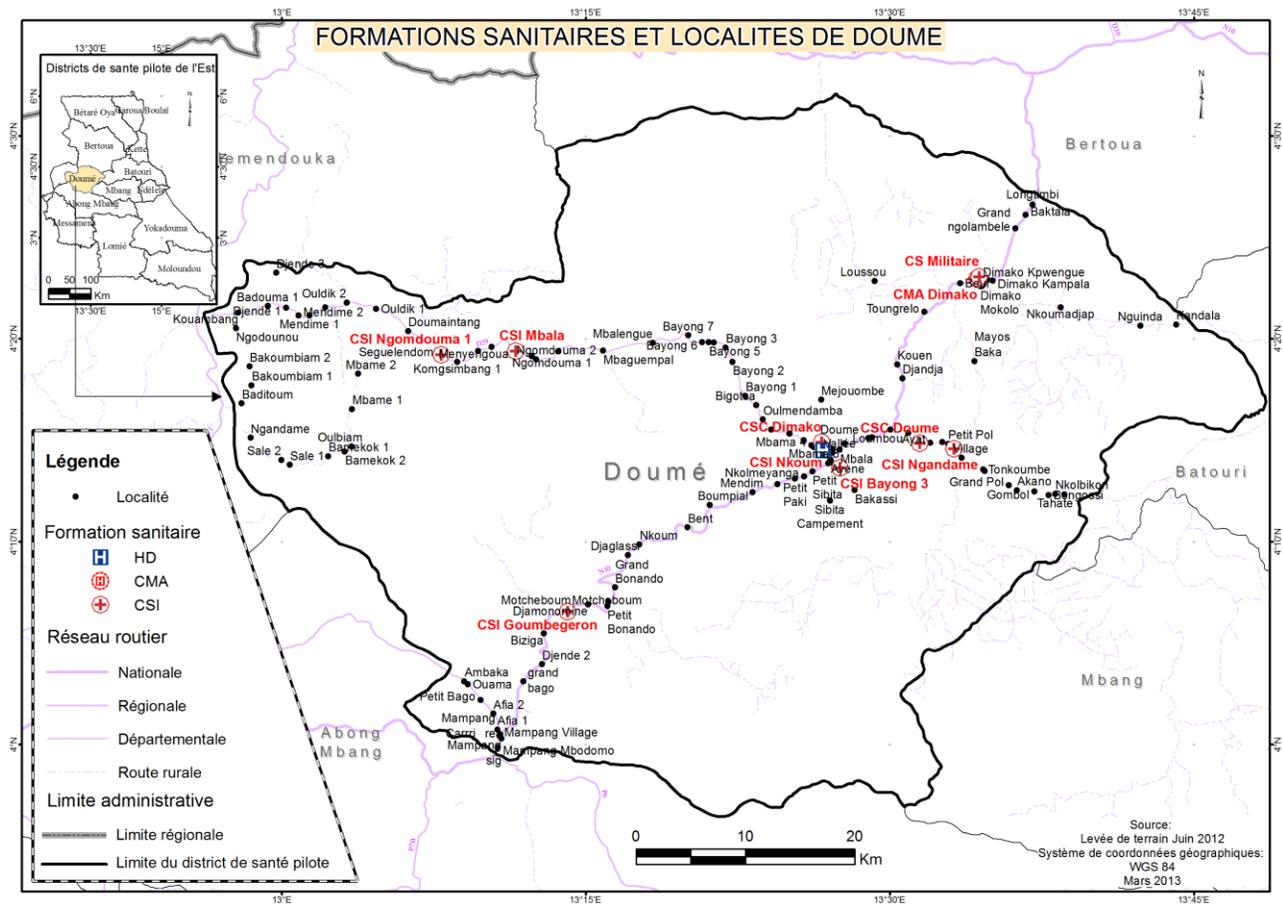
South-West

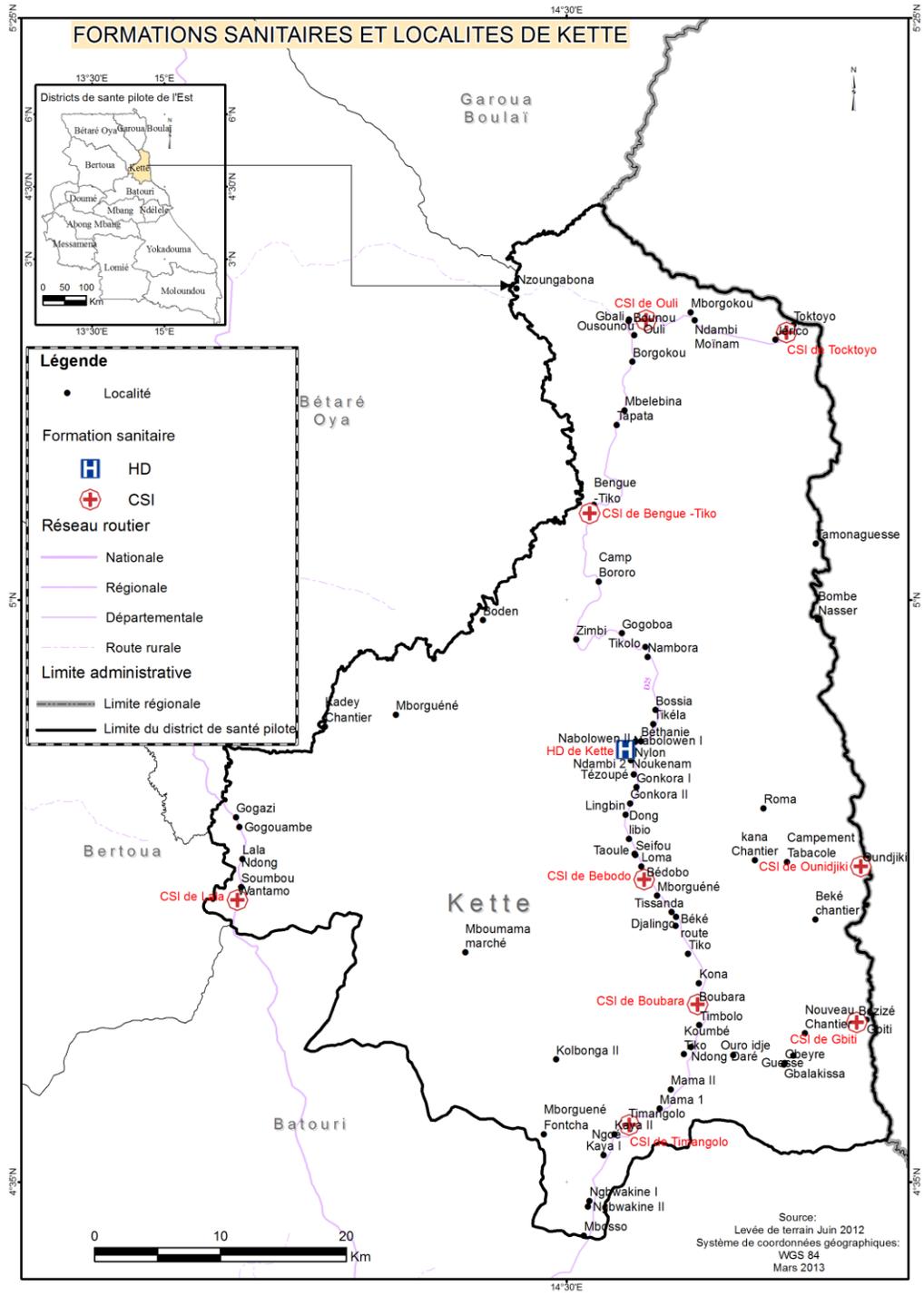


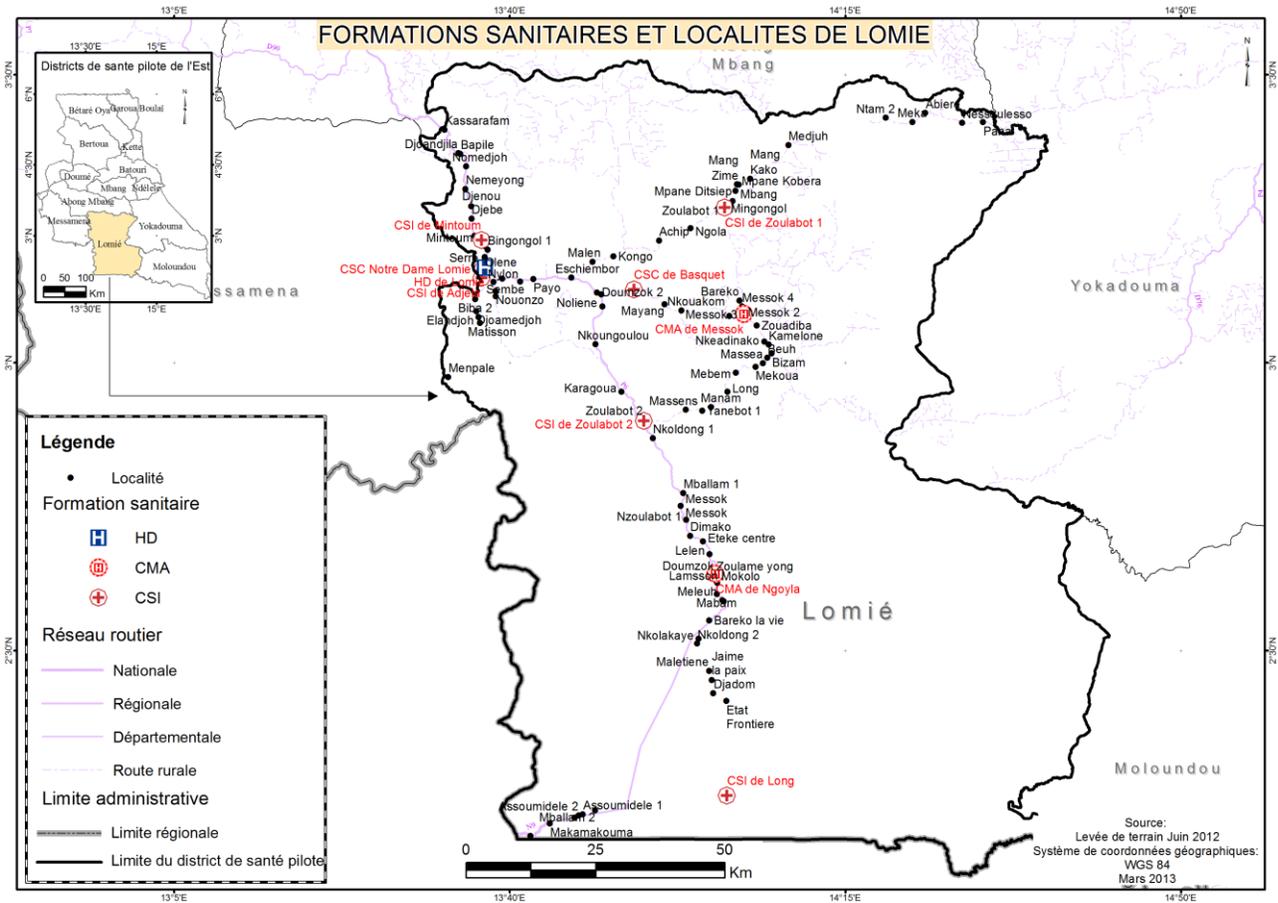


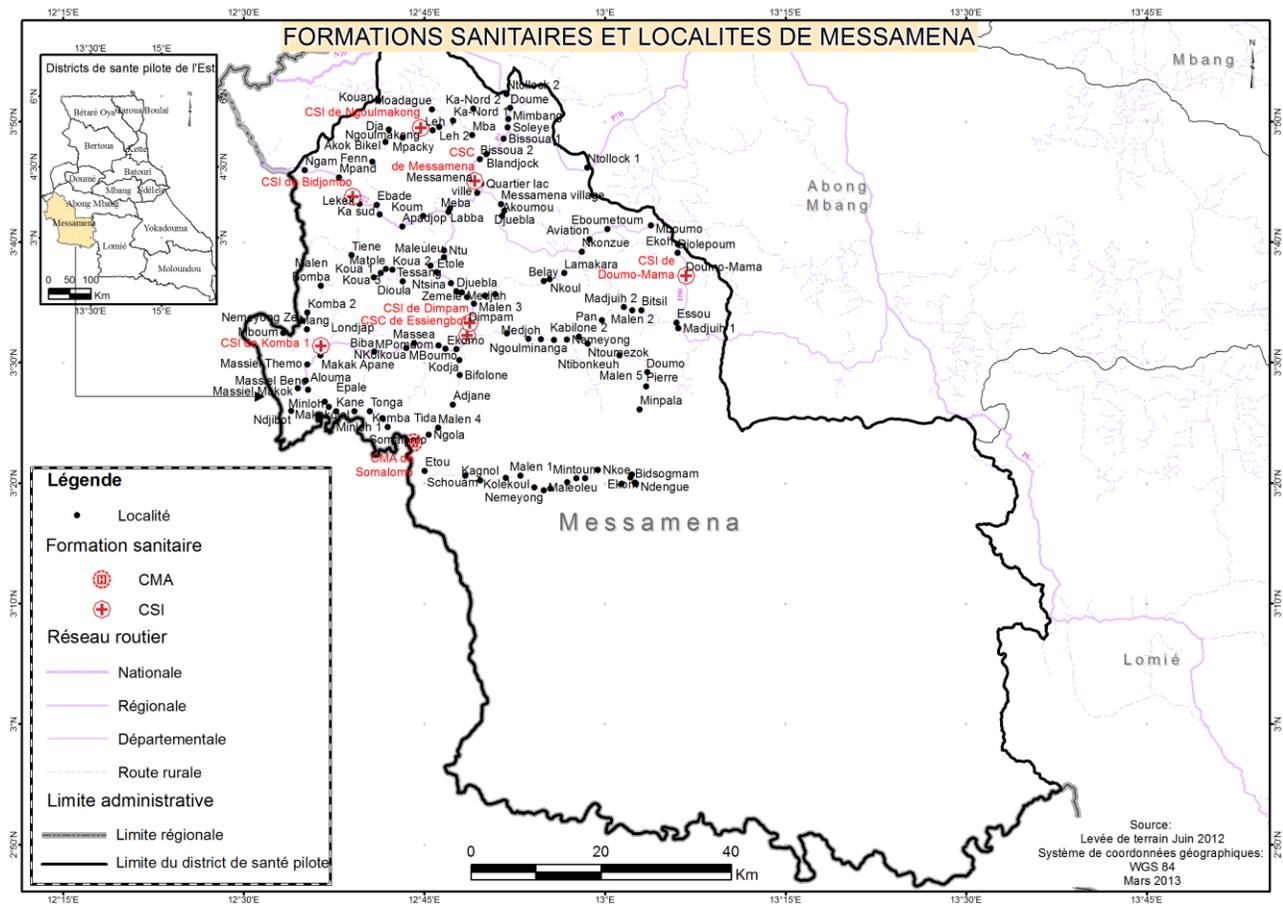


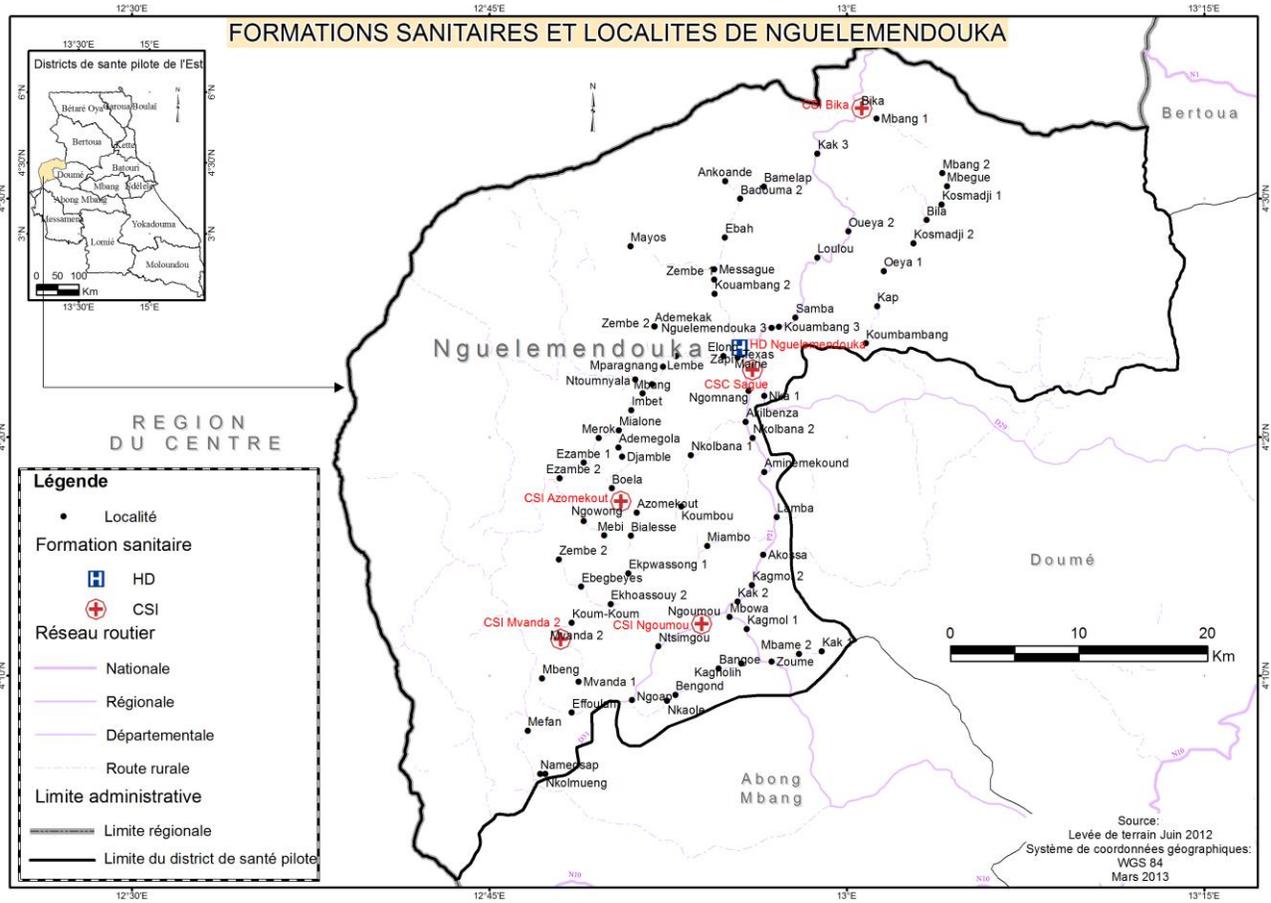












Additional tables

Health Facility Assessment –Structural Characteristics

Table A1: Service delivery characteristics, by facility characteristics, hospitals

	Facility Open 24 hours (%)	Number of days in week that facility is open for ANC	Number of days in week that facility is open for under 5 check up	Availability of patient referral transport at facility (%)	Observations
Region					
East	0.00	2.50	5.33	33.33	6
Northwest	0.00	2.00	2.33	33.33	6
Southwest	12.50	2.57	2.71	75.00	8
Location					
Rural	0.00	1.75	3.00	25.00	8
Urban	8.33	2.82	3.73	66.67	12
Total	5.00	2.37	3.48	50.00	20

Table A2: Location of equipment for specific activities, primary care facilities and hospitals

	Vaccination Equipment n=207 (%)	ANC Equipment n=207 (%)	Neonatal Care Equipment n=202 (%)	Observations
Primary care facilities				
Separate Room	17.39	14.49	50.00	207
Room that is also used for other activities	70.05	77.29	28.71	207
Material Does not Exist at Health Facility	6.76	8.21	21.29	207
Other	5.80	0.00	0.00	207
Hospitals				
Separate Room	20.00	40.00	60.00	20
Room that is also used for other activities	70.00	55.00	35.00	20
Material Does not Exist at Health Facility	10.00	5.00	5.00	20
Other	0.00	0.00	0.00	20

Table A3: Facility Leadership - Actions taken by facility managers given different hypothetical situations/scenarios

Scenario	Action Taken	Randomized Facilities (%) n=207	Non-Randomized Facilities (%) n=20
<i>The performance of your staff is improving</i>	You stress their responsibilities and standards	9.66	5.00
	You take no particular additional action	0.00	0.00
	You give positive feedback and make staff feel involved in the achievements	81.16	90.00
	You emphasize the importance of deadlines and tasks	9.18	5.00
<i>Members of your staff have been unable to solve a problem over the past month, though they have been trying to address it</i>	You call a meeting and together try to solve the problem	84.06	65.00
	You let your staff address this problem on their own	0.48	0.00
	You give them direction and instructions on how to solve the problem	12.08	15.00
	You encourage the group to solve the problem on their own, and you are available when needed to discuss	3.38	20.00
<i>You are considering a major change in how things are done in the facility</i>	You collaborate with your staff to develop the needed changes	80.19	65.00
	You announce your vision for the changes and implement a clear plan	9.18	5.00
	You ask your staff to develop and implement their own plan for change	2.42	5.00
	You consult with your staff , but direct the changes yourself	8.21	25.00
<i>The performance of your staff has been falling in recent months</i>	You ask your staff to rethink their direction and goals and come up with a plan together	26.57	5.00
	You ask for suggestions from your staff on what to do, and you formulate a specific plan to meet objectives	44.93	40.00
	You redefine goals clearly and supervise whether these are being met	26.57	55.00
	You allow your staff freedom to set their own goals and do not push them	1.93	0.00
<i>Your staff are no longer working together as an effective team</i>	You discuss ideas as a group and identify how to work better together	74.76	45.00
	You let your staff work out their issues on their own	1.46	0.00
	You act quickly and decisively to get the team back on track	11.17	25.00
	You make yourself available to discuss any issues and support your team to work out their own problems	12.62	30.00

Table A4: Facility autonomy, hospitals (% for each statement)

	Most of the Time (%)	More than Half of the Time (%)	Less than Half of the Time (%)	Only Rarely (%)	Never (%)	Obsv.
I am able to elaborate my facility budget according to needs. There is enough flexibility in my budget	40.00	25.00	20.00	5.00	10.00	20
I am able to assign tasks and activities to staff as needed to achieve the outcomes I want in the facility. There is enough flexibility to use staff to address needs	80.00	10.00	10.00	0.00	0.00	20
The District Health Management Team Supports my Decisions and Actions for doing a better job in my facility	52.63	15.79	15.79	10.53	5.26	19
I have a choice over who I allocate for what tasks	70.00	15.00	15.00	0.00	0.00	20
I have a choice over what services are provided in the facility	30.00	15.00	25.00	5.00	25.00	20
I have enough authority to obtain the resources I need (drugs, supplies, funding)	30.00	5.00	15.00	30.00	20.00	20
The Policies and Procedures for doing things are clear to me	85.00	5.00	5.00	5.00	0.00	20
The Policies and Procedures for doing things are useful tools for the challenges I face in providing services and reporting on activities	70.00	30.00	0.00	0.00	0.00	20
The District Health Management Team provides adequate feedback to me about my job and the performance of my facility	36.84	15.79	26.32	5.26	15.79	19

Table A5: Availability of tracer drugs, primary care facilities and hospitals

		Primary care facilities (Randomized)		Hospitals (Non-randomized)			
		Mean	SE	Obsv.	Mean	SE	Obsv.
<i>Essential Drugs</i>	Tetracycline Eye Ointment	48.991	12.833	116	35.667	12.119	12
	Paracetamol Tablets	2026.816	208.920	163	4160.938	720.311	16
	Amoxicillin Tablets/Capsules	1393.540	193.353	163	3222.056	469.297	18
	Amoxicillin Syrup	44.187	4.636	150	94.000	37.130	17
	ORS Packets	95.259	16.218	135	270.611	70.659	18
	Iron Tablets (with or without Folic Acid)	1615.621	110.250	132	3389.938	541.308	16
	Folic Acid Tablets	699.212	149.509	85	1720.000	1107.700	6
	Cotrimoxazole	1749.414	197.284	162	3534.706	563.126	17
	Vitamin A	397.438	48.994	121	395.125	126.071	16
<i>Family Planning</i>	Condoms(Male or Female)	164.486	24.643	109	819.539	291.136	13
	Contraceptive Pills	69.185	8.982	108	213.571	76.299	14
	Depot Medroxy Progesterone Acetate	51.417	7.396	108	69.500	19.312	12
	Intra-Uterine Device (IUD)	86.930	25.465	71	24.444	9.667	9
<i>Anti-malarials</i>	Quinine	998.876	117.016	137	2650.471	590.888	17
	Amodiaquine+ Artesunate (ACT) Tablet	99.113	16.850	133	237.500	171.720	18
	Lumefantrine +Artesunate (ACT) Tablet	95.148	20.549	122	89.400	21.006	15
	Lumefantrine +Artesunate (ACT) Syrup	69.307	9.679	101	80.929	20.799	14
	Fansidar- Sulphadoxine Pyramethamine Tablet	431.599	49.446	137	641.333	158.912	18
	BCG	70.604	16.928	111	87.188	29.817	16
<i>Vaccine</i>	OPV	86.696	13.950	112	147.647	62.682	17
	TT	68.090	7.324	111	128.294	63.392	17
	DPT	90.787	8.119	75	96.600	25.001	5
	Hepatitis B Tetravalent	86.730	6.372	74	67.000	17.219	5
	Measles	83.109	19.419	101	329.357	253.901	14
	HiB Vaccine	82.253	5.156	75	81.000	15.281	5
	Pentavalent (DPT, Hepatitis B, HiB,	73.425	7.983	113	88.643	10.866	14

Appendix 2- Health worker survey respondent characteristics

Table A1a: Descriptive Statistics, health worker survey respondents, hospitals

	Respondent lives with Spouse (%)	Respondent born in same district (%)	Number of Years Worked at Current Facility	Number of Days Absent from Work in Past 30 Days	Number of Hours Worked in Past 7 days	Observations
Region						
East	37.50	18.75	5.25	1.81	55.81	16
Northwest	52.17	33.33	10.17	2.75	45.68	24
Southwest	63.33	33.33	8.60	0.57	47.53	30
Location						
Rural	48.00	30.77	8.88	0.31	48.40	26
Urban	56.82	29.55	8.07	2.36	49.16	44
Total	53.62	30.00	8.37	1.60	48.88	70

Table A1b: Descriptive Statistics, health worker survey respondents, hospitals

	Ever Absent without Authorization (%)	Number of Patients seen on Last Full Work Day	Tempted to leave Current Job (%)	Receive Housing Allowance (%)	Receive Rural Hardship Bonus (%)	Observations
Region						
East	12.50	3.47	18.75	37.50	0.00	16
Northwest	0.00	19.04	21.74	16.67	4.17	24
Southwest	3.33	11.87	26.67	16.67	0.00	30
Location						
Rural	0.00	17.88	19.23	11.54	0.00	26
Urban	6.82	9.07	25.58	27.27	2.27	44
Total	4.29	12.44	23.19	21.43	1.43	70

Table A1c: Descriptive Statistics, health worker survey respondents, hospitals

	Discussed job difficulties with supervisor in last month (%)*	Number of meetings with external supervisor in last 12 months (%)*	Respondent is engaged in supplementary jobs (%)	Health Worker Satisfaction Score	Observations
Region					
East	85.71 (n=14)	5.17 (n=12)	18.75	2.16	16
Northwest	86.96 (n=23)	4.21 (n=14)	37.50	2.39	24
Southwest	74.07 (n=27)	2.48 (n=21)	13.33	2.12	30
Location					
Rural	92.00 (n=25)	2.38 (n=13)	30.77	2.24	26
Urban	74.36 (n=39)	4.18 (n=34)	18.18	2.21	44
Total	81.25 (n=64)	3.68 (n=47)	22.86	2.22	70

*Sub-group analysis for individual who responded yes to have internal/external supervisors

Table A2: Most recent In-Service Training in selected competencies, hospitals (n=70)

		Less than One Ago (%)	More than One Ago (%)	Never Trained (%)
a	Integrated Management of Childhood Illness (IMCI Clinical)	10.00	27.14	62.86
b	Integrated Management of Childhood Illness (IMCI Community-based)	5.71	18.57	75.71
c	Diagnosis of Malaria Rapid Tests	10.00	22.86	67.14
d	Management of Malaria with ACTs	21.43	34.29	44.29
e	Tuberculosis Diagnosis and Treatment	7.14	18.57	74.29
f	Basic Family Planning	17.14	18.57	64.29
g	Emergency Obstetric Care and Newborn Care (EONC)	24.29	12.86	62.86
h	Obstetric Surgery (EONC)	14.29	5.71	80.00
i	Refocused Antenatal	21.43	14.29	64.29
j	Support for Cholera	18.57	18.57	62.86
k	Comprehensive care of HIV / AIDS	22.86	30.00	47.14
l	Management of Inputs and Other vaccines	14.29	20.00	65.71
m	Integrated Epidemiological Surveillance of diseases of the EPI	15.71	21.43	62.86
n	Peer Educator training	2.86	14.29	82.86
o	Training in Reproductive Health of Adolescents	7.14	14.29	78.57
p	Prevention of Mother to Child Transmission of HIV/AIDS (PMTCT)	32.86	30.00	37.14
q	Administrative and Financial Management	0.00	11.43	88.57
r	Health Information System	4.29	17.14	78.57

Table: A3 Timeliness of salary

	Primary care facilities (Randomized) (%) n=406	Hospitals (Non-randomized) (%) n=68	Urban (%) n=129	Rural (%) n=277
Always Received on Time	88.18	88.24	91.47	86.64
Not Always Received on Time	5.91	2.94	3.10	7.22
Not Received on Time	5.91	8.82	5.43	6.14

Table A4a: WHO Index of Well Being, primary care facilities (n=437)

In the past two weeks I have felt	Most of the time (%)	More than half of the time (%)	Less than half of the time (%)	Never (%)
Cheerful and in good spirits	64.99	14.65	9.84	10.52
Calm and relaxed	53.32	20.59	14.19	11.90
Active and vigorous	65.68	20.37	7.78	6.18
Woke up feeling fresh and rested	51.26	18.54	16.70	13.50
My daily life has been filled with things that interest me	47.14	16.02	16.48	20.37

Table A4b: WHO Index of Well Being, hospitals (n=70)

In the past two weeks I have felt	Most of the time (%)	More than half of the time (%)	Less than half of the time (%)	Never (%)
Cheerful and in good spirits	58.57	25.71	5.71	10.00
Calm and relaxed	51.43	22.86	12.86	12.86
Active and vigorous	72.86	15.71	7.14	4.29
Woke up feeling fresh and rested	42.86	25.71	17.14	14.29
My daily life has been filled with things that interest me	58.57	20.00	11.43	10.00

Table A5: Health worker satisfaction, hospitals

	Unsatisfied (%)	Indifferent (%)	Satisfied (%)	Observations
Working relationships with other facility staff	5.71	18.57	75.71	70
Working relationships with District/ Ministry of Health staff	6.90	18.97	74.14	58
Collaboration with the Regional Health Delegation	8.00	28.00	64.00	50
Working relationships with Management staff within the health facility	8.57	22.86	68.57	70
Quality of the management of the health facility by the management staff within the health facility	21.43	22.86	55.71	70
Quantity of medicine available in the health facility	25.37	16.42	58.21	67
Quality of medicine available in the health facility	14.93	11.94	73.13	67
Quantity of equipment in the health facility	50.00	17.65	32.35	68
Quality and physical condition of equipment in the health facility	47.83	15.94	36.23	69
Availability of other supplies in the health facility (compresses, etc.; office supplies)	38.24	20.59	41.18	68
The physical condition of the health facility building	37.68	17.39	44.93	69
Your ability to provide high quality of care given the current working conditions in the facility	21.43	20.00	58.57	70
The relationships between the health facility and local traditional leaders	13.21	24.53	62.26	53
Your level of respect in the community	8.70	17.39	73.91	69
Your opportunities to upgrade your skills and knowledge through training	44.29	24.29	31.43	70
Your opportunity to discuss work issues with your immediate supervisor	10.00	12.86	77.14	70
Your immediate supervisor's recognition of your good work	14.71	11.76	73.53	68
Your opportunity to be rewarded for hard work, financially or otherwise.	41.18	20.59	38.24	68
The opportunities to use your skills in your job.	7.14	8.57	84.29	70
Your salary	79.03	14.52	6.45	62
Your benefits (such as housing, travel allowance, bonus including performance bonus, etc)	77.42	14.52	8.06	62
Your opportunities for promotion	50.00	22.73	27.27	66
Safety and security in the community	33.33	14.49	52.17	69
Living accommodations	42.65	14.71	42.65	68
Available schooling for your children (if applicable)	38.00	18.00	44.00	50
Overall, how satisfied are you with your job?	27.14	32.86	40.00	70

Table A6: Working relationships with colleagues, hospitals (On a scale of 0-4; 0 being “never”, 4 being “most of the time”)

	Mean value	Observations
Staff willingly share their expertise with other members	3.46	70
When disagreements occur among staff, they try to act like peacemakers to resolve the situation themselves	3.77	70
Staff willingly give their time to help each other out when someone falls behind or has difficulties with work	3.76	70
Staff talk to each other before taking an action that might affect them	3.43	70
Staff take steps to prevent problems arising between them	3.50	70
Staff focus on what is wrong rather than the positive side	2.10	70
Staff spend their time chatting amongst themselves about things that are not related to work	1.06	70
Staff spend time complaining about work-related issues	2.17	70
My job allows me freedom in how I organize my work and the methods and approaches to use	3.17	70
I am given enough authority by my supervisors to do my job well	3.74	70
It is important for me that the community recognizes my work as a professional	3.64	70
It is important for me that my peers recognize my work as a professional	3.69	70
Changes in the facility are easy to adjust to	3.10	70
Rapid changes are difficult to cope with	2.63	70
Changes bring opportunities to make improvements in the facility	3.66	70
My job makes me feel good about myself	3.80	70
I am proud of the work I'm doing in this facility	3.76	70
I am proud to be working for this health facility	3.67	70
I am glad that I am working for this facility rather than in other facilities in the country	3.47	70
I would prefer to work somewhere else than in this facility	2.43	70
This health facility inspires me to do my very best on the job	3.37	70
I complete my tasks efficiently and effectively	3.70	70
I am a hard worker	3.94	70
I am punctual about coming to work	3.81	70
These days, I feel motivated to work as hard as I can	3.52	69
My facility is a very personal place. It is like an extended family and people share a lot with each other	3.64	70
My facility is very dynamic and an innovative place. People are willing to take risks to do a job well-done	3.59	70
My facility is very formal and structured. Policies and procedures are important for doing our work	3.64	70
In my facility, we focus on achieving daily goals getting our work done. Relationships between staff are less important	2.99	70
The head of my facility is a mentor and a role model	3.46	69
The head of my facility is willing to innovate and take risks in order to improve things	3.48	69
The head of my facility relies too much on policies and procedures	3.29	69
The head of my facility motivates staff to achieve goals	3.09	69
Loyalty and tradition are very important in my facility	3.03	70
Innovation and being first to try something new are important in my facility	3.39	70
Following procedures and rules is very important in my facility	3.63	70
Achieving results and high performance is very important in my facility	3.79	70

Appendix 3- Quality of antenatal care: Direct observations

Table A1: Descriptive Statistics on comprehensiveness of prenatal consultations, primary care facilities

	Client's Age Asked (%)	Medications taken by Client Asked (%)	Date of Client's Last Menstrual Period Asked (%)	Number of Prior Pregnancies Asked (%)	Observations
Region					
East	66.67	43.33	80.00	60.00	30
Northwest	71.64	30.08	70.90	62.69	134
Southwest	63.92	23.71	67.35	59.79	97
Location					
Rural	64.97	31.41	68.79	58.60	157
Urban	73.08	25.96	73.33	65.38	104
Total	261	260	262	261	

Table A2 : Descriptive Statistics on comprehensiveness of antenatal consultations, hospitals

	Male Health Worker (%)	Client's Age Asked (%)	Medications taken by Client Asked (%)	Date of Client's Last Menstrual Period Asked (%)	Number of Prior Pregnancies Asked (%)	Observations
Region						
East	25.00	82.35	58.82	88.24	62.50	17
Northwest	0.00	72.22	29.41	72.22	66.67	18
Southwest	5.26	94.74	42.11	84.21	73.68	19
Location						
Rural	0.00	73.68	55.56	73.68	66.67	18
Urban	14.29	88.57	37.14	85.71	68.57	35
Total	262	261	260	262	261	

Appendix 4- Quality of antenatal care: Patient exit interviews

Table A1: Dietary Advice provided by health worker during consultation (% Respondents advised to consume each of the following during pregnancy)

	Primary care facilities (Randomized) (%) n=255	Hospitals (Non-randomized) (%) n=54
Green Leafy Vegetables	86.90	100.00
Milk	21.38	58.62
Meat and Poultry	41.38	51.72
Fruits and Nuts	58.62	68.97
Other	28.28	13.79

Table A2: Second most important reason respondent chose the facility, primary care facilities and hospitals

	Primary care facilities (Randomized) (%) n=261	Hospitals (Non-randomized) (%) n=54
No Other Reason	11.49	9.26
Location Close to Home	18.01	22.22
Low Cost	32.57	16.67
Trust In Providers / High Quality	7.28	7.41
Availability of Drugs	1.53	5.56
Availability of Female Provider	3.83	5.56
Recommendation	0.38	7.41
Referral	13.79	11.11
Other	11.11	14.81

Table A3: Patient satisfaction with health care facility, hospitals

	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Not Applicable (%)	Observations
It is convenient to travel from your house to the health facility	61.11	7.41	18.52	12.96	54
The health facility is clean	74.07	11.11	14.81	0.00	54
The health staff are courteous and respectful	88.89	9.26	1.85	0.00	54
The health workers did a good job of explaining your condition	81.48	9.26	9.26	0.00	54
It is easy to get medicine that health workers prescribe	83.33	3.70	11.11	1.85	54
The registration fees of this visit to the health facility were reasonable	62.96	9.26	9.26	18.52	54
The lab fees of this visit to the health facility were reasonable	48.15	16.67	11.11	24.07	54
The medication fees of this visit to the health facility were reasonable	66.67	9.26	7.41	16.67	54
The transport fees for this visit to the health facility were reasonable	58.49	5.66	20.75	15.09	53
The health workers don't ask for presents as additional payment	81.48	0.00	14.81	3.70	54
The amount of time you spent waiting to be seen by a health provider was reasonable	66.67	3.70	29.63	0.00	54
You had enough privacy during your visit	74.07	14.81	11.11	0.00	54
The health worker spent a sufficient amount of time with you	88.89	3.70	7.41	0.00	54
The hours the facility is open are adequate to meet your needs	75.93	14.81	9.26	0.00	54
The overall quality of services provided was satisfactory	83.33	12.96	3.70	0.00	54

Table A4: Patient’s perceptions on security and trust with the facility, hospitals

	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Not Applicable (%)	Observations
The level of security in the health facility area makes it difficult for people in the community to use available health services	35.19	24.07	40.74	0.00	54
The health workers in this facility are honest and respect patients	87.04	11.11	1.85	0.00	54
The health workers in this facility are extremely thorough and careful	79.63	16.67	3.70	0.00	54
You trust in the skills and abilities of the health workers of this facility	88.89	9.26	1.85	0.00	54
You completely trust the health worker’s decisions about medical treatments in this facility	81.48	14.81	3.70	0.00	54
The health workers in this facility are very friendly and approachable	77.78	18.52	3.70	0.00	54
The health workers in this facility are easy to make contact with	74.07	25.93	0.00	0.00	54
The health workers in this facility care about your health just as much or more than you do	70.37	22.22	5.56	1.85	54
The health workers in this facility act differently toward rich people than toward poor people	27.78	11.11	59.26	1.85	54

Table A5: Community Health Workers (CHWs) provide a valuable service in my community (% agreeing, neither agreeing nor disagreeing, or disagreeing with each statement)

Facility Group	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Observations (%)
C3	78.95	21.05	0.00	19
C2	96.15	3.85	0.00	26
C1	88.24	5.88	5.88	17
T	92.86	3.57	3.57	28

Non-Randomized Facilities	100.00	0.00	0.00	18
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Table A6: Community Health Workers (CHWs) provide good quality services in my community (% agreeing, neither agreeing nor disagreeing, or disagreeing with each statement)

Facility Group	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Observations (%)
C3	84.21	15.79	0.00	19
C2	76.92	23.08	0.00	26
C1	76.47	17.65	5.88	17
T	82.14	10.71	7.14	28
Non-Randomized Facilities	94.44	0.00	5.56	18

Table A7: Services provided by traditional birth attendants in the month preceding the survey, primary care facilities and hospitals

	Randomized And Non-Randomized Facilities n=4 (%)
Identify your Pregnancy	25.00
Bring you For Antenatal Check-up	0.00
Information on Danger Signs during Pregnancy	0.00
Escort to Health Facility For Delivery	0.00
Health Education or Promotion	0.00
Provide Traditional Medicines	75.00
Give a Massage	25.00
Give Traditional Protection	0.00
Others	0.00

Table A8: Perceived quality of traditional birth attendant care (% agreeing, neither agreeing nor disagreeing, or disagreeing with each statement)

Facility Group	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Observations (%)
<i>Primary care facilities</i>				
Traditional Birth Attendants provide a valuable service	71.88	15.63	12.50	32
Traditional Birth Attendants provide good quality service	56.25	15.63	28.13	32
<i>Hospitals</i>				
Traditional Birth Attendants provide a valuable service	85.71	0.00	14.29	7
Traditional Birth Attendants provide good quality service	42.86	28.57	28.57	7

Appendix 5- Tables for Observation Child Under 5

Table A1: Additional examination steps and diagnosis of illnesses

	Primary care facilities (Randomized) (%)			Hospitals (Non-randomized) (%)		
	Mean	SE	Obsv.	Mean	SE	Obsv.
Health Worker Looks in the Ears	0.234	0.048	188	0.476	0.124	42
Health Worker Looks Behind the Ears	0.223	0.044	188	0.476	0.124	42
Health Worker asks if Child has Ear Pain or Discharge	0.128	0.025	188	0.095	0.052	42
Health Worker Checks Palms for Anemia	0.160	0.036	188	0.119	0.050	42
Health Worker Checks feet or ankles for Edema	0.080	0.030	188	0.190	0.077	42
Door was closed/ screen used to ensure patient privacy	0.559	0.063	188	0.881	0.096	42
Health Worker tells mother/caregiver name of disease	0.540	0.043	187	0.429	0.093	42
Health Worker explains about disease	0.226	0.041	186	0.366	0.116	41
Health Worker explains home care to be taken	0.428	0.045	187	0.476	0.105	42
Health worker gives a prescription or medication for use at home	0.920	0.022	187	0.905	0.037	42
Health Worker informs of signs and symptoms of improvement	0.150	0.031	187	0.286	0.090	42
Health Worker mentions due date for follow up	0.193	0.036	187	0.214	0.068	42
Health worker creates patient record	0.947	0.018	187	0.833	0.106	42
Health worker makes record in register	0.968	0.010	187	0.952	0.043	42
Duration of 1 st part of consultation(minutes)	13.310	1.042	187	12.405	1.806	42
Duration of 2 nd part of consultation(minutes)	3.941	0.565	187	3.929	0.618	42
Total Consultation Time(minutes)	17.251	1.176	187	16.333	2.087	42

Table A2: Descriptive Statistics under five external consultations, primary care facilities

	Male (%)	Patient	Male Worker (%)	Health (%)	Health Worker Greeted Patient (%)	Health Worker Washed Hands before Examination (%)	Observations
Region							
East	61.54		65.79		92.31	0.00	39
Northwest	52.86		42.86		92.86	2.86	70
Southwest	37.97		36.71		97.47	21.52	79
Location							
Rural	48.65		46.36		92.79	2.70	111
Urban	48.05		42.86		97.40	20.78	77
Sector (Primary Care)							
Public	48.03		33.33		92.91	3.94	127
Private	76.92		46.15		100.00	7.69	13
Confessional	41.67		75.00		97.92	27.08	48
Total	188		187		188	188	

Table A3: Descriptive Statistics under five external consultations, hospitals

	Male (%)	Patient	Male Worker (%)	Health (%)	Health Worker Greeted Patient (%)	Health Worker Washed Hands before Examination (%)	Observations
Region							
East	57.14		57.14		85.71	0.00	7
Northwest	60.00		66.67		73.33	40.00	15
Southwest	55.00		75.00		85.00	20.00	20
Location							
Rural	69.23		92.31		69.23	53.85	13
Urban	51.72		58.62		86.21	10.34	29
Total	42		42		42	42	

Appendix 6- Tables for Exit Interview Children under five

Table A1: Received medication or prescription (% for each statement), primary care facilities and hospitals

	Randomized Facilities (%)	Observations	Non Randomized Facilities (%)	Observations
Received medicine at health facility	50.00	186	39.02	41
Received prescription to fill in the health facility	83.42	187	80.49	41
Received prescription to fill outside the health facility	9.14	186	17.07	41
Received neither medicine nor prescription at the health facility	0.54	186	4.88	41

Table A2: Second most important reason for choosing this facility, under-five consultations

	Primary care facilities (Randomized) (%) n=190	Hospitals (Non-randomized) (%) n=41	East Region n=46 (%)	Northwest Region n=88 (%)	Southwest Region n=97 (%)
Location Close to Home	15.26	9.76	23.91	14.77	9.28
Low Cost	14.21	9.76	15.22	14.77	11.34
Trust In Providers / High Quality	31.05	21.95	26.09	34.09	26.80
Availability of Drugs	10.53	21.95	8.70	17.05	10.31
Availability of Female Provider	0.53	0.00	0.00	1.14	0.00
Referral	0.00	2.44	2.17	0.00	0.00
Recommendation	6.84	4.88	4.35	6.82	7.22
Nature of the illness	3.16	2.44	2.17	4.55	2.06
Place of delivery	0.53	0.00	2.17	0.00	0.00
Other	17.89	26.83	15.22	6.82	32.99

Table A3: Patient Satisfaction, hospitals (% for each statement)

	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Not Applicable (%)	Observations
It is convenient to travel from your house to the health facility.	82.93	2.44	14.63	0.00	41
The health facility is clean.	75.61	9.76	14.63	0.00	41
The health staff are courteous and respectful.	85.37	12.20	2.44	0.00	41
The health workers did a good job of explaining your condition.	85.37	9.76	4.88	0.00	41
It is easy to get medicine that health workers prescribe.	78.05	9.76	9.76	2.44	41
The registration fees of this visit to the health facility were reasonable.	78.05	7.32	9.76	4.88	41
The lab fees of this visit to the health facility were reasonable.	43.24	18.92	13.51	24.32	37
The medication fees of this visit to the health facility were reasonable.	66.67	13.89	11.11	8.33	36
The transport fees for this visit to the health facility were reasonable.	70.00	0.00	15.00	15.00	40
The health workers don't ask for presents as additional payment	82.93	4.88	9.76	2.44	41
The amount of time you spent waiting to be seen by a health provider was reasonable.	73.17	7.32	19.51	0.00	41
You had enough privacy during your visit.	82.93	4.88	12.20	0.00	41
The health worker spent a sufficient amount of time with you.	80.49	9.76	9.76	0.00	41
The hours the facility is open are adequate to meet your needs.	87.80	2.44	9.76	0.00	41
The overall quality of services provided was satisfactory.	95.12	2.44	2.44	0.00	41

Table A4: Patient’s perceptions on security and trust with the facility, hospitals

	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Not Applicable (%)	Observations
The level of security in the health facility area makes it difficult for people in the community to use available health services.	12.20	9.76	78.05	0.00	41
The health workers in this facility are honest and respect patients	90.24	4.88	4.88	0.00	41
The health workers in this facility are extremely thorough and careful.	92.68	4.88	2.44	0.00	41
You trust in the skills and abilities of the health workers of this facility.	90.24	9.76	0.00	0.00	41
You completely trust the health worker’s decisions about medical treatments in this facility.	70.73	26.83	2.44	0.00	41
The health workers in this facility are very friendly and approachable.	65.85	19.51	14.63	0.00	41
The health workers in this facility are easy to make contact with.	60.98	19.51	19.51	0.00	41
The health workers in this facility care about your health just as much or more than you do.	14.63	9.76	75.61	0.00	41
The health workers in this facility act differently toward rich people than toward poor people.	92.68	7.32	0.00	0.00	41

Table A5: Community Health Workers (CHWs) provide good quality services in my community (% agreeing, neither agreeing nor disagreeing, or disagreeing with each statement)

Facility Group	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Observations (%)
Randomized Facilities	87.50	10.23	2.27	88
Non Randomized Facilities	90.00	10.00	0.00	10
East Region	85.71	9.52	4.76	21
Northwest Region	82.22	17.78	0.00	45
Southwest Region	96.88	0.00	3.13	32

Table A6: Community Health Workers (CHWs) provide a valuable Service in my community (% agreeing, neither agreeing nor disagreeing, or disagreeing with each statement)

Facility Group	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Observations (%)
Randomized Facilities	92.05	5.68	2.27	88
Non Randomized Facilities	90.00	10.00	0.00	10
East Region	90.48	4.76	4.76	21
Northwest Region	88.89	11.11	0.00	45
Southwest Region	96.88	0.00	3.13	32

**Appendix 7 – Quality of External Consultations for patients aged five years and above:
Patient exit interviews**

**Table A1: Received medication or prescription for adult consultations (% for each statement),
primary care facilities and hospitals**

	Randomized Facilities (%)	Observations	Non Randomized Facilities (%)	Observations
Received medicine at health facility	47.89	261	32.35	68
Received prescription to fill in the health facility	84.03	263	86.76	68
Received prescription to fill outside the health facility	8.43	261	19.12	68
Received neither medicine nor prescription at the health facility	2.30	261	0.00	68

Table A2: Second most important reason for choosing this facility, adult consultations

	Primary care facilities (Randomize d) (%) n=265	Hospitals (Non- randomized) (%) n=68	East Region n=56 (%)	Northwest Region n=140 (%)	Southwest Region n=137 (%)
Location Close to Home	11.41	14.71	23.64	12.95	6.57
Low Cost	13.69	11.76	18.18	15.83	8.76
Trust In Providers / High Quality	33.08	29.41	25.45	41.73	25.55
Availability of Drugs	10.27	14.71	10.91	14.39	8.03
Availability of Female Provider	1.90	0.00	5.45	0.00	1.46
Referral	0.00	0.00	0.00	0.00	0.00
Recommendation	7.22	4.41	5.45	5.04	8.76
Nature of the illness	3.04	2.94	5.45	1.44	3.65
Other	19.39	22.06	5.45	8.63	37.23

Table A3: Patient satisfaction with the facility, adult consultations, hospitals

	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Not Applicable (%)	Observations
It is convenient to travel from your house to the health facility.	74.63	10.45	14.93	0.00	67
The health facility is clean.	69.12	7.35	22.06	1.47	68
The health staff are courteous and respectful.	80.88	10.29	7.35	1.47	68
The health workers did a good job of explaining your condition.	79.41	10.29	10.29	0.00	68
It is easy to get medicine that health workers prescribe.	79.41	7.35	11.76	1.47	68
The registration fees of this visit to the health facility were reasonable.	74.63	10.45	11.94	2.99	67
The lab fees of this visit to the health facility were reasonable.	34.92	17.46	12.70	34.92	63
The medication fees of this visit to the health facility were reasonable.	62.50	7.81	14.06	15.63	64
The transport fees for this visit to the health facility were reasonable.	56.06	12.12	9.09	22.73	66
The health workers don't ask for presents as additional payment	79.41	1.47	16.18	2.94	68
The amount of time you spent waiting to be seen by a health provider was reasonable.	67.65	1.47	30.88	0.00	68
You had enough privacy during your visit.	85.29	1.47	13.24	0.00	68
The health worker spent a sufficient amount of time with you.	75.00	11.76	13.24	0.00	68
The hours the facility is open are adequate to meet your needs.	77.94	8.82	10.29	2.94	68
The overall quality of services provided was satisfactory.	82.35	10.29	7.35	0.00	68

Table A4: Patient’s perceptions on security and trust with the facility, adult consultations, hospitals

	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Not Applicable (%)	Observations
The level of security in the health facility area makes it difficult for people in the community to use available health services.	17.65	17.65	64.71	0.00	68
The health workers in this facility are honest and respect patients	79.41	16.18	4.41	0.00	68
The health workers in this facility are extremely thorough and careful.	77.94	14.71	5.88	1.47	68
You trust in the skills and abilities of the health workers of this facility.	91.18	7.35	1.47	0.00	68
You completely trust the health worker’s decisions about medical treatments in this facility.	94.12	4.41	1.47	0.00	68
The health workers in this facility are very friendly and approachable.	73.53	17.65	8.82	0.00	68
The health workers in this facility are easy to make contact with.	73.53	16.18	10.29	0.00	68
The health workers in this facility care about your health just as much or more than you do.	73.53	13.24	13.24	0.00	68
The health workers in this facility act differently toward rich people than toward poor people.	13.24	26.47	55.88	4.41	68
All in all, you trust the health workers completely in this health facility	88.24	10.29	1.47	0.00	68

Table A5: Community Health Workers (CHWs) provide a valuable service in my community (% agreeing, neither agreeing nor disagreeing, or disagreeing with each statement), adult consultation patients

Facility Group	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Observations (%)
Randomized Facilities	84.82	8.93	6.25	112
Non Randomized Facilities	95.65	4.35	0.00	23
East Region	85.71	3.57	10.71	28
Northwest Region	88.00	8.00	4.00	50
Southwest Region	85.96	10.53	3.51	57

Table A6: Community Health Workers (CHWs) provide good quality services in my community (% agreeing, neither agreeing nor disagreeing, or disagreeing with each statement), adult consultation patients

Facility Group	Agree (%)	Neither Agree nor Disagree (%)	Disagree (%)	Observations (%)
Randomized Facilities	82.14	10.71	7.14	112
Non Randomized Facilities	91.30	8.70	0.00	23
East Region	82.14	3.57	14.29	28
Northwest Region	82.46	14.04	3.51	57
Southwest Region	86.00	10.00	4.00	50

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