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Baseline Study for an Impact Evaluation of a Results-Based Financing Intervention in the Democratic Republic of Congo

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BASELINE STUDY FOR AN IMPACT EVALUATION OF A RESULTS-BASED FINANCING INTERVENTION IN THE DEMOCRATIC REPUBLIC OF CONGO

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Table of Contents

ACRONYMS iv
EXECUTIVE SUMMARY 1
I. EVALUATION PURPOSE AND EVALUATION QUESTIONS 7
A. RBF IMPACT EVALUATION RATIONALE 10
B. INTENDED AUDIENCE 10
C. IMPACT EVALUATION QUESTIONS 10
D. PURPOSE OF BASELINE EVALUATION 11
II. PROJECT BACKGROUND 11
A. DESCRIPTION OF IHP PBF INTERVENTION 11
III. EVALUATION METHODS AND LIMITATIONS 14
A. EVALUATION TEAM 14
B. STUDY DESIGN 14
C. SITE SELECTION STRATEGY 15
D. SAMPLE SIZE 15
E. DATA COLLECTION METHODS 16
F. DATA COLLECTION AND ENTRY 18
G. ETHICAL CONSIDERATIONS 18
H. DATA QUALITY 19
I. DATA ANALYSIS 20
J. LIMITATIONS 20
IV. FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS 22
A. FACILITY SURVEY FINDINGS 22
B. HOUSEHOLD SURVEY FINDINGS 28
C. KEY INFORMANT INTERVIEWS FINDINGS AND ANALYSIS 33
V. DISCUSSION 43

REFERENCE LIST 48

LIST OF ANNEXES

(PROVIDED IN A SEPARATE VOLUME)

ANNEX 1. EVALUATION STATEMENT OF WORK

ANNEX 2. EVALUATION METHODS AND LIMITATIONS

ANNEX 3. DATA COLLECTION INSTRUMENTS

ANNEX 4. QUANTITATIVE SURVEY RESULTS

ANNEX 5. SOURCES OF INFORMATION

ANNEX 6. TRAINING MANUAL FOR DATA COLLECTION

ANNEX 7. MPA-PLUS SERVICES

ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
AAP	Agence d'Achat de Performance (Purchasing Agent)
ANC	Antenatal Care
ARI	Acute Respiratory Infection
ART	Antiretroviral Therapy
ARV	Antiretroviral
BC	Bureau de Coordination (IHP Coordination Bureau)
BCC	Behavior Change Communication
BCG	Bacillus Calmette-Guerin Vaccine
CBO	Community-based Organization
CCM	Community Case Management
CDF	Congolese Francs
CESD	Centre de Communication et d'Education Pour la Santé et le Développement
CHW	Community Health Worker
C-IMCI	Community-based Integrated Management of Childhood Illness
CODESA	Comité de Développement Sanitaire (Health Development Committee)
CPA	Complementary Package of Activities
CI	Confidence Interval
CPR	Contraceptive Prevalence Rate
CTX	Co-trimoxazole
DHS	Demographic and Health Survey
DOTS	Directly Observed Treatment Short-Course for TB
DPT	Diphtheria, Pertussis, Tetanus
DRC	Democratic Republic of Congo
ECZ	Equipe Cadre de Zone (Health Zone Management Team)
EPI	Expanded Programme on Immunization
FBO	Faith-based Organization
FGD	Focus Group Discussion
FOSA	Formation Sanitaire
FOSACOF	Fully Functional Service Delivery Point
FP	Family Planning
GAVI	Global Alliance for Vaccines and Immunization
GBV	Gender-based Violence
GDRC	Government of the Democratic Republic of Congo

GRH	General Reference Hospital
HZMC	Health Zone Management Committee
HC	Health Center
Hep B	Hepatitis B
HF	Health Facility
HIV	Human Immunodeficiency Virus
HSSS	Health System Strengthening Strategy
HZ	Health Zone
HZMT	Health Zone Management Team
IBTCI	International Business and Technical Consultants, Inc.
IEC	Information, Education and Communication
IHP	Integrated Health Project
IMCI	Integrated Management of Childhood Illnesses
ITN	Insecticide Treated Net
KAPs	Knowledge, Attitudes, and Practices
KII	Key Informant Interview
LAM	Lactation Amenorrhea Method
LDP	Leadership Development Program
LLIN	Long Lasting Insecticide Treated Net
LQAS	Lot Quality Assurance Sampling
M&E	Monitoring and Evaluation
MCH	Mother and Child Health
MDR-TB	Multi-Drug Resistant TB
MNCH	Maternal, Newborn and Child Health
MPA	Minimum Package of Activities
MSH	Management Sciences for Health
MSP	Ministère de la Santé Publique (Ministry of Public Health)
NGO	Non-Governmental Organization
NHDP	National Health Development Plan
NTD	Neglected Tropical Disease
ORS	Oral Rehydration Salts
OSC	Overseas Strategic Consulting, Ltd.
PEP	Post-Exposure Prophylaxis for HIV
PEPFAR	President's Emergency Plan for AIDS Relief
PBF	Performance Based Financing
PMI	President's Malaria Initiative
PMP	Performance Monitoring Plan
PMTCT	Prevention of Mother-to-Child Transmission of HIV
PNC	Prenatal Consultation/Care
PNDS	Plan National de Développement Sanitaire (National Health Development Plan)

PNLP	Programme National de Lutte contre le Paludisme (National Malaria Control Program)
PNLS	Programme National de Lutte contre le SIDA (National AIDS Program)
PPS	Probability Proportional to Size
RBF	Results-Based Financing
RDT	Rapid Diagnostic Test
RH	Reproductive Health
SNIS	National Health Information System of the DRC
STI	Sexually Transmitted Infection
TB	Tuberculosis
TBA	Traditional Birth Attendant
TFR	Total Fertility Rate
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollars
USG	United States Government
Vit A	Vitamin A
WASH	Water/Sanitation/Hygiene
WHO	World Health Organization

EXECUTIVE SUMMARY

INTRODUCTION AND PURPOSE

Beginning in 2006, the Government of Democratic Republic of Congo (DRC) adopted the Health Systems Strengthening Strategy (Stratégie de Renforcement du Système de Santé) to implement financing reforms, avoid wastage, and achieve national health objectives. Among the strategies to achieve financing reforms, performance-based financing (PBF) emerged as the most promising strategy, as compared to other types of financing, namely input financing. In the literature, the term PBF is often used interchangeably with results-based financing, or RBF. For the purpose of this report, PBF is used throughout the text and RBF is used in the title and introduction section only.

RBF is designed to be a more productive alternative to input financing. Rather than granting an advance payment, RBF pays for outputs. It is a transfer of money or other material incentives from an external supporter to a beneficiary, contingent upon the beneficiary performing a measurable action or reaching a predetermined target. Recipients can be either health care providers or consumers, depending on the needs and goals of the specific project. This creates new performance incentives for employees, empowers health facilities to allocate resources to where they are most needed, and increases demand for essential health services. Additionally, RBF helps finance the underfunded health sector. Financing of health care in the DRC is increasingly derived from user payments rather than the central government and external contributions.

Under the Integrated Health Project (IHP)—a USAID/DRC-funded, five-year project that supports the National Health Development Plan (NHDP)—Management Sciences for Health (MSH) will implement a PBF pilot program in seven[1] health zones (Bibanga, Kanzenze, Kayamba, Lomela, Luiza, Minga, and Nundu) in the four provinces of East Kasai, West Kasai, Katanga, and South Kivu.

The objective of the IHP PBF pilot is a rapid scale-up of health services and improved quality of care. Through grants and contracts mechanisms, IHP's PBF model will operate at three levels: 1) the national level (Ministère de la Santé Publique (MSP) and IHP's Kinshasa-based team); 2) the provincial level (district health facilities and IHP's Bureau de Coordination (BC) offices); and 3) the periphery or operational level, including Health Zone Management Committees (HZMC), General Referral Hospitals (GRH), and Health Centers (HC). Contracting and performance payments will only be made at the operational/periphery level. PBF fixed-price contracts will be signed with the health zone management team, the GRH team, and the health centers staff at each health zone. IHP will strengthen the capacity of its staff in its field offices (BC) and among its MSP counterparts to accomplish two main activities as part of the PBF pilot: 1) to provide

[1] Earlier, eight pilot health zones were planned; however, after data collection for this baseline, the Bukavu site was dropped from the PBF intervention and only seven sites remain.

technical support for the implementation of the PBF program in all health facilities in their respective health zones, and 2) to conduct verification activities and validation of PBF data.

Under USAID's new evaluation policy[2], any project activity involving untested hypotheses and/or demonstrating new approaches that are anticipated to be expanded in scale or scope through U.S. Government foreign assistance or other funding sources should undergo an impact evaluation, if feasible. In line with the above policy, USAID/DRC contracted International Business and Technical Consultants, Inc. (IBTCI) to conduct an independent IHP PBF impact evaluation. The impact evaluation methodology uses a prospective quasi-experimental design with intervention and comparison groups covering all seven PBF health zones, with measurements taken at baseline, midline, and endline. The final impact evaluation will answer the following illustrative questions:

1. Is there evidence of change among health centers in the quantity and quality of services that is attributable to the PBF model?
2. What difference did the PBF intervention make?
3. Is the model worthy of being scaled up to other health zones?
4. What costs are associated with a potential replication of the model?
5. Were the desired results achieved?
6. Do results differ for various groups? (heterogeneity)
7. What contextual factors contributed to or limited the desired results?
8. What are the unintended consequences of the intervention?

The audience of the PBF impact evaluation is the USAID/DRC Mission, specifically the Program Office and Health Team, the implementing partner (MSH), the MSP, donors involved in PBF piloting such as the World Bank, and other stakeholders focused on PBF interventions. USAID/DRC will use impact evaluation results to inform policy, programming, and learning so as to strengthen the DRC's health system and improve the health status of its populace.

This baseline report provides an insight into the characteristics of targeted facilities and their catchment population, more importantly from the perspective of the evaluation, illustrates that the methodology used to measure results are consistent with those found in other populations and samples.

BASELINE PURPOSE AND METHODOLOGY

The baseline evaluation serves two purposes. First, it provides a benchmark against which changes to the quantity and quality of services due to the PBF intervention will be measured with the endline survey. Second, it measures a wide range of facility and catchment population characteristics in order to document potential control of factors that will be relevant to the multivariate modeling conducted during the final evaluation.

[2] Evaluation-Learning from experience: USAID Evaluation Policy, Jan 2011, Washington DC.

The baseline data collection was carried out during May-September 2013 in 14 heath zones in four target provinces of IHP. All planned IHP PBF intervention health zones are included in the study arm. The evaluation team selected one comparison health zone for each of IHP's intervention health zones. Comparison zones sharing a geographical border with the intervention zones were randomly selected after excluding zones that had a pre-existing PBF intervention, known security issues, and/or no physical access by land. The data collection was composed of three components: 1) a community-based household survey of a total of 3,588 mothers with children aged 0-23 months (study sites=1,776, comparison sites=1,812); 2) a facilities assessment of public health facilities (n=176; study sites=90; comparison sites=86); and 3) key informant interviews (n=28) at PBF intervention health zones with health providers, health zone managers, and PBF technical advisors.

The household survey collected information on socio-demographic characteristics of households, mother's perspectives on the quality of care, and knowledge, attitudes, and practices with regard to key family care service-seeking behaviors. The facility survey was employed to determine facility characteristics, accessibility, and availability of minimum package activities (MPA)-plus services, community outreach and support, and management capacity. The key informant interviews provided context and perceptions regarding feasibility of PBF, costs, leadership, capacity, and management issues. The main limitation of the methodology is that the health facilities and community samples are not representative of areas of highest insecurity, as these were eliminated from the sample. Nonetheless, several of the survey sites selected were in conflict settings.

MAJOR FINDINGS

Household Survey

The socio-demographic profile of households in intervention health zones is significantly different from the comparison health zones. In terms of the place of residence, intervention health zones households are more often located in rural areas (96%) compared to comparison health zones (86%). Literacy levels are statistically higher in comparison households, whereas households with secondary level of education and employment status (salaried or self-employed) status is higher in intervention sites. Unsafe sources of drinking water and open pit latrines are significantly higher in intervention health zone households as compared to comparison zones.

Knowledge about modern methods[3] of contraception is significantly lower in intervention health zones (21% vs. 26%). However, 6% of the respondents reported no contraceptive knowledge in both intervention and comparison zones. Current users of any contraceptive are reportedly lower in intervention health zones (48% vs. 51%). However, the types of contraceptive users (modern or traditional) among current users are statistically similar. Fifteen percent of all respondents report that they had talked with a health provider about family

[3] Modern methods of contraception include the pill, female and male sterilization, IUD, injectables, implants, male and female condom, diaphragm, and emergency contraception. Traditional methods include periodic abstinence, withdrawal, LAM, and folk methods.

planning (FP). The health provider most respondents spoke to were *Accoucheuse* or qualified birth assistants[4] (67%). A full 90% of women in the comparison group and 88% in the intervention group reported that they received prenatal care when pregnant with their youngest child. Eighty percent of respondents reported facility delivery in both groups, with more than 80% using public health facilities. The health workers present at the time of child birth differ significantly between the two groups — in the comparison group, doctors (4% vs. 1% in the intervention group) and nurses (37% vs. 31%) were reported to be present most frequently, while in the intervention group, *sage-femme* or auxiliary nurse midwives (23% vs. 19% in the comparison group) were most frequently reported as present at the time of birth. Presence of *Accoucheuse* or qualified birth assistants were similar in both the groups (35%). Non-qualified persons such as traditional birth attendants or family members attending the childbirth were reported in less than 5 % in both the groups. Of 1776 women respondents, 33% received postnatal care in the intervention group, which is significantly higher than the comparison group (27%). The most common type of health worker visited after child birth are nurse-in-charge of facility followed by *Accoucheuse,* or qualified birth assistants.

Sixty percent of women report that their child age 0-23 months received Vitamin A in the past six months in the comparison group, while only 52% report the same in the intervention group. Ninety-six percent of mothers in both groups report breastfeeding their child in the intervention households, 40% report that the child had a fever, and 52% reported that the child had a cough in the past two weeks, statistically more than reported in the comparison households. However, the health-seeking and utilization with regard to taking a child to a health facility or seeking advice from someone are similar in both groups. Eighty-three percent of respondents report having insecticide treated bednets (ITN) in the household, however bednet presence was confirmed in only 66% of the households. Among those households where ITN was observed, 90% reported that their child slept under an ITN the previous night. These finding are similar in both groups.

Respondents were asked to report the most recent time they visited a local health facility and common responses among intervention households (63% vs. 60%); visits to General Referral Hospitals (GRHs) was significantly higher in comparison sites. The level of satisfaction with the services received and the cost of services during the last health facility visit are similar for both the groups. Among respondents who did not visit any health facility when they needed health care, not having enough money to pay bills is significantly higher in comparison households. In terms of interpersonal skills of health providers, waiting time, availability of staff, medications, and cost of services at the health facilities, both groups show 60% satisfaction rates. The dissatisfaction with the price posted at the health facility is significantly higher in the comparison group.

Facility Survey

The facility sample included 94% of health centers and 6% of general referral hospitals. Ninety percent of the facilities are located in rural areas. The health facilities in both groups provide a range of MPA-plus services including preventive, curative, and community health promotion services and products. More than 90% of all facilities in the intervention zones surveyed

[4] Health facility staff received training in child birth, but had not necessarily attended nursing school.

provide prenatal, intra-partum, postpartum care, and FP services. Iron and folic acid supplements to pregnant women is provided in 76% of the facilities, and 15% of the facilities provide Vitamin A to pregnant women (NB: routine administration of Vitamin A during pregnancy is not a norm in DRC). Pregnant women were advised to be tested for HIV in 49% of the facilities offering prenatal care. Not all health facilities are designated sites for prevention of mother to child transmission (PMTCT) services. Forty-five percent of surveyed facilities provided a human immunodeficiency virus (HIV) test for PMTCT. Out of these sites, only 40% of facilities provide anti-retrovirals (ARVs) for PMTCT to mothers or newborns. Thirty percent of facilities in intervention zones offer HIV care (co-trimoxazole) to HIV-positive pregnant women, which is significantly higher than the comparison health zones where only 9% of facilities provide this service. A full 95% of the facilities surveyed offer clinic-based integrated management of childhood illnesses (IMCI). Almost all facilities reported that they offer immunization services for children and 78% of facilities offer growth monitoring for children of any age. However, nutritional rehabilitation services are significantly higher in intervention health zones (29% vs. 16%). Availability of curative, preventive and health promotion services with regard to malaria, tuberculosis (TB), neglected tropical diseases (NTDs), sexually transmitted infections (STIs), and gender based violence (GBV) are similar in both groups. The availability of hygiene and sanitation promotion services are significantly higher in comparison health zones (92%) as compared to intervention health zones (80%).

Information was collected using the facility survey on the availability of basic infrastructure and facility operations, including supervision, drugs and supplies, infection control, and waste management. The facility infrastructure and operations in intervention and comparison health zones are statistically similar. Only 50% of facilities displayed prices for the available services. The average number of outpatients attending facilities in the past 12 months for any service was about 2,281. The predominant sources of procurement for medications and supplies are central offices of health zones (61%), followed by international, non-government organizations (NGOs) (34%), and private suppliers (19%). A total of 92% of facilities report delays in the delivery of medications and supplies due to the depletion of stock at the central office of the health zone (60%). Other reasons for delays include inadequate transportation including fuel shortage (37%) and administrative and financial difficulties (20%). Overall, 68% of facilities report a Ministry of Public Health (MSP) representative supervision visit had occurred in the previous or current month of the survey.

The most common FP methods advised are oral contraceptives in 93% and condoms in 95% of facilities. Cycle beads are advised in 92%; injectables (Depo-Provera) in 85%; and lactation amenorrhea method (LAM) in 73% of facilities. Intrauterine devices (IUDs) are provided in only 15% of facilities. The mean cost for an antenatal care (ANC) visit is 370 Congolese Francs (CDF) or USD $0.40, which is marginally lower than the cost at comparison sites (mean 706 CDF or USD $0.76). Similarly, the price of uncomplicated childbirth is significantly lower in intervention zones as compared to compassion zones (mean price 3,778 CDF or USD $4 .09 vs. 6,138 CDF or USD $6.64). Eighty-eight percent of all facilities with maternity units in both groups remain open 24 hours a day, 7 days a week. With regard to staff, the availability of

doctors, nurses (type A1, A2 and A3)[5], and community liaisons were similar, however, availability of certified birth attendants is significantly higher in comparison health zones (24% vs. 9%),whereas, the availability of lay birth attendants is significantly higher in intervention health zones (90%) compared to comparison zones (78%). Percentages of all types of staff trained in the past three years were similar in both groups except for community liaisons where intervention health zones have marginally lower training rates than comparison sites.

Almost all facilities in both groups provide child immunization services. About 69% of intervention sites report that they had an immunization education plan for the current year. Ninety-eight percent have a vaccination unit with about 27% of facilities reporting that they do not have cold storage facilities (either refrigerator or ice-chest). Only 16% of facilities had vaccines (BCG, polio, DTP, Measles) in stock at the time of the survey (verified). Above observations were found similar in the comparison sites as well. Distribution of ITNs is reported in 94% of facilities in the intervention health zones. These ITNs are provided to the community free of charge, mainly to pregnant women (94%). Only 58% of facilities provide ITNs for children 0-23 months. At the time of survey, about 40% of facilities reported that they have ITNs currently in stock (not verified). The cost of malaria treatment posted in facilities is similar in both intervention and comparison sites (mean price: 1,733 CDF or USD $1.88). About 16% of health facilities in intervention health zones offer HIV/AIDS consultation services, and about 73% offer STI treatment services and 93% provide HIV prevention education to the public. These findings are similar in comparison sites.

Key Informant Interviews

Information gathered from IHP key informants show there has been no separate budget allocated specifically for PBF. Funds for this intervention will be drawn down from the overall IHP project budget. To do this, the IHP team prepared an initial, 60-month budget and a re-centered budget that will cover the remaining 24 months. During on-site data collection, it became apparent that the coordination offices were not sufficiently informed about the budget allocated to the pilot health zones in their jurisdictions. This made a site-based analysis difficult, given the specifics of each pilot health zone. Respondents noted that there is insufficient level of funding to carry out site verification and supervisions. In terms of capacity building, the district and province teams, except Kayamba health zone, have received trainings on PBF implementation. The respondents often expressed interest in how the project would launch effectively. This led the evaluation team to believe that on-site stakeholders are eagerly awaiting the launch of PBF intervention. To conduct a feasibility assessment of IHP's PBF intervention, the evaluation team applied the MSP criteria and inferred that that there is room for improvement, and there are no major obstacles to launching the PBF intervention.

[5] The education for nurses is either A1, A2 or A3, where A1 consists of a three-year university degree after secondary school (Bac plus 3), A2 consist of four year secondary school (Bac) and A3 is two year secondary school (Bac minus 2). According the MOH norms A1 and A2 can be Chief Nurse in Various facilities.

I. EVALUATION PURPOSE AND EVALUATION QUESTIONS

The Democratic Republic of the Congo (DRC) has suffered through more than 20 years of war coupled with civil and political unrest. The health system — and the health of the people of DRC — has been seriously affected. Improving the quality and use of essential health services at the national level in DRC is a key component of the government's strategy to reduce poverty and an essential goal of the MSP (Ministry of Health, 2006). Among the strategies to achieve financing reforms, performance-based financing (PBF) emerged as the most promising strategy, especially as compared to input financing. In the literature, PBF term is often used interchangeably with results based financing or RBF. For the purpose of this report, PBF is used throughout the text and RBF is used in the title or introduction section only.

RBF or PBF Theory

Results Based Financing (RBF) or PBF is designed to be a more productive alternative to input financing. Rather than granting an advance payment, RBF pays for outputs. It is a transfer of money or other material incentives from an external supporter to a beneficiary, contingent upon the beneficiary performing a measurable action or reaching a predetermined target. Recipients can be either health care providers or consumers, depending on the needs and goals of the specific project (Morgan, p. 1-2). This creates new performance incentives for employees, empowers health facilities to allocate resources to where they are most needed, and increases demand for essential health services (Morgan, p. 3).

RBF seeks to align the interests of the principal (donor) and the agent (recipient) (Savedoff, 2010, p. 5-6). The principal is the purchaser of the desired result and the agent is the service provider. Because the agent only receives payment once the desired result is achieved, both parties have incentives to meet the same performance targets. Effective RBF programs account for the specific health needs and economic circumstances of the market in question and utilize the laws of supply and demand to obtain optimum results. By incentivizing others to receive healthcare, such as vaccinating a child to prevent illness, RBF can increase the demand for health services in an area (Savedoff, 2010, p. 14). RBF can also incentivize healthcare providers to increase the supply of health services. For example, providers can grant a monetary payment once certain efficiency goals are reached (Savedoff, 2010, 14-15).

RBF entails a process of aligning interests and creating incentives rather than injecting money and managing its use. This approach enables health facility managers to formulate their own strategies to achieve national goals. As a result, creativity and innovation are rewarded. Specifically, RBF funds health care providers for specific services, provided those services meet predetermined protocols and standards of quality. In addition, a system of inspection is implemented to assure services meet these standards. Inspection teams are likewise compensated to ensure accuracy (Musgrove, 2011, p. 4).

RBF/PBF in the DRC

Government of DRC Perspectives on R/PBF

The Democratic Republic of the Congo is among the first African countries to use the contract-based approach to improve health system performance. Since 2000, the Congolese's government—guided by the document "Vade-mecum of partnership"—has been working with partners such as the World Bank, the European Union, the Global Fund, The African Development Bank, GIZ (German international development agency) and Cordaid. The implementation of PBF in its current form began in 2002. With the endorsement of the Paris Declaration on Aid Effectiveness in March 2005, donors and the DRC government demonstrated their commitment to its five core development principles, and emphasized mutual accountability and results-based management, including RBF. In 2006, with the adoption of the government's Health Systems Strengthening Strategy (HSSS) (Stratégie de Renforcement du Système de Santé), financing reform became necessary in order to avoid waste and achieve national health objectives (Ministry of Public Health, 2006).

By 2010, PBF initiatives covered approximately 22 million Congolese, spread over the 11 provinces and 189 Health Zones. This represents one-third of the country's population (Bertone, Maria Paola, 2011). In October, 2010, a review of PBF experiences took place in Kinshasa. Subsequently, the Ministry of Public Health (MSP) and its partners signed a memorandum of understanding, for adoption of PBF as one of the national approaches for reforming health sector financing. At present, there are various on-going pilot projects in 136 health zones, with support from various funding agencies including, the European Union-funded Cordaid PBF projects, DRC Government-funded Projet d'Appui au Plan National de Développement Sanitaire (PAPNDS), The World Health Organization, the United Nations Children's Fund [UNICEF], the United Nations Population Fund, the Joint United Nations Programme on HIV/AIDS, the World Bank, and UN Women (H4+)-funded Global Health Initiative to Accelerate Support for Maternal and Newborn Health (H4+/ACDI), USAID-funded IHP and Integrated HIV/AIDS Delivery in the DRC (ProVIC), UNICEF-funded Families Kits and the World Bank-funded Health Sector Reform Phase APL (PARSS).

Over the years, PBF has proved to be an instrument for correcting problems while implementing the national Health Systems Strengthening Strategy (HSSS). The process of developing the National Health Development Plan (NHDP) for 2011-2015 has permitted the operationalization of the updated version of the HSSS within its six strategies. These two documents now constitute the strategic framework for referencing, planning and budgeting the government's health sector activities, and for discussions with technical and financial partners. PBF in the DRC aims to:

1. Improve health care facility performance,
2. Improve various actors' performance by promoting motivational activities to improve individual health workers' performance,
3. Improve the quality of services and care,
4. Reduce the financial burden of healthcare for patients,
5. Support the policy of retaining health care staff by offering them sufficient financial and non-financial motivation.

Evaluations showed that PBF approach improved the performance of the contracting facilities, in terms of productivity, quality of care, motivation, profitability and governance (Huillery, 2013).

In 2011, with the beginning of the implementation of the NHDP, the MSP created a PBF technical unit to materialize its commitment to scale-up the PBF strategy. Its mandate is to help improve the efficiency and effectiveness of health services in the context of the HSSS and the 2011-2015 NHDP, with the task of:

- Directing implementation of PBF within the DRC's MSP.
- Ensuring that all current and future PBF projects within the MSP comply with the national strategy document concerning PBF in the health sector.

Additionally, PBF helps finance the underfunded health sector. Financing of health care in the DRC is increasingly derived from user payments rather than the central government and external contributions. The DRC Government's health spending as compared to other low income countries in Africa is high as measured by percent of GDP (37%) in terms of total government expenditure; while the share of government spending allocated to health is 9% of GDP and government expenditure on health is 3% of GDP (these figures are in the median range when compared to other low income African countries). Per capita health expenditures amounted to USD $14.20 in 2009; this is compared to neighboring countries: Burundi USD $16, Central African Republic USD $10, Liberia USD $17, and Rwanda USD $54 (WHO Global Health Expenditure Atlas, 2010). Of the total per-capita expenditure of USD $14.20, only USD $1.95 came from the government; USD $5.50 came from international partners, and USD $6.50 came from households (preliminary National Health Accounts estimates for 2008/09, MOH, Programme National des Comptes Nationaux de la Santé, and Health Systems 20/20, 2010).

IHP's PBF Strategy

As part of a financing strategy under the IHP, a USAID-funded, five-year project that supports the PNDS, MSH will implement a PBF in seven[6] selected health zones in the four provinces of East Kasai, West Kasai, Katanga, and South Kivu. The objective of the IHP PBF pilot is a rapid scale up of health services and improved quality of care. Through grants and contracts mechanisms, IHP's PBF model will operate at three levels: 1) the national level (MSP and IHP's Kinshasa-based team); 2) the provincial level (district health facilities and IHP's BC offices); and 3) the periphery, or operational level (health zone management committees, general referral hospitals (GRH), and health centers (HCs)). Contracting and performance payments will only be made at the operational/periphery level.

PBF fixed-price contracts will be signed with the health zone management team, the GRH team, and the health centers staff at each health zone. IHP will strengthen the capacity of its staff in its field offices (BC) and among its MSP counterparts to accomplish two main activities as part of the PBF pilot: 1) to provide technical support for the implementation of the PBF program in all health facilities in their respective health zones, and 2) to conduct verification activities and validation of PBF data (detailed program description is provided in section II).

[6] Earlier eight pilot health zones were planned, however, after data collection for this baseline, the Bukavu site was dropped from the PBF intervention and only seven sites remain.

A. RBF IMPACT EVALUATION RATIONALE

USAID's new evaluation policy[7] requires any project activity involving untested hypotheses and/or demonstrating new approaches, anticipated expansion in scale or scope through US Government foreign assistance or other funding sources, to undergo an impact evaluation, if feasible. Lessons learned from the PBF impact evaluation will contribute to USAID's understanding of the effectiveness of PBF to increase the quantity and quality of health services. IBTCI was contracted to carry out a baseline and final evaluation of this impact evaluation with a mid-term study to assess the status of implementation. Annex I provides details of the scope of work (SOW) provided by USAID/DRC.[8]

The results of this impact evaluation will allow the Ministry, donors, and health professionals to make an evidence-based decision on whether or not to expand to the national scale, as other countries, such as Rwanda and Burundi, have done.

B. INTENDED AUDIENCE

The audience of the PBF impact evaluation is the USAID/DRC Mission, specifically the Program Office and Health Team, the implementing partner (MSH), the MSP, donors involved in PBF piloting such as the World Bank, and other stakeholders focused on PBF interventions. USAID/DRC will use this evaluation to inform policy, programming, and learning so as to strengthen the DRC's health system and improve the health status of its populace.

C. IMPACT EVALUATION QUESTIONS

A comparison of the results from the baseline and final surveys will provide statistically significant data to measure the impact of the PBF intervention. The mid-term study will be predominantly qualitative, and will aim: to determine whether initial characteristics in both treatment and comparison zones are still similar; to assess the actual versus planned PBF implantation; and to confirm the assumptions made at baseline. The final impact evaluation will answer the following illustrative questions:

1. Is there evidence of change among health centers in the quantity and quality of services that is attributable to the PBF model?
2. What difference did the PBF intervention make?
3. Is the model worthy of being scaled up to other health zones?
4. What are the costs associated with a potential replication of the model?
5. Were the desired results achieved?
6. Do results differ for various groups?
7. What contextual factors contributed to or limited the desired results?

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[7] Evaluation-Learning from experience: USAID Evaluation Policy, Jan 2011, Washington DC.

[8] The original SOW called for a mid-term survey one year after implementation. Through discussions between USAID and IBTCI, both parties agreed this was too short of a time period to warrant a survey and agreed to conduct a smaller study to gauge the status of the implementation.

8. What are the unintended consequences of the intervention?

D. PURPOSE OF BASELINE EVALUATION

The main objectives of the baseline evaluation are:

1. To provide a benchmark against which changes to the quantity and quality of services of the PBF intervention may be measured at the endline survey.
2. To measure a wide range of facility and catchment population characteristics in order to control for factors relevant to the multivariate modeling conducted during the final evaluation.

II. PROJECT BACKGROUND

A. DESCRIPTION OF IHP PBF INTERVENTION

Overview

The IHP PBF program was developed by taking into account the MSP's PBF program, the specific context of DRC health care system, and the best practices from other MSH PBF projects. The IHP PBF intervention will be implemented at the health zone level. PBF fixed-price contracts will be signed with the health zone team, the General Referral Hospital team, and the health centers' staff at each of the seven selected health zones.

IHP will strengthen the capacity of its staff in its field offices (BC) and its MSP counterparts to accomplish two main activities as part of the PBF pilot: 1) provide technical support for the implementation of the PBF program in all health facilities in their respective health zones, and 2) conduct verification activities and validation of PBF data. PBF contracts will be signed between IHP and health zones, hospitals, and health centers.

Institutional Framework and Responsibilities

A supply side PBF intervention will be piloted in seven different health zones—one in each of IHP's BCs field offices (except for Bukavu)[9] across the provinces of East Kasai, West Kasai, Katanga, and South Kivu. The PBF institutional framework is comprised of three levels: central, intermediate, and peripheral. Each level is composed of stakeholders as displayed in Figure 1. There are four primary responsibilities fulfilled by the three tiers: regulation, service provision, payment, and

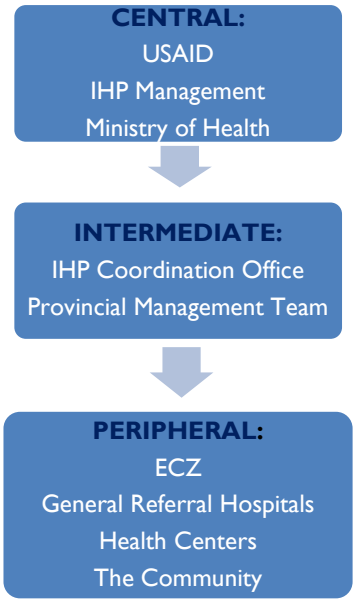


Figure 1: Institutional framework of IHP's PBF intervention

[9] Bukavu site was dropped from the PBF pilot intervention and only seven sites remain.

auditing. These functions are implemented across the three levels. The separation of these responsibilities is central to PBF implementation. In particular, separation between services and monitoring, and between auditing and payment, ensures objectivity in performance evaluation.

Regulation

Regulation is the creation and monitoring of policies, standards, and procedures. The MSP is responsible for creating and monitoring regulations at the central level. The IHP will coordinate with the MSP to develop a national PBF approach.

At the intermediate level, the MSP regulates and evaluates quality assurance, training, and capacity-building to ensure they are congruent with regulations. The IHP and provincial management team support this.

Regulations are implemented at the peripheral level through quality evaluations of health facilities, capacity building, and monitoring the implementation of operation plans. The IHP strengthens this by supporting training, supervision, and monitoring and evaluation.

Service Provision

Health providers and community based organizations (CBOs) contracted by IHP render services. Health service providers are given supervision and training by entities overseen by the health zone management team (HZMT). The primary focus of IHP's PBF approach is the quality of services rather than the quantity.

Payment

This is the acquisition of a service in exchange for payment. The buyer of the services is the IHP management team. Health facilities receive payment based on the percentage of results achieved in comparison to the objectives.

Auditing

Quantitative, qualitative, and community auditing are done to verify the information in the service provider's quarterly report. HZMTs, general reference hospitals, and health facilities are audited by joint IHP/MSP teams to ensure transparency and avoid conflicts of interest. The provincial-level MSP officers audit the HZMT and the latter, along with IHP staff, monitor implementation at the facility level.

Objectively verifiable indicators (for both quantity and quality) were developed in order to measure the level of achievement of results. These indicators were selected among the national list of indicators and are aligned with the indicators from MSP RBF national program. There are specific indicators for each level of implementation: HZMT, GRH and health center. Targets for each indicator will be determined for the HZMTs and health facilities and will be based on IHP project and MOH national targets to be achieved, their respective baselines, and target populations. IHP staff will conduct baseline surveys and initial assessments prior to setting these targets. The targets will be negotiated with each individual health facility before signing the contract. Verification and validation of reported data are crucial functions of the PBF program, whereby the purchaser needs to ensure that results are actually achieved before effecting payment to HZMTs and facility teams. To ensure transparency, a rigorous monitoring and evaluation (M&E) system was designed with a comprehensive data validation component. The monitoring and data validation will be conducted at all levels by IHP staff and MOH

management teams at the provincial and health zone levels. Counter verification through household interviews and client satisfaction surveys will be conducted at the community level by locally contracted CBOs. IHP's PBF contracts — which will include measurable performance targets, well-defined reporting mechanisms, and precise monitoring — hold promise to ensure accountability and results.

Contractualization

Contractualization is at the heart of the PBF intervention. Contracts take into account the large number of stakeholders and provide a clear description of responsibilities, negotiation procedures, and mechanisms. In order to achieve social objectives, each party must benefit from the contractual relationship.

Under IHP, the PBF program will work with, and is complementary to, the existing IHP grants program. While the PBF program is focusing on health service providers' outputs to improve the volume and quality of services rendered to the population (with particular emphasis on the provision of financial resources tied to performance), the IHP grants program provides direct inputs that are needed to strengthen health zones' capacity to deliver services by addressing both the supply and demand sides of service delivery.

The purpose of the contract is to encourage the delivery of the predetermined services. HZMTs, GRHs and health centers sign contracts with IHP. These contracts are renewed annually and evaluated quarterly. The contracted entity will receive funds based on their attainment of the pre-determined indicators. The primary purpose of these funds is to pay incentive bonuses to health facility staff. Should the quarterly evaluation discover any failure to comply with values set forth in the National Health Policy or serious violations of the fundamental principles of PBF, this may result in suspension or termination of contracts.

Eligibility criteria for PBF health zone selection

The selection of the health zones and their respective health facilities was based on the results of a transparent assessment process that was conducted by IHP staff. Each IHP field office will be responsible for piloting the PBF model in one of their supported health zones, as displayed in Table 1.

Table 1: IHP PBF Intervention Sites

Site. No.	IHP Bureau de Coordination	PBF Intervention Health Zone
1	Luiza	Luiza
2	Mwene-Ditu	Bibanga
3	Lodja (previously Kole)	Lomela
4	Tshumbe	Minga
5	Kamina	Kayamba
6	Kolwezi	Kanzenze
7	Uvira	Nundu
8	*Bukavu*	*Walungu* *(Dropped out of intervention group September 2013)*

IHP imposed eligibility criteria to select intervention zones where all the respective health facilities will receive the PBF intervention. Each IHP BC office used the following categories for their selection criteria to determine its PBF health zone. Annex 4 details these selection criteria (IHP RBF Manual, 2013):

- Health indicator status
- Geographic accessibility
- Security

- Availability of IHP's defined Comprehensive Package of Activities (CPA)
- Availability of IHP's defined Minimum Package of Activities (MPA)
- No presence of other donors implementing PBF interventions
- No prior PBF implementation
- Population covered by the health zone
- Frequency of supervision by the MSP health zone management team

III. EVALUATION METHODS AND LIMITATIONS

A. EVALUATION TEAM

The evaluation team was led by Annette Bongiovanni, Principal Investigator, and Zephyrin Kanyinda, Study Coordinator and Health Economist. Field work was implemented by a team of supervisors including Maxim Bushiri, Valentine Ilunga, Germaine Kawal Mukeng, Esaie Modeste Luntala, Gautier Mulume, Monique Musau, and Amigos Saka Saka. Support for data collection was provided by CESD under the leadership of Ma Umba Mabiala and Antoine Saka Saka. Kapil Ahmed and Swati Sadaphal worked as Biostatistician and Data Analyst respectively. Susan Kupperstein filled the role of Home Office Project Manager and Anshikka Singh served as Project Administrator. Herbert Kinwa served as our interpreter.

B. STUDY DESIGN

This impact evaluation is a prospective quasi-experimental design with intervention and comparison groups. The baseline study used mixed methods that included both quantitative and qualitative approaches, namely: document review, household survey, facility assessment survey and key informant interviews. The document review provided a foundation for understanding and developing operational strategies for the evaluation. The survey questionnaires designed were based on evaluation questions and mirror those used for the baseline for the performance of IHP *writ large*. Annex 5 provides a list of documents and other references used by the team.

An important strength of this evaluation design is that it includes characteristics of both service delivery points and their respective catchment populations. One of the main advantages of data collected through household surveys is that it provides a different perspective on the health status of a population which is independent from data given by health services, professionals, or surveillance sites. It is well established that episode- or event-based data are not representative of the population or of conditions that are less well-defined or not captured by routine data monitoring. The other reason is heterogeneity in the access to health services and in health-seeking behavior within a population, as well as the uneven quality of routinely collected data within the health system which measures only users of the formal health sector. The household survey provides the perspective of non-users of the health system as well.

The data from this baseline household survey were obtained from mothers of children 0-23 months. Information obtained from these women is of considerable interest to an integrated primary health care program. They are the best informants available regarding their own health, knowledge and experience, and are usually the best informants available regarding the health of their children. They are also the primary target audience for the IHP. In addition, mothers are also usually reliable respondents regarding the social, educational, and general economic situation of the household.

C. SITE SELECTION STRATEGY

Criteria for Intervention and Comparison Health Zone

All planned PBF intervention health zones are included in the study arm. A health zone that shares the geographic border with an intervention zone is the only criterion for which the comparison groups were matched. The evaluation team selected one comparison health zone for each of IHP's intervention health zones. Comparison zones sharing a geographical border with the intervention zones were randomly selected after excluding zones which had 1) a pre-existing PBF intervention, 2) known security issues, and/or 3) no physical access by land. Table 2 presents the selected sites:

Table 2: Selected Sites for PBF Impact Evaluation

Site No.	IHP BC Office	Intervention HZ	Comparison HZ
1	Luiza	Luiza	Lubondaie
2	Mwene-Ditu	Bibanga	Kamiji
3	Kole (based in Lodja now)	Lomela	Tshudiloto
4	Tshumbe	Minga	Wembonyama
5	Kamina	Kayamba	Kabongo
6	Kolwezi	Kanzenze	Mutshatsha
7	Uvira	Nundu	Uvira

D. SAMPLE SIZE

Sample Size Determination and Power Calculations

Household survey: A household is defined as a domestic unit consisting of the members of a family who live together along with nonrelatives, and where at least one member is a mother of a child 0-23 months. The household sample size calculation was determined based on one of IHP's outcome indicators reported to USAID in their Performance Monitoring Plan (PMP), and which reflects one of the priority program elements for IHP in terms of funding. This maternal health indicator (percent facility births) is the "proportion of mothers of children 0-23 months who delivered their youngest child in a health facility." Other PMP outcome indicators were considered such as those which related to the treatment of malaria illness and vaccination coverage rates for DPT3, however, the sample sizes yielded were quite large and therefore not within the budget of this study. In order to detect a 10% difference on the selected maternal health indicator with 80% power and 95% confidence, a sample size of 226 households for each PBF intervention and comparison health zone was needed. Using probability proportional to size (PPS) sampling method, a sample size of 3,164 household respondents was finally required

for the seven intervention health zones, as well as the seven comparison health zones. Across the entire sample, an additional 15% of household respondents were included in anticipation of non-response cases.

Households to be interviewed were selected using a cluster survey approach: after randomly selecting a village in the health area[10], the survey team proceeded to a pre-defined point (such as the village chief's home) and selected the first household at that starting point. The person answering the door at the household was asked if there was a mother with a child 0-23 months available for interview. If there was an eligible respondent, that household was selected for completion of interview assuming the woman did not decline. After the interview, the interviewers were instructed to follow the predefined strategy guided by their supervisor (i.e. go to the nth household in X direction). When an eligible respondent was not present in the household, or was not willing to be interviewed, the interviewer went to the very next household to determine if there were an eligible respondent. This process continued until all required households in the predetermined direction were completed for the village.

Facility survey: A facility is defined as a fixed structure where health services are provided to the communities residing in nearby areas. The health facility sample was selected using the lot quality assurance sampling (LQAS) methodology with a 92% precision level and 95% confidence intervals. Considering the total facility number (N) of 298, i.e. the total health centers in the previously planned 16 PBF health zones, 25 health centers (HC) were originally selected against each health zone of both intervention and comparison areas. The 25 sampled HCs were then distributed in the corresponding health zones of intervention and comparison sites according to probability proportional to size. Using this systematic procedure, a total of 200 health centers were selected (109 intervention centers and 91 comparison centers). All 16 General Referral Hospitals were also selected (one in each zone). (See Annex 2 for Data Collection Sampling Procedure).

E. DATA COLLECTION METHODS

At baseline, data collection involved a community-based survey of households, health facilities assessments, and key informant interviews in all of the intervention and comparison study sites.

The evaluation team developed quantitative survey questionnaires to collect data on indicators relevant to the evaluation. The Facility Survey was administered in HCs and General Referral Hospitals for the intervention and comparison groups. The Household Survey was administered to the sampled households in the intervention and comparison groups. Each survey had sections with questions designed to collect discrete, categorical and ordinal data. (See Annex 3 for Data Collection Instruments and Key Informant Interview Guide.)

[10] The MSP catchment populations are comprised of health zones. Each health zone is comprised of approximately 15-20 health areas.

Household Survey

A structured questionnaire comprising fifteen modules with open- and closed-ended questions was used. The questionnaire included questions for interviewers[11] to record observations and verify relevant household assets related to health. The Household Survey collected data on following analytical domains:

- Individual characteristics
- Household characteristics
- Health services utilization characteristics
- Knowledge and behavior related to key family health issues
- Perceptions of the quality of care and services provided by health facilities

Facility Survey

A structured facility questionnaire with open- and close-ended questions was used to collect information. The questionnaire included questions for data collectors to record facility observations notes on infrastructure, medications, and documentation reviews. The Facilities Survey collected data on the following analytical domains:

- Availability (quantity) of MPA plus services as they are supposed to be provided at all HCs in the IHP's target zones (see Annex 7 for a list of MPA-plus services)
- Quality of care in priority health service areas: family planning, maternal health, child health, HIV/AIDS, TB and malaria
- General quality of facility including infrastructure, staffing, and facility operations including patient attendance, availability of supplies, equipment, and personnel. These measures were used to construct variables for the quality of care.

Key Informant Interviews

Administration of Cost Analysis Tool: Quantitative data related to the costs of implementing PBF approach were collected using a Microsoft Excel®-based cost analysis tool designed by the evaluation team. This instrument was shared with all IHP BC offices at the various intervention sites. A total of 28 persons completed the questionnaire, including:

a. Senior Technical Advisor (PBF focal point /MSH Kinshasa)(1 person)
b. Technical Advisor in each MSH health supervision Area (8 persons)
c. Health Zone Chief Physicians (8 persons)
d. Provincial Physician-Inspectors (4 persons)
e. District Chief Physicians (7 persons)

(See Annex 5 for a complete list of key informants interviewed.)

The questions were related to the following topics:

1. Current salary levels of health care personnel in target health zones. Salaries might be a factor affecting the increase or decrease of subsidies per activity, and they also might affect personnel compensation.

[11] Interviewers were those people who conducted household interviews. Data collectors collected data in the health facilities which included the participation of the health facility manager.

2. Baseline status of infrastructure and equipment. If the infrastructure is in poor condition and if equipment is missing or insufficient this might influence budget planning at the start of the intervention. For example, funds might be allocated to renovate buildings and for the provision of basic equipment to achieve MPA and CPA levels.
3. Transportation. The health zone management team's access to transport in the targeted health zones determines their ability to complete activities related to implementing PBF, in particular, their ability to verify the services purchased.
4. Availability of qualified personnel with PBF skills. The availability of qualified personnel in the target health zones who also possess the requisite capacities to effectively implement PBF. This involves the identification of human resource training needs required for successful implementation of PBF.
5. Other Financial Resources. The existence of other financing sources in the target health zones might decrease the required PBF budget or have a cumulative effect that would better position a health zone for successful outcomes. It will be important to assess any duplications of efforts and to the interactions between various partners (i.e., central government-assistance with cost recovery from other donor-funded projects).
7. Pricing Structure. The current pricing structure used in the target health zones was assessed. Over time, the PBF intervention might improve access to health care by reducing the public's out-of-pocket costs in the targeted health zones.

F. DATA COLLECTION AND ENTRY

The baseline data collection period lasted 18 weeks with six working days per week. During data collection, six survey teams consisting of one supervisor and three or four interviewers and data collectors were deployed to conduct the surveys in the sampled intervention and comparison zones. Each survey team was led by a supervisor to ensure the surveys were carried out according to the Field Implementation Plan (See Annex 2 for the RBF Baseline Field Implementation Plan; Annex 5 for a list of Supervisors, Data Collectors, and Interviewers). Each interviewer/data collector was provided with a Smartphone with Magpi© data-collection software. The Magpi database and survey design addressed programming parameters in the survey where applicable. The data entry system had pre-programmed codes to make the entry of responses more convenient and accurate. Interviewers/data collectors entered survey responses through Magpi-assisted forms using mobile phones so electronic data entry was completed immediately on survey sites. After a supervisor provided data quality assurance, the completed survey was sent to a centralized Magpi server using phone network connection; in this way, data entry and release of the data file occurred on the same day.

G. ETHICAL CONSIDERATIONS

Oral informed consents were administered to inform respondents of the purpose, process, potential risks, use, and confidentiality of the information and their right to refuse to participate at any time. Facility respondents were interviewed in private in the facility's consultation rooms. Household respondents were interviewed at their home. All interviewers received training in

ethical protocols to ensure that no identifying characteristics of respondents were recorded during data collection. Unique identifiers were used in place of client names. Additionally, the electronic database was kept in password-protected computers used only by the senior evaluation team members. Respondents did not receive any form of inducement or incentive to participate in the study and survey team reiterated their external role to service delivery. All respondents were informed they could cease participation at any point during the survey or interview process.

H. DATA QUALITY

Field Testing, Piloting, and Trainings

The questionnaires and methodology were field tested at the end of the 10-day supervisor training in peri-urban health facilities outside of Kinshasa. The purpose of the field test was to examine the viability and feasibility of the survey instruments as well as to test assumptions made in the methodology. Some revisions were made to the study design and instruments afterwards. Next, a 10-day pilot survey was conducted to test and finalize the survey methodology and instruments in 10 facility locations in the Luputa Health Zone, in the Mwene-Ditu BC, East Kasai Province. This pilot survey involved different HCs than those where data collection subsequently took place for the evaluation. As a result, data collection questionnaires were revised and additional training provided to the field supervisors. The field supervisors, assisted by the Study Coordinator, conducted the recruitment of interviewers/data collectors from a main pool of more than 120 trainees. For each BC, a new group of interviewers and data collectors was trained and selected so that surveys could be conducted in local languages. This also facilitated mapping and identification of remote HCs and villages and access to local transportation. The team selected individuals on the basis of their demonstrated skills during the training: experience in conducting surveys; familiarity with the interview locations; and knowledge of the local language/dialect of the survey sites. All selected interviewers/data collectors went through a three-day practical survey training in the BC, with one day devoted to the facility survey, one day focused on the household survey, and the last day dedicated to the use of the mobile phone for data collection using Magpi© software. After the training session, which included role-playing and a final test, supervisors selected the best candidates to participate as interviewers and data collectors. The Study Coordinator, who is a health economist, conducted key informant interviews. Annex 3 provides an English translation of the French training manual given to all interviewers and data collectors.

Data Collection Supervision

Electronic data entry ensured minimal incorrect data entries. In addition, interviewers/data collectors maintained regular communication with their supervisors in person and through mobile communication devices to inform him/her of any survey issues that have to be addressed. The supervisors were never away from their respective interviewers/data collectors for more than one day at a time. The supervisors maintained regular communication with the Study Coordinator to relay all relevant information from the field in case there are technical matters that have to be addressed. Communication between the supervisors and the Study Coordinator was done on a daily basis to ensure constant oversight and management in the data collection process. The entire evaluation team collected data in the same province to facilitate communication and problem solving.

Data Quality Check Procedures
Each week of data collection had the following schedule: five full days of survey administration in the PBF and non-RBF zones, one day of travel to the next health zones, and short debriefs among the survey managers and interviewers at the end of each survey administration week. Each week, at least two random and unannounced data verification tasks were conducted by the Study Coordinator. Less than 5% of surveys were conducted through paper and pencil interviews when telephone network was unavailable for data entry using phones or for security reasons. At the end of the data collection period, the paper questionnaires were sent to IBTCI home office for safe storage and data quality checks. A random sample of 5% of all paper questionnaires were checked for data issues, which were nominal.

I. DATA ANALYSIS

Data from the Magpi server was downloaded in spreadsheet formats in Microsoft Excel. Data were then converted to STATA data files. A data analysis plan was developed and guided by the overall objective of the impact evaluation to measure changes that can be attributed to the PBF program (Annex 2). The data were analyzed using STATA Version 12. All information on data use such as the construction, definition, or manipulation of variables are documented in STATA log files that provide reference sources for the final analysis to be conducted during 2015. Data from Bukavu BC were dropped during data analysis.

The principal procedure for baseline data analysis involved descriptive statistics on each variable at baseline, making comparisons between the intervention and comparison sites, and testing whether there are any significant differences (calculated as $p<=0.05$).

The data gathered through the cost analysis tool were analyzed considering the following:

1. Per-inhabitant budget for the target population, per year, for MPA and CPA only, and for activity subsidies;
2. Per-inhabitant budget for the PBF intervention;
3. Presence of indicators included in the project (MPA at HC, CPA at hospitals, Health Zone Central Offices, District Office or Provincial Inspectorate as well as the central level);
4. Role the Purchasing Agencies should play (in this case, the IHP BCs) and additional associated costs; and
5. Budget line items.

J. LIMITATIONS

Effect of PBF Zone Selection Criteria on Results
IHP selected intervention zones based on nine criteria. Thus, a zone not selected for RBF did not meet one, some, or all the eligibility criteria. By extension, some PBF and non-PBF zones may be significantly different from each other along these nine criteria and thus may not be comparable

on some outcome measures because the difference in outcomes might be due to the selection criterion and not the intervention. That is, a PBF zone area might have better health services because it might have had significantly more CPAs or MPAs available. Conversely, health services in non-PBF zones could likely be lower due to the absence of these services. The evaluation team hoped to include the comparison zones that are as similar as possible to the intervention zones, i.e. both zones should not be statistically different from each other. The baseline study results, however, show that the intervention and comparison groups are statistically different with regard to socio-demographic profile and other indicators. The evaluation team will control for these differences during final evaluation data analysis.

Respondent and Interviewer Bias

It is important to acknowledge that some of the data collected are influenced, as in all questionnaire-based surveys, on respondent's accuracy of recall, among other factors, hence the potential for recall bias. Questions for which responses are least likely to be accurate include those on recall of medications obtained at a health clinic during a childhood illness. Nonetheless, the recall period was only two weeks to minimize bias yet allow for a reasonable sample size. Similarly, the health provider interviews in the facility survey might be subject to respondent bias. Further, "halo bias" may be a factor since providers might have reported what they should do instead of what they actually do. To mitigate these biases, the questionnaire included some measures of direct observation.

Respondents in a household survey can be expected to provide better answers on some questions than others. This can be yet another source of potential "halo bias" if the respondent perceives the "correct" answer anticipated by the interviewer. On factual questions, respondents will obviously answer better when they are more knowledgeable. For example, mothers in the survey are not generally informants for medical diagnoses, or to opine on the quality of the health system. They also tend to provide better answers on questions that are significant (e.g., an episode of childhood diarrhea is more likely to be reported if the mother considered it serious). Non-sensitive questions (e.g., type of health provider present during child birth), and specific questions (e.g., a question on "last time") will generally be answered more often than a question about usual behavior. Data on knowledge and attitudes are particularly sensitive to both the phrasing of the question and the skill of the interviewer. Interviewer skills and approach are important, particularly regarding interview probes for questions demanding multiple responses (e.g., sources of health information). To minimize above limitations, the survey team was trained extensively on interviewing skills and avoidance of probing for open-ended questions. Almost daily direct observation by supervisors reduced the likelihood of these biases. Additionally, the survey instruments had observation or verification prompts for the interviewer to record his/her observations or verify reported statements (e.g. current stock of drugs, facility infrastructure).

Due to logistics, clients were interviewed on different days of the week, which could skew the client characteristics between facilities (e.g., a survey conducted during antenatal days versus immunization days, or Saturdays, which would draw different patient populations.)

Sampling
A probability sampling method used in sample selection provides a sound representative sample of all the households and facilities in the targeted health zones. It is, however, subject to some degree of random variance due to the chance that a particular group of households/facilities was selected rather than some other; this random variance decreases as sample size increases. The current study, with 3,588 households and 176 facilities, is large enough to provide reliable estimates.

Constraints
Some of the randomly-selected villages in Tshudiloto and Nundu had to be changed later due to insecurity or threat to survey personnel by non-state rebel groups. The remoteness and inaccessibility of some areas due to poor road conditions was the main difficulty encountered in the deployment of interviewers. The number of 4x4-vehicles and motorbikes available was extremely limited in most districts, and the rental costs for vehicles were as high as $350 per day, plus fuel. These factors led to the selection of only those sites that were accessible and safe. Some sites were only accessible by foot. In those instances, sites that took more than one day to arrive by foot, were eliminated from the survey due to budget constraints. Telephone communication was difficult in many areas due to network inaccessibility. In a few sites in South Kivu, the team felt it prudent not to use their phones so as to avoid being the target of theft or violence. These situations limited the ability to collect data directly onto a phone and led to the duplication of work, i.e., the collection of data on paper forms and its subsequent transfer to a phone for final uploading to the Magpi server. Data were entered by the same interviewer/data collector who collected the original data, and their work was double-checked by their supervisors.

The MSP changed its decision on IHP's inclusion of PBF intervention sites during the end of data collection. Consequently, Bukavu BC was dropped as an IHP intervention site for the PBF after the survey team had already collected data at Bukavu health zones sites. Nevertheless, this did not affect the overall required sample size for the evaluation.

IV. FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

In this section, key findings from household, facility, and key informant interviews are presented. The detailed quantitative analysis results are presented in Annex 4, Quantitative Analysis Results Tables.

A. FACILITY SURVEY FINDINGS

Facility Survey Sample Characteristics
A total of 176 facilities (90 in the intervention and 86 in the comparison health zones) were surveyed. Table 3 provides distribution of facilities surveyed in each health zone and Annex 5, provides a list of health facilities surveyed. When interpreting the findings, it is important to

note that the facility sample is mainly composed of health centers. General referral hospitals represent only 6% of the total sample of facilities (11/176). Ninety percent of the facilities were located in rural area and the most typical respondent to the questionnaire was a registered nurse (93%) in both groups (Table 4).

Noteworthy is that the rural-urban distribution in the two groups is statistically significant (p=0.01). While both groups are predominantly rural, the intervention group contained more rural facilities than the comparison group. Other significant differences between the facilities in the two groups is the availability of toilets (97% had toilets in the intervention group compared to 85% in the comparison group, p=0.01)[12].

Table 3: Number of Health Facilities Surveyed

		HZ Intervention			HZ Comparison			Total
Province	**BC**	**Name**	**n**	**%**	**Name**	**n**	**%**	**n**
W. Kasai	Luiza	Luiza	12	13%	Lubondaie	14	16%	26
E. Kasai	Mwene-ditu	Bibanga	16	18%	Kamiji	11	13%	27
E. Kasai	Lodga (Kole)	Lomela	17	19%	Tshudiloto	8	9%	25
E. Kasai	Tshumbe	Minga	15	17%	Wembonyama	12	14%	27
Katanga	Kamina	Kayamba	6	7%	Kabongo	17	20%	23
Katanga	Kolwezi	Kanzenze	12	13%	Mutshatsha	11	13%	23
S. Kivu	Uvira	Nundu	12	13%	Uvira	13	15%	25
4	**7**	**7**	**90**	**51%**	**7**	**86**	**49%**	**176**

Table 4: Facility Characteristics

		Intervention (n=90)	Comparison (n=86)		Total (N=176)
		%	%		%
Location of HF	Rural	96%	84%		90%
	Semi-urban	4%	6%		5%
	Urban	0%	10%		5%
Type of HF	HC	93%	94%		94%
	GRH	7%	6%		6%
Respondent professional category	Physician	3%	3%		3%
	State Registered Nurse	94%	93%		93%

[12] While data collectors were trained on the definition of a toilet, it was not mandatory for them to visually verify the presence of a toilet. Hence, there might be differences in how the respondents define the term toilet.

Table 4: Facility Characteristics					
		Interventio n (n=90)	Comparison (n=86)		Total (N=176)
	State Registered Midwife	1%	0%		1%
	Technician	1%	0%		1%
	Other volunteer	1%	4%		2%

Baseline Status on MPA-Plus Service Availability (Quantity)

The health facilities in both groups provide a range of MPA-plus services including preventive, curative, and community health promotion services and products (Table 5).

More than 90% of all facilities in the intervention zones surveyed provided prenatal, intra-partum, postpartum care, and FP services. Iron and folic acid supplements to pregnant is provided in 76% of the facilities, and 15% of the facilities provide Vitamin A to pregnant women (NB: routine administration of Vitamin A during pregnancy is not a norm in DRC). Pregnant women were advised to be tested for HIV in 49% of the facilities offering prenatal care. Note that not all health facilities are designated sites for prevention of mother-to-child transmission (PMTCT) services. Forty-five percent of surveyed facilities provided an HIV test for PMTCT. Out of these sites, only 40% of facilities provide anti-retrovirals (ARVs) for PMTCT for either the mother or newborn. Of total 90, 30% of the facilities offer HIV care (co-trimoxazole) to HIV-positive pregnant women—this is significantly higher than the comparison health zones where only 9% of facilities provide this service (p value = 0.05).

Ninety-five percent of the facilities surveyed offer clinic-based integrated management of childhood illnesses (IMCI). Almost all facilities reported that they offer immunization services for children, and 78% of facilities offer growth monitoring for children of any age. However, nutritional rehabilitation services are significantly higher in intervention health zones (29% vs. 16%; p=0.05).

Availability of curative, preventive, and health promotion services with regard to malaria, TB, NTDs, STIs, and GBV were similar in both groups except for hygiene and sanitation promotion services which were significantly higher in comparison health zones (92%) as compared to intervention health zones (80%) (p=0.03).

Table 5: Availability of MPA-pus services in intervention and comparison sites				
Coverage of MPA-Plus Services (Quantity)	**Intervention (n=90)**	**Comparison (n=86)**		**Total (N=176)**
	%	%		%
Preventive and Curative Services				
Facility offer Prenatal care	**99%**	**99%**		**99%**
Women receive Vitamin A during ante-natal care	*15%*	*21%*		*18%*
Pregnant women advised to be tested for HIV	*49%*	*64%*		*56%*
Facility routinely offer HIV test for PMTCT	***45%***	***61%***		***54%***
Give ARV to mother for PMTCT prevention	*40%*	*21%*		*28%*
Give ARV to newborn for PMTCT prevention	*40%*	*18%*		*26%*
*Offers Cotrimoxazole to HIV+ pregnant women**	*30%*	*9%*		*17%*
Offers Cotrimoxazole child born to HIV + women	*15%*	*6%*		*9%*
Facility offers normal labor services	**90%**	**84%**		**87%**
Facility offers referrals for emergency obstetrics (Written instruction to refer in event obstetrics complication)	*65%*	*63%*		*64%*
Facility offers postpartum care	**90%**	**85%**		**88%**
Facility offers FP services	**98%**	**99%**		**98%**
Facility distributes ITN for malaria prevention	**94%**	**90%**		**92%**
ITN for pregnant women	*94%*	*96%*		*95%*
ITN for children under 2 years	*58%*	*58%*		*58%*
Facility offers child health preventive services	**97%**	**98%**		**97%**
Growth & Development monitoring of children	*78%*	*74%*		*76%*
Immunization for children	*99%*	*99%*		*99%*
Facility offers child health curative services	**98%**	**100%**		**99%**
Facility offers nutritional rehabilitation*	**29%**	**16%**		**23%**
Facility offers STI treatment and referrals	**73%**	**67%**		**70%**
Care and treatment of HIV	**16%**	**21%**		**18%**
Care and treatment of TB	**28%**	**35%**		**31%**
Care and treatment of NTDs	**69%**	**69%**		**69%**
Facility offers blood transfusions	**14%**	**20%**		**17%**
Infection prevention and blood safety (has blood transfusion written instructions)	*92%*	*100%*		*97%*
Facility offers minor surgery	**97%**	**90%**		**93%**
Facility offers PEP	**21%**	**27%**		**24%**
Facility handles GBV/Rape cases	**17%**	**16%**		**16%**
Community Health Promotion Services				
Facility does condom promotion	94%	92%		93%
Facility does hygiene and sanitation promotion*	80%	92%		86%
Facility does exclusive breastfeeding promotion	92%	95%		94%
Facility does food hygiene and safety promotion	79%	88%		84%

Table 5: Availability of MPA-pus services in intervention and comparison sites				
Coverage of MPA-Plus Services (Quantity)	**Intervention (n=90)**	**Comparison (n=86)**		**Total (N=176)**
	%	%		%
Facility does iodized salt consumption promotion	28%	36%		32%
Facility performs promotion activities for improvement of latrines	76%	74%		75%
Facility does ORS in diarrhea promotion	78%	87%		82%
Facility does fistula prevention promotion	29%	31%		30%

*p<=0.05

Baseline Status on Quality of Priority Health Services

Facility Infrastructure and Operations

Information was collected using the facility survey on the availability of basic infrastructure and facility operations, including supervision, drugs and supplies, infection control, and waste management. The facility infrastructure and operations in intervention and comparison health zones were statistically similar.

With regard to the basic infrastructure, 82% of facilities have a physical waiting room. Inadequacies were mainly linked to the following: a continuous electricity supply (not necessarily consistent and in the case of generators, reliant on the availability of fuel) was present in only 18% of facilities, a running water supply inside the building (but not necessarily potable or readily available on site[13]) was present only in 24% of facilities, and an emergency communication system was present in 8% of facilities. Transportation is readily available in 78% of facilities even though in many cases, the only means of transport is a bicycle.

The most effective method for medical equipment sterilization is the autoclave, but it was reported to be used in only 26% of health facilities. Most facilities report using boiling water (74%) as their sterilization method. Used needles and sharps are incinerated in 58% of health facilities. Only 30% of facilities use an incinerator for disposing of medical waste. Forty-two percent of facilities use burial for medical waste disposal, and 33% use outside burning as their method of medical waste disposal.

Only 50% of facilities display cost prices for the available services. The average number of outpatient attendance in the past 12 months to a facility for any service was about 2,281. The predominant sources of procurement for medications and supplies are central offices of health zones (61%), followed by international NGOs (34%) and private suppliers (19%). A full 92% of facilities reported delays in the delivery of medications and supplies due to the depletion of stock at the central office of the health zone (60%). Other reasons for delays included inadequate transportation including fuel shortage (37%) and administrative and financial difficulties (20%). The evaluation team noted anecdotal evidence about common administrative difficulties such as delay in reporting stock out of drugs or not following recommended

[13] The term *running water supply* also includes facilities that use buckets of water with a built-in spigot; the water must be transported by hand to the facility.

procedures for re-ordering drugs resulting in refusal of order from the drug delivering office. Other financial difficulties included examples where the chief nurse did not pay for the previous drugs received at the facility or the financial report is not clear or correct.
Overall, 68% of facilities reported receiving a supervision visit from an MSP representative in the previous or current month of the survey.

Family Planning

Family planning (FP) services are offered in 98% of all facilities in intervention health zones. The most common FP method advised is oral contraceptives in 93% of the facilities and condoms in 95% of the facilities. Cycle beads are advised in 92%, injectables (depo-provera) in 85%, and lactation amenorrhea method (LAM) in 73% of facilities. Intrauterine devices (IUDs) are provided in only 15% of facilities. The predominant sources of contraceptives procurement are central offices of health zones (65%), followed by international NGOs (31%) and private suppliers (7%). Thirty-four percent of facilities reported delays in the delivery of contraceptives due to inadequate transportation includes fuel shortage (60%) and administrative difficulties (40%). Most common administrative difficulties were related to delay in reporting stockouts and not following proper reordering procedures resulting in refusal of order by the drug-delivering office.

Maternal, Newborn, and Child Health

The mean cost for an antenatal care visit in Congolese Francs (CDF) is 370 (or USD $0.40) (95% confidence interval - CI: 235-504 CDF or US$0.25-US$0.55) which is marginally lower than the cost at comparison sites (mean 706 CDF or US$0.76; 95% CI: 367-1,043 CDF or US$0.40-US$1.13; p=0.05). Similarly, the price of uncomplicated child birth is significantly lower in intervention zones as compared to compassion zones (mean price 3,778 CDF or USD $4 .09 vs. 6,138 CDF or USD $6.64; p=0.01). Eighty-eight percent of all facilities with maternity units in both groups remain open 24 hours a day, 7 days a week. With regard to staff, the availability of doctors, nurses (type A1, A2 and A3)[14] and community liaisons were similar in the two groups. However, availability of certified birth attendants is significantly higher in comparison health zones (24% vs. 9% p=0.01), whereas the availability of lay birth attendants is significantly higher in intervention health zones (90%) compared to comparison zones (78%) (p=0.03). Percentages of all types of staff trained in the past three years were similar in both groups except for community liaisons where intervention health zones have marginally lower training rates than comparison sites (p=0.05).

Almost all the facilities in both groups provide child immunization services. Sixty-nine percent of facilities in intervention sites reported that they had an immunization education plan for the current year. Ninety-eight percent have a vaccination unit with 27% reporting that they do not have cold storage facilities (either refrigerator or ice-chest). Only 16% of facilities had vaccines (BCG, polio, DTP, Measles) in stock verified by the data collectors at the time of the survey. The above observations were found similar in the comparison sites as well.

[14] The education for nurses is either A1, A2 or A3, where A1 consist a three year university degree after secondary school (Bac plus 3 years), A2 consist of four year secondary school (Bac) and A3 is two year secondary school (Bac minus 2 years). According the MOH norms A1 and A2 can be Chief Nurse in Various facilities.

Malaria
Distribution of insecticide treated bed nets (ITNs) are reported in 94% of facilities in the intervention health zones. These ITNs are provided to the community free of charge with 94% of the facilities surveyed distributing them to pregnant women. Yet only 58% of facilities provide ITNs for children 0-23 months. At the time of survey, about 40% of facilities reported that they have ITNs currently in stock (not verified by data collectors). The cost of malaria treatments posted in facilities is similar in both intervention and comparison sites (mean price: 1,733 CDF or USD $1.88; 95 CI: 1,360 – 2,106 CDF or USD $1.47 - USD $2.28).

HIV/AIDS and Sexually-Transmitted Infections
Sixteen percent of health facilities in intervention zones offer HIV/AIDS consultation services; 73% offer STI treatment services and 93% provide HIV prevention education to the public. Syndromic treatment for STIs is the protocol in 88% of sites and 77% reported that they had STI medications in stock. Above findings were similar in the comparison sites.

B. HOUSEHOLD SURVEY FINDINGS

Household Survey Sample Characteristics
A total of 3,588 household respondents completed the household questionnaire (1,776 in intervention and 1,812 in comparison health zones). Table 6 provides distribution of household surveyed in each health zone. All respondents (100%) in both groups were mothers of children 0-23 months between ages 15-49 years.

Table 6: Number of household respondents by health zones

Number of household respondents									
Province	BC	HZ Intervention			HZ Comparison			Total	
		Name	n	%	Name	n	%	N	%
W. Kasaï	Luiza	Luiza	235	13%	Lubondaie	254	14%	489	27%
E. Kasaï	Muene-Ditu	Bibanga	260	15%	Kamiji	260	14%	520	29%
E. Kasaï	Kole	Lomela	260	15%	Tshudiloto	260	14%	520	29%
E. Kasaï	Tshumbe	Minga	245	14%	Wembonyama	260	14%	505	28%
Katanga	Kamina	Kayamba	256	14%	Kabongo	259	14%	515	28%
Katanga	Kolwezi	Kanzenze	260	15%	Mutshatsha	259	14%	519	29%
S. Kivu	Uvira	Nundu	260	15%	Uvira	260	14%	520	29%
4	**7**	**7**	**1776**	**49%**	**7**	**1812**	**51%**	**3588**	

The socio-demographic profile of households in comparison health zones is significantly different from the intervention health zones. In terms of the place of residence, households in comparison zones are located in urban areas (14%) compared to intervention health zones (4%) (p=0.00). The literacy levels are statistically higher in comparison households, whereas

households with a secondary level of education and employment status (salaried or self-employed) status is higher in intervention sites. Unsafe sources of drinking water and open pit latrines are significantly higher in intervention health zones households as compared to comparison zones (Table 7).

Table 7: Household characteristics of intervention and comparison sites

Household characteristics		Intervention (n=1776) %	Comparison (n=1812) %		Total (N=3588) %
Education level*	Informal	58%	63%		60%
	Secondary or more	26%	22%		24%
	Primary	13%	12%		12%
	Preschool or less	3%	4%		4%
Employment status*	Employed (salaried + self-employed)	97%	96%		96%
	Other	3%	4%		4%
Literacy status*	Can read and write	65%	69%		67%
	Can read, cannot write	12%	10%		11%
	Cannot read or write	23%	21%		22%
Residence*	Rural	96%	86%		91%
	Urban	4%	14%		9%
Head of household gender	Male	97%	97%		97%
	Female	3%	2%		3%
Source of drinking water*	Surface water	35%	30%		33%
	Un-protected spring water	32%	31%		31%
	Protected spring water	11%	14%		13%
	Public tap	8%	6%		7%
	Un-protected dug well	7%	6%		7%
	Private tap	1%	7%		4%
Type of toilet*	Pit latrine without slab/open hole	74%	71%		73%
	No toilets, outdoor used as toilet	21%	15%		18%
	Pit latrine with slab	3%	10%		6%
	Flush toilet	1%	3%		2%

*p<=0.05

Knowledge and Utilization of Key Family Health Services by Households

Knowledge about modern methods[15] of contraception is significantly lower in the intervention health zones (21% vs. 26%; p=0.00) (Figure 2). However, the respondents reporting no contraceptive knowledge were similar (6%). Current users of any contraceptive were reportedly lower in intervention health zones (48% vs. 51%; p=0.04). However, the type of contraceptive (modern or traditional) among current users was statistically similar (Figure 3). Fifteen percent of all respondents reported that they had talked about FP with a health provider, usually an *Accoucheuse* or qualified birth assistant (64%).

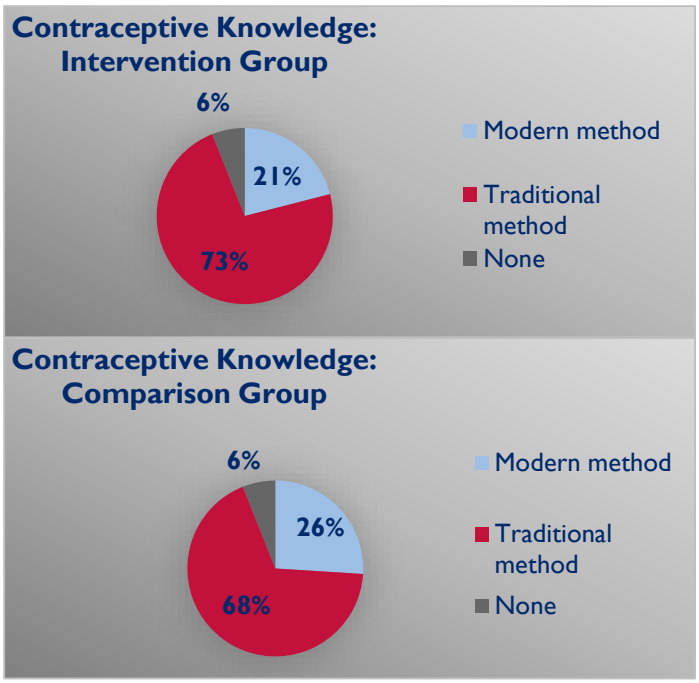
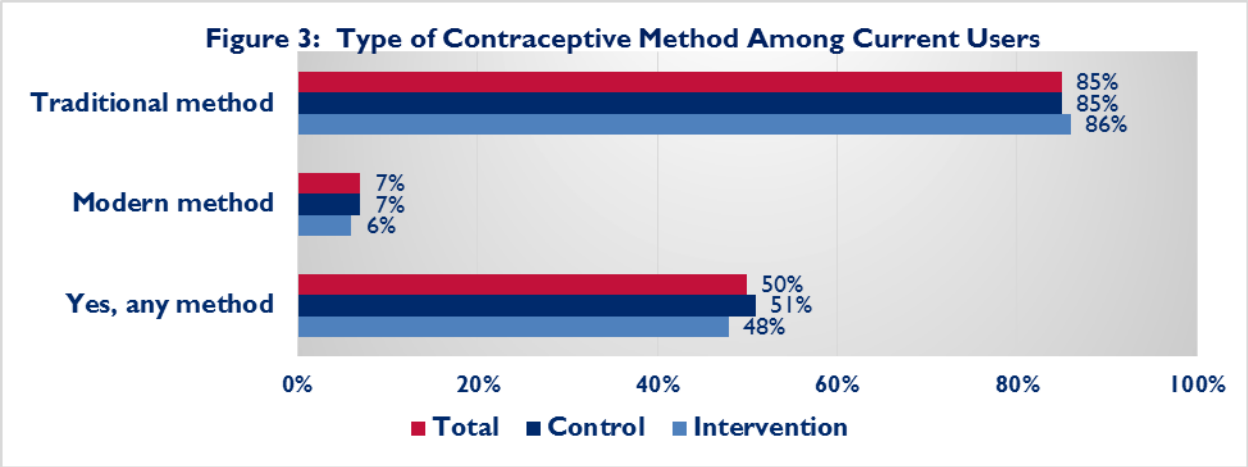


Figure 2: Comparison of contraceptive knowledge among households in intervention and comparison sites

Maternal, newborn, and child health

Ninety percent of women in comparison group reported that they received antenatal care when they were pregnant with their youngest child—statistically more than the intervention group (88%) (p=0.02). Of 1776 respondents, 80% reported facility delivery in both groups with more than 80% using public health facilities. The type of health workers present at the time of child birth differ significantly between the two groups. Doctors and nurses were reported to be present more frequently in the comparison versus the intervention group (1% versus 4% and 31% versus 37%, respectively, p=0.00 for both). However, *sage-femme* or auxiliary nurse midwives were more likely to attend births in the intervention group (23% versus 19%, p=0.00). The rate of presence of *Accoucheuse,* or qualified birth assistants, were similar in both groups (35%). Non-qualified persons such as traditional birth attendants or family members attending the childbirth were reported in less than 5% of cases in both the groups. Thirty-three percent of women received postpartum care in the intervention group, which is found to be significantly higher than the comparison group (27%) (p=0.00). The most common type of health worker to provide postpartum care was nurses, followed by *Accoucheuse,* or qualified birth assistants.

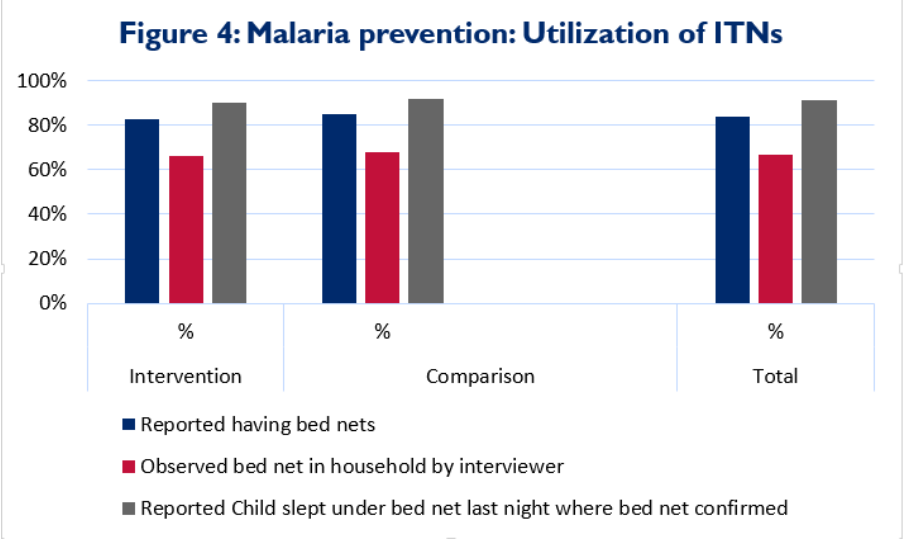
[15] Modern methods of contraception include the pill, female and male sterilization, IUD, injectables, implants, male and female condom, diaphragm, and emergency contraception. Traditional methods include periodic abstinence, withdrawal, LAM, and traditional (folk) methods.

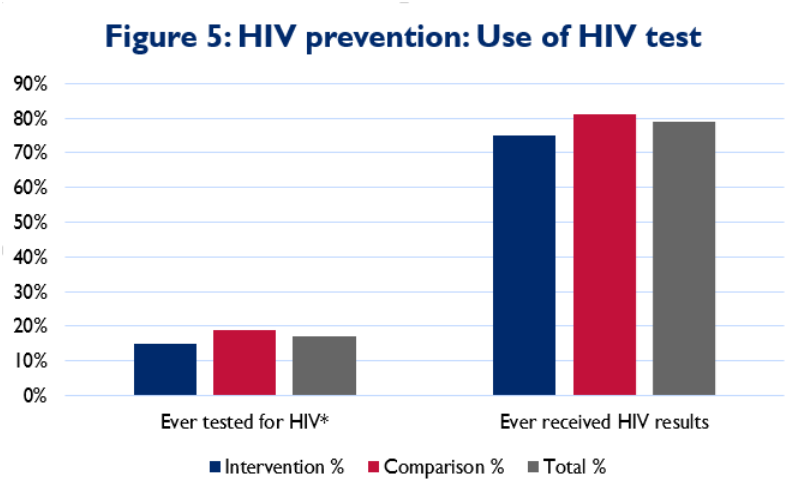


Sixty percent of women reported that their child aged 0-23 months received Vitamin A in the past six months in the comparison group, while only 52% reported the same in the intervention group. The source of Vitamin A reported was predominately through campaigns rather than routine administration. Ninety-six percent of mothers reported that they breastfed their youngest child in both groups. In the intervention households, 40% reported that the child had a fever, and 52% reported that the child had a cough in the past two weeks, which was statistically more than reported in the comparison households. However, the health-seeking and utilization rates—with regard to taking a child to a health facility or seeking advice from someone—are similar in both groups.

Malaria

Eighty-three percent of households reported having ITN, however the presence of bed nets was confirmed in only 66% of the households. Among those households where ITN was observed, 90% reported that their child slept under ITN the previous night. These findings were similar in both groups (Figure 4).





*p<=0.05

HIV/AIDS

Nineteen percent of women in the comparison sites reported that they ever tested for HIV which is significantly higher than intervention households (15%, p=0.00). However, among those respondents tested, those who ever received their HIV test results (Figure 5) were similar in both groups. Likewise, the percentages of respondents who were tested for HIV while pregnant were similar for both groups.

Water Sanitation and Hygiene (WASH)

The areas in households where respondents washed their hands were observed by data collectors during the survey. The presence of a designated hand washing area and any hand-cleaning product were both significantly higher in comparison households, than intervention households. Only 3% of households in both groups use any method to clean water before drinking.

Perception of the Quality of Services among Household Respondents

Respondents were asked to report the date of their most recent visit to a local health facility. The results were common among intervention households: 63% vs. 60% had visited in the three months prior to time of their interviews. A visit to a General Referral Hospital was significantly higher in comparison sites (p=0.00). Again, it is important to note the comparison sites were more likely to be urban and therefore likely had closer geographic access to a hospital. Nonetheless, these last visits to a hospital were quite low (2% versus 5%, intervention versus comparison, p=0.00).

The level of satisfaction with the services the respondents received and the cost of those services during the last health facility visit were similar for both the groups as depicted in Table 8. Among respondents who did not visit any health facility when they needed health care, the main reason given—not having enough money to pay bills—was significantly higher in comparison households (p=0.00). In terms of interpersonal skills of health providers, waiting time, availability of staff, medications, and cost of services at the health facilities, both groups showed 60% satisfaction rates (See Annex 4 for detailed analysis). The rate of dissatisfaction with the prices posted at the health facilities was significantly higher in the comparison group (p=0.02).

Table 8 Household Contact with Health Center and Perception of Quality					
Contact with Health Services		**Intervention %**	**Comparison %**		**Total %**
Last visit to a local health facility*	Within last 3 months	63%	60%		62%
How much did you pay for these services?	Mean	3779	4069		3928
	Standard Deviation	7954	7664		7804
	Range	0 to 190,000	0 to 138, 000		0 to 190,000
	Total responses	1096	1112		2331
Place the respondent sought treatment last time she needed care	Health center	63%	62%		62%
	GRH*	2%	5%		4%
	Traditional healer	3%	3%		3%
	Pharmacy	3%	3%		3%
The last time the respondent sought out a desired health service and the care was received in a health facility	Yes	61%	64%		62%
Was satisfied with services?	Yes	94%	95%		95%
Reasons the respondent did not go to a health facility the last time she wanted to seek care	Too far	6%	7%		7%
	Not enough money to pay bills*	10%	14%		12%
	Prefer traditional medicine	1%	1%		1%

*p<=0.05

C. KEY INFORMANT INTERVIEWS FINDINGS AND ANALYSIS

Initially Approved PBF Budget

Key informants who will be implementing the PBF intervention assumed that their budgets were based on their target populations. Thus, more subsidies will be needed if the PBF target population increases. However, there are some fixed costs, such as allocations for creating a service-purchasing agency, which do not depend on the size of the beneficiary population. According to the MSP, a good PBF budget is estimated to be approximately $3.00 per person per year.

Another component of the PBF budget is general expenses. These expenses are reserved for creating the purchasing agency and strengthening regulatory activities. These purchasing agents are known as Agence d'Achat de Performance (AAP). Regulatory expenses make it possible to

guarantee quality standards, map the PBF zone, outsource (contract) services, perform AAP verification, and offer coaching and support to local NGOs. These "general expenses" are estimated by the MSP to be approximately $0.50 per resident, per year.

In general, the MSP's costing exercise aims to identify the most and least profitable activities in order to prevent financial waste while strengthening profitable activities. This assumes the need for some degree of flexibility, or realignment of budget line items, in order to reach an RBF's program's stated objectives.

In PBF, cost centers or components are assembled in such a way that best practices, theories, and tools are respected. The costing tool we used to collect such data is one such example.

Our current costing analysis is limited to the budget allocations for each of the various components. Since we are at the baseline assessment stage, no cost-effectiveness analysis can be conducted yet.

At the time we gathered information from IHP key informants, there was no specific budget for PBF. It will be drawn down from the overall IHP project budget. Thus, the IHP team prepared an initial, 60-month budget (see Table 9) at the onset of the five-year project. Given the PBF intervention is starting at the end of year three, IHP staff prepared another budget to cover the remaining 24 months of the project (Table 10). During on-site data collection, it became apparent that the coordination offices were not sufficiently informed about the budget allocated to the pilot health zones in their jurisdiction. This made a site-based analysis difficult, given the specifics of each pilot health zone. Therefore, our analysis was done on the overall budget for PBF implementation in the targeted health zones in order to assess the feasibility of implementation based on the information gathered from field-based stakeholders during our key informant interviews.

Table 9: Initial Budget submitted for a 60-month PBF Implementation								
Cost estimate for implementation of PBF by IHP during the next two years and the preparatory phase (for (originally) eight HZs: Bibanga, Kanzenze, Lomela, Luiza, Minga, Nundu, Songa and Walungu[16])								
Period (months) October 1, 2010-September 2015	**60**							
Start date	**10-1-2010**							
PBF Intervention's Target Population	**1,274,050**							
Program cost (in USD)	**$12,164,236.80**							
Per capita, per year cost (in USD)	**$2.39**							
	Budget Line Items	**Year 1 Cost**	**Year 2 Cost**	**Cost at 100% of consumption**	**Consumption Rates**		**Total cost**	**Total cost %**
A	Direct costs							
1	Human resources						$2,115.360.00	17%
2	Investments						$173,600.00	1%
3	Service purchases						$4,186,144.00	34%
4	Technical verification						$1,756,160.00	14%
5	Community verification and community voice strengthening						$1,200,00.00	10%
6	Regulation referencing						$1,149,716.00	9%
7	Operating costs for PBF implementation						$484,179.00	4%
8	*Preparatory phase costs*						*$1,099,077.80*	*9%*
			TOTAL: $13,000,172.80				$12,164,236.80	100%
			Indirect costs 0%					
	TOTAL COSTS		**TOTAL COSTS: $13,000,172.80**				**$12,164.236.80**	

PBF practitioners stated that the primary components of the PBF intervention will be the variable costs for subsidizing the MPA and CPA activity packages in health centers and hospitals. According to them, in order for this approach to succeed, the two packages must represent at least 70% of the allocated budget. If this number were below 70%, this would likely predict problems with launching the PBF intervention. In other words, the MPA and CPA packages should represent at 70% of the budget. Thus, the health facility has autonomy to allocate its subsidies to solve any problems they are facing in order to fund the MPA or CPA fully, which is expected to result in improvements to health care quality and access.

The IHP PBF budget specifies $2.39 per capita, with $0.82 per capita allocated for subsidies instead of the original $1.20 per capita that was requested at the outset of IHP. However, less than 34% of this is allocated to subsidies at the primary and hospital levels. This initial budget estimate gives only an idea of the actual cost calculations needed to establish a specific budget for PBF implementation.

[16] Walungu Health Zone, located under the jurisdiction of the Bukavu BC, has been dropped as a PBF intervention site.

Table 10: Final Budget for 24-month PBF implementation in Seven Health Zones.

Cost estimate for implementation of PBF by IHP during the next two years without the preparatory phase in Health Zones: Bibanga, Kayamba, Kanzenze, Lomela, Luiza, Minga, and Nundu

	Project Name	**Integrated Health Project**
	Period of Performance: October 1, 2013-September 2015	**24**
	Start date	**October 1, 2013**
	PBF Target Population	**955,427**
	PBF Cost (in USD)	**$4,986,591.00**
	Per capita, per year cost (in USD)	**$2.61**

	Budget Line Items		**Year 1 Budget**	**Year 2 Budget**	**Total Budget**	**Total %**
A	**Direct costs**					
1	**Human Resources**				**$975,480.00**	**20%**
	1.1	Central coordination staff			$352,080.00	
	1.2	BC (AAP) staff			$575,400.00	
	1.3	External technical assistance			$48,000.00	
2	**Investments**				**$67,900.00**	**1%**
	2.1	Use of vehicles and equipment			$67,900.00	
3	**Service Purchases**				**$1,866,808.00**	**37%**
	3.1	Health center services			$844,480.00	
	3.2	General Referral Hospital (GRH) services			$540,008.00	
	3.3	Health Zone Management Team (ECZ) services			$107,520.00	
	3.4	Excellence purchases: ECZ, GRH and health centers			$374,800.00	
4	**Technical Verification**				**$693,392.00**	**14%**
	4.1	Technical verification-health areas			$612,052.00	
	4.2	Technical and administrative verification: GRHs, ECZs, health areas			$81,340.00	
5	**Community verification and community voice strengthening**				**$483,00.00**	**10%**
	5.1	Verification and community satisfaction survey by CBOs			$441,000.00	
	5.2	Training of CBO members for community verification			$42,000.00	
6	**Regulatory Improvements**				**$513,295.00**	**10%**
	6.1	Strengthening regulations at the provincial and operational level			$349,450.00	
	6.2	Strengthening regulation at the central level			$163,845.00	
7	**Operating costs for PBF implementation**				**$386,716.00**	**8%**
	7.1	Shared operating costs-central level			$95,302.00	
	7.2	Shared operating costs- BC (AAP) level			$36,264.00	
	7.3	Internal supervision, monitoring, experience-sharing and PBF promotion			$255,150.00	
			TOTAL	**$4,986,591.00**	**$4,986,591.00**	**100%**
			Indirect costs 0%			
	TOTAL COSTS:				**$4,986,591.00**	

The following observations are based on the final 24-month budget depicted in Table 10 above:

- A total of $2.61 per resident will be invested in implementing the IHP project's RBF.
- $0.98 per resident will be mobilized for purchasing services at the primary, hospital and Health Zone Management Team levels.
- If the budget line item "preparatory phase" was not omitted in the revised budget for the next two years, the cost per capita would be $3.28 across the seven health zones and in line with MSP recommendations.
- Of the total budget, only 37% will be used to purchase services, or to pay subsidies to providers. The remaining budget (63%) will be allocated to organizing and operating the PBF mechanism.
- This 63% will be broken down as follows: 20% for human resources (IHP offices); 1% for use of vehicles and equipment (IHP offices); 25% for technical and community verifications; 10% for regulation and 8% for operating expenses.
- Of the 63% portion of the budget as noted above, nearly $1.40 per capita will be used to operate offices and verify the purchased services. This is incongruous with best practices which state general expenses should be approximately $0.50 per capita. This gives the impression of an inverted pyramid, in terms of how this budget is distributed between the PBF implementation components (DRC/MPS, 2011).

Current Situation of Health Facility Infrastructure in the PBF Health Zones

At the health center level, in the targeted PBF health zones, the majority of buildings are not built with durable materials and are dilapidated and need renovations or even re-construction. Health zones in particular are in need of infrastructure support including Sankuru, Bibanga, and Kayamba. Although most health centers in the Nundu Health Zone are built of durable materials, their current condition requires renovation. Community efforts to keep these buildings in working order were noted by the evaluation team. Among all of the 160 health centers selected across the eight Health Zones, only 17 (11%) have buildings that are deemed "good" by the Health Zone Management Teams in Kanzenze and Luiza.

While some Chief Health Zone Physicians (MCZs) have maintained that these centers have the minimum equipment required to provide the MPA package, such as beds, delivery kits and small pieces of equipment, most providers feel that the need for basic equipment is acute in health facilities.

In regard to coverage, each health area is supported by a designated health center which in most cases is surrounded by health posts. According to MSP directives, the functionality of the health center is dependent upon the presence of staff, drugs, equipment, supplies, financial resources, and management tools. Yet, according to the majority of the health zones managers interviewed, the definition of a functional health center is one which includes staff and a CODESA in place.

In some areas, the facilities are functional with the stark exception of Kayamba (and Walungu which was dropped from the study). The majority of stakeholders appreciate the level of functionality of these particular facilities, and they emphasized their functionality as compared to the presence of management entities such as CODESAs, and also healthcare personnel.

In terms of the CPA package, the majority of general referral hospitals have buildings in good condition, although they need some renovations in basic services. However, the Kayamba General Hospital building faces enormous challenges in providing all of the traditional hospital services. While it has the minimum equipment to provide CPA, much of it is outdated. The Minga General Referral Hospital received new equipment from the Global Alliance for Vaccines Initiative (GAVI) Health Systems Strengthening Project. In terms of medical staff, each hospital has at least two physicians on staff.

Human Resource Capacity to Implement PBF

Each health zone is directed by a Health Zone Management Team as defined by MSP standards. But there is still an abundance of employees in the health zone central offices, subsequent to a new person being assigned by the intermediate level. Most of the health zone offices have pharmacy "agents" rather than the recommended pharmacists. IHP has already conducted trainings on PBF in six of the seven targeted health zones. Staff trained are based in the central health zone offices, hospitals and health centers. CODESA (community council) members have also been trained. However, most of these trainings took place in 2012 in anticipation of a launch of PBF which was delayed due to the need for this baseline. The Kayamba health zone has not yet been trained in the PBF approach. (Kayamba Health Zone has replaced the Songa Health Zone, where training already has taken place in 2012.)

The original training did not enable all implementation employees to participate. In addition, changes in staff before the project's launch resulted in a need for employees to be trained or retrained.

At the districts and provincial levels, the majority of managers have already participated in the PBF trainings and are considered potential trainers for future sessions. This approach is already being applied in the four target provinces with other support from other implementing partners.

Access to Transportation by the Central Offices

The IHP plans to conduct joint data verification missions with the management teams based at the provincial, district and health zone levels. It also supports these zones with financial resources to conduct supervision. During key informant interviews, managers at all levels raised issues related to a general lack of vehicles, or outdated vehicles among those currently owned. Among the seven PBF health zones, only three (Nundu, Lomela and Minga) have 4 x 4 vehicles donated by GAVI. Most health districts do not have vehicles to conduct supervision visits. Presently, only Haut Lomami, Kolwezi and South Kivu have 4 x 4 vehicles. These vehicles are sometimes reserved exclusively for the activities of the donors who provided them. Provincial inspectorates have vehicles, but in East Kasai they are not functional and are in need of repair. There are issues with the proximity of the selected PBF districts. Travel distances are quite long, which might influence the support that these districts receive from IHP.

Nearly all health zone managers stated that they do not have working motorcycles to travel within their respective zones, since nearly 90% of them are broken down, dilapidated, and non-functional, or have been reabsorbed into inventory. In order to properly conduct supervision visits, they rent motorcycles or use their own motorcycles to justify the funds received from the project. The $50 allocated to vehicle maintenance is considered insufficient given the need for frequent repairs and recurrent breakdowns.

IHP Support

In this section, we quantify, in monetary terms, what support the target health zones are already receiving from IHP. All target health zones receive support from the IHP project. PBF financing will be in addition to what they are already receiving. In general, other than medications, these zones receive between $5,500 and $9,000 per quarter from IHP, allocated as follows:

- Oil for operating the cold chain;
- Fuel to support supervision;
- Motor oil to support supervision;
- Supervision expenses fees: $1,500 per quarter;
- Health area monitoring fees: $75 per health center per quarter;
- Motorcycle maintenance expenses;
- Health Zone Office Operating expenses: $750 per quarter;
- Primary health care expenses at the health zones' central offices;
- Organizational expenses for community-based organization meetings;
- Health Zone Board of Directors meetings (semi-annual): $500 per year.

It was noted that the payment of expenses is done on a quarterly basis, but since September 2011, payments have been made monthly. The costs for a health zone to manage its health facilities have increased from $500 to $800 per month.

New Activities Financed for Joint Verification of Health Facility Services

In terms of knowing whether the financial support received from IHP is sufficient to implement RBF, most respondents stated that the preliminary financial support is insufficient and must be increased, as was done with supervision expenses. Some health zone managers perceive PBF to be a new activity that must need to supervise, and similarly assume this new function needs new funding.

In essence, IHP plans to conduct joint on-site missions to document the quantities of services declared by the health facilities, activities conducted by the Health Zone Management Teams, and to evaluate the quality of care offered to the public. These joint visits with IHP will be conducted at each level of the health system: provincial, district, and health zone. According to the key informants, this activity must be financed with outside funding sources.

In order for the PBF health center service verification component to succeed, the Health Zones Managers recommend the following costs be taken into account (but did not offer the cost of each item):

- Lodging for staff assigned to verification which will take much longer than supervision visits because they must review all of the service registers;
- Production and standardization of health centers' registers for more rigorous and more flexible verification;
- Per diem during verification missions;
- Transportation;
- Payment to the Health Zone Management Team, or a training bonus, or expert assessment costs;
- The budget for purchasing services should not be capped, while taking into account this health care facility's performance.

Other Financing in the Health Zones

Key informants discussed factors that could increase or decrease the allocated budget after the launch of the PBF intervention. One such factor is the existence of other financing in the target zones. In general, all of the target health zones and provincial inspectorates have other financing sources to implement activities, although this financial support is not as consistent in the selected health zones. This support comes from traditional MSP, specifically: GAVI, the Global Fund for AIDS, TB and Malaria, the European Union via the EDF, United Kingdom's Department for International Development etc.

However, there are also NGOs such as Catholic Relief Services, ALIMA, the Damien Foundation, International Refugee Committee, DFID and churches that work in these health zones. The Kanzenze Health Zone has private sector support from African Mineral. This external support is specifically for supervision, medications, and staff bonuses in religious hospitals.

The health districts are also supported by more than one partner to supervise their respective health zones.

Many MSP partners are particularly active in the Provincial Inspectorates. However, this support is managed by the various programs and offices of the MSP, and therefore there is no single financial account.

Key Informant Recommendations

The launch of a new program sometimes prompts resistance or fear among the affected stakeholders. During our interviews, the respondents often questioned whether this PBF intervention would be effective. In order to make PBF a success, the key informants recommended the following:

- Accelerate the launch process due to the delay (promised since January 2013);
- Standardize the frequency of supplies and other prerequisite inputs, specifically medication and equipment;
- Provide the health zones with methods of transportation;
- Comply with subsidy payment deadlines agreed upon with providers (comply with their contractual clauses);
- Encourage facilities that improved their quality score before the actual launch of the PBF approach;
- Provide new or update the Information Kit received since AXxes project;
- Comply with or take into consideration the activities planned by the health zone in the annual operational plan;
- Share experiences and lessons learned with other health zones implementing PBF;
- Prepare a clear price list for medications;
- Apply per-episode pricing (i.e., per malaria episode);
- Re-train staff before the PBF launch;

- Pay subsidies through phone companies;
- Use lump-sum pricing.

MSP's PBF Feasibility Assessment

In the table below, we present the criteria that the MSP is proposing for the feasibility of implementing a PBF program, and how the IHP's PBF intervention fulfills these criteria for which the MSP considers "pure". However, we will not attempt to quantify them. According to the MSP, "pure" implementation of PBF is streamlined and without barriers.

Table 11: MSP Criteria to Determine Whether the PBF is "Pure"		
Criteria to determine whether the PBF program is pure[17]	**Relevancy to Purchasing Agency (AAP), Health Facility (FOSA), or Both**	**Comments**
The PBF program's budget is not less than $3.00 per resident, per year; at least 70% of this is used for MPA, CPA and school subsidies, also there are contracts and infrastructure investment units.	Both	This is partially fulfilled by IHP. The budget, as presented, does not specify any infrastructure investment, but on-site stakeholders strongly expressed this need.
The PBF program has at least 15 output indicators, for which health facilities (known as "FOSA" to the MSP) receive subsidies; it also has a composite quality indicator system.	Both	Completely fulfilled
The PBF program finances complete packages for health centers (MPA) and hospitals (CPA). It is not restricted by a vertical program to a limited number of indicators.	Both	Completely fulfilled
The program includes a baseline household and quality survey which allows us to set priorities and measure progress.	Both	Household surveys have been completed.
Cost recovery revenues are spent at the point of collection (facility level)	FOSA	Completely fulfilled.
FOSA managers are authorized to decide where to purchase their inputs from competing, high-quality distributors.	FOSA	This is not true for medications.
The program introduces the FOSA management tool: business plan.	FOSA	Completely fulfilled.
The program introduces the FOSA management tool: indices.	FOSA	Completely fulfilled.
AAPs negotiate and sign contracts directly with day-to-day FOSA managers, not indirectly with private or religious owners.	FOSA	Completely fulfilled.
FOSAs can influence cost recovery rates.	FOSA	Completely fulfilled.
FOSA managers are authorized to hire and dismiss staff.	FOSA	Most FOSAs are government-owned. This remains difficult.
There is an AAP that is independent from local health authorities, with sufficient staff to complete medical and community verification tasks.	AAP	Partially fulfilled: the model specifies joint AAP/MSP verification.
AAPs agree to promote the complete MPA and CPA defined by the government (in Africa, this often applies to discussions on modern family planning).	AAP	Completely fulfilled.
AAPs have investment units to improve infrastructure and FOSA equipment.	AAP	Not specified in the PBF budget.

[17] Ministère de Santé Publique, Module de formation des équipes cadres (Draft), October 2011

Table 11: MSP Criteria to Determine Whether the PBF is "Pure"		
Criteria to determine whether the PBF program is pure[17]	**Relevancy to Purchasing Agency (AAP), Health Facility (FOSA), or Both**	**Comments**
Public, religious and private FOSAs have an equal chance of winning a contract.	AAP	Not fulfilled. Priority is given to the health area's center of responsibility.
There are bonuses at the FOSA level, linked to regional vulnerabilities.	4. Equity	Partially fulfilled by IHP. Distance is not taken into account in calculating subsidies, but there is a health center excellence bonus.
The program earmarks equity funds for vulnerable people.	4. Equity	Not fulfilled. There is no equity fund for vulnerable people.

V. DISCUSSION

Performance-Based Financing is a management tool that assesses the performance of health managers and providers on the basis of quantifiable indicators. Motivating health workers and keeping them in the public sector has been a particular challenge in the health system for many countries, including DRC, especially since many work under difficult conditions and in remote areas. PBF rewards health institutions and individuals working in these institutions for their achievements and thus has the potential for raising morale. PBF can provide additional funds to MSP staff, health centers, and hospitals if they meet or exceed the defined indicators for services, both in terms of quality and quantity. The basic premise of directly funding high achievers is that front-line workers understand the nature and root causes of problems in the health system and are best poised to create innovative solutions.

Measuring the impact of the PBF approach in the context of implementing the IHP project would be a significant benefit for the Congolese health system, in the sense that this approach is so often discussed in various fora, but rarely studied. But due to a simple lack of evidence, the Congolese government, through the MSP, has struggled to apply it on a large scale despite having approved this strategy for funding in 2010.

The scope of IHP PBF impact evaluation is wider in terms for geographic coverage (four provinces) within DRC and the evaluation domains studied. The USAID evaluation is examining both the quantity and the quality of health services and the impact on health outcomes. The impact evaluation design methodology includes various analytical domains including the facility catchment population's perspectives on quality, coverage, health seeking and satisfaction with health services; and the quantity of facility key family health services provision, facility operations, supervision and management; as well as qualitative information gathered from government staff on capacity building and ownership vis-à-vis sustainability and scale-up.

The PBF implementation plan designed by the IHP project focuses exclusively on supply-side interventions. By focusing on the supply side, PBF can potentially lower the cost of health care, and improve the access to and the quality of care. However, when we asked clients who previously wanted health care but did not elect to visit a health center, only 10% and 14% of the intervention and comparison groups, respectively, cited cost as the primary reason why. Six to seven percent cited physical distance as the primary reason. With regard to increasing the reach of health care services in the DRC, an exclusively supply-side approach might be too narrow. By focusing on demand through increasing health education and awareness with regard to a) what services are needed, b) which services can be provided, and c) when services should be sought, clients might be more likely to seek care when it is needed.

Increasing demand for health care could potentially also increase the sustainability of changes introduced through PBF. However, there is also potential to create artificial demand through PBF monetary incentives. This can create negative externalities once the incentives are removed. The Haute-Katanga PBF evaluation showed that post-intervention levels of job satisfaction and attendance among health workers dropped below comparison group levels. Job satisfaction was 14% lower than comparison groups and attendance was 25% lower (Huillery 2013). Whether these changes seen are transient or long term could not be ascertained due to lack of long-term follow-up studies or evidence of any interventions to counter these negative results. By stimulating the natural demand in the market, rather than only creating artificial demand, some of these negative externalities can be ameliorated by maintaining a higher level of demand for services after the intervention has ended.

Communication may be another obstacle to the PBF intervention – particularly with regard to integration, sustainability, and quality of care. During on-site data collection it was revealed that IHP coordination bureaus (BC) were relatively uninformed with respect to the budget allocated to pilot health zones. Ensuring that all offices are cognizant of the available resources will ensure more efficient allocation to provide needed services and improve accountability of management with funds. Respondents to surveys also noted that they already feel the constraints of insufficient funding for site verification and supervision, which raises further concerns about accountability.

ANALYTICAL FRAMEWORK TO ASSESS SUSTAINABILITY

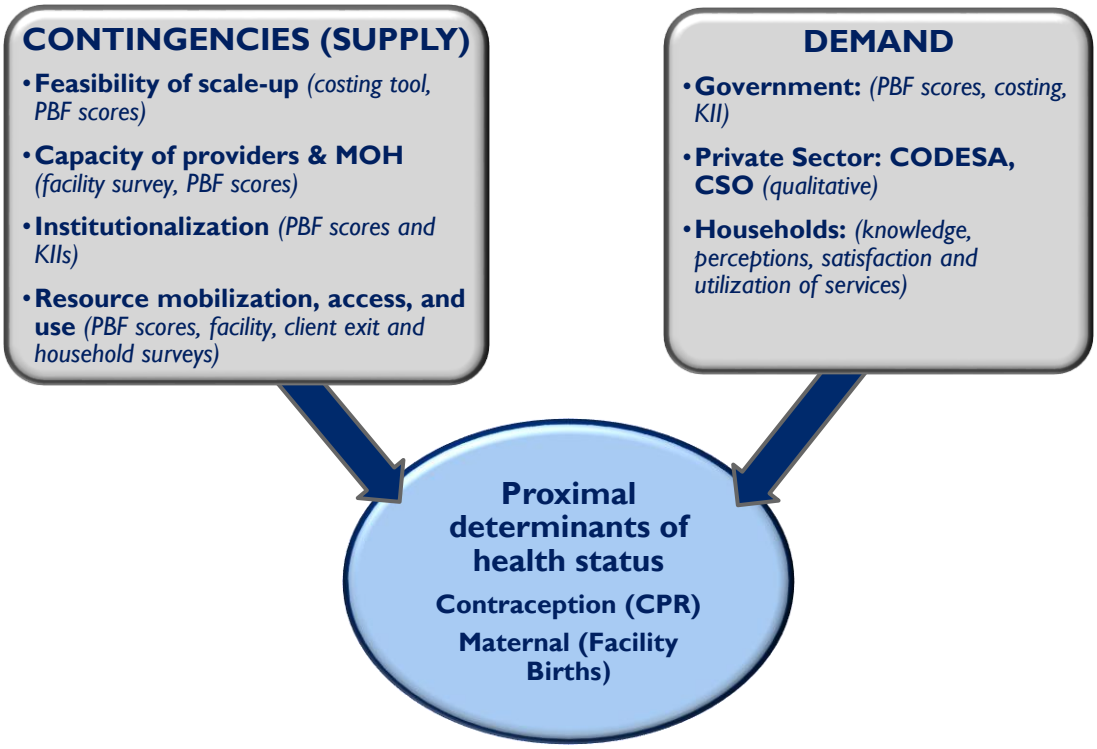
The issue of sustainability in PBF is always raised when starting a PBF intervention. Most often concerns are regarding the continued funding of PBF interventions and the dissipation of health workers motivation over time if incentives are no longer monetary (Werner, 2011). Currently, there are no long term follow-up research available to assess whether the benefits or effects due to PBF are sustained.

One of the evaluation questions included in our SOW for this evaluation is: *"Is the model worthy of being scaled up to other health zones?"* We will analyze this question under the "program sustainability" evaluation domain during the impact analysis. IBTCI has developed a conceptual framework for assessing the attributes of sustainable health programs (Bongiovanni, 2012). Figure 6 below depicts our framework for analyzing sustainability. Our hypothesis is that **healthy outcomes** are attained as a result of supply-side **contingencies** being in place and that there is also the **demand** for these contingencies coming from stakeholders. These attributes feed into one another. Our basic premise here that an intervention should be sustainable before it is scaled-up. The framework is not meant to demonstrate causal relationships between these two key attributes and health outcomes. Nonetheless, the framework helps document and measure the factors contributing to the contingencies and demand in order juxtaposed with significant changes to pre-determinates of healthy outcomes to allow us to examine where the possible bottlenecks might be to a sustainable program. (It is not within the scope of this evaluation to measure morbidity or mortality, therefore, we will use proxy variables which are accepted pre-determinates of health outcomes.)

For a program to be sustainable after it ends, certain contingencies should be in place. The interventions promoted should be feasible to implement by the MSP in terms of its available resources. And having all the inputs in place would be for naught if the government did not have the capacity to understand and implement the interventions. Clearly, activities such as the verification procedures, policies, incentive or payment strategies, training plans, protocols would need to be institutionalized within the government's health system and training institutions when there is an expectation to scale-up. We believe that institutionalization is one component of sustainability but it is not synonymous with sustainability.

The other attribute of sustainability is local demand which is defined according to the target audience. This includes MSP's willingness to assume the project's key interventions after the IHP PBF project ends. Similarly, international organizations and the private sector or civil society (CODESA) can decide if they wish to adopt PBF. From the viewpoint of individuals and households, they should be empowered to understand their rights and responsibilities in maintaining health status. This would hopefully translate into improved health seeking behaviors and utilization. Contraceptive prevalence rates and institutional birth rates will be used as proxy indicators of health outcomes such as fertility rates and maternal mortality respectively. If we find statistically significant results among other proxy indicators because the endline results demonstrate pre/post differences greater than 10%, we will include those outcome indicators in our model as well.

Figure 6: Analytical framework to assess sustainability of results achieved



Currently, there is evidence available from the national scale up of World Bank PBF interventions in Rwanda and Burundi (http://www.rbfhealth.org). These experiences may provide lessons for other countries including DRC. Rwanda was one of the first developing countries to implement PBF and was the first country to implement it on a national scale. Several pilots initiated in 2002 allowed for a better understanding of the major issues, and which led to the national government's move to rapidly adopt PBF as its national policy and scale-up the approach to the entire country in 2005. That initiative showed good results in terms of use of services, financial accessibility and motivation of health staff as well as in the incorporation of the private sector. A recent impact evaluation of the Rwanda experience shows that incentives had a positive effect on services in cases where the providers had more control over the delivery of services, such as the quality of prenatal care (Basinga, 2011). The preconditions for success noted are decentralizing power and management as well as verification of results balancing quantitative indicators with measurement of quality of care.

Burundi's national PBF program was introduced in April 2010 (Busogoro 2010). It is the second sub-Saharan African Country – after Rwanda- to scale up its PBF program nationwide. Between 2006-2009, pilots were conducted in nine out of 17 provinces, through the work of two implementing international agencies (HealthNet TPO and Cordaid). The program was merged with the previous 'selective free health care' policy, which provided free health care to children under 5 and to pregnant women. The Burundi government is one of the main financiers of the program ensuring that providers of previously free health services are subsidized more effectively. The program is in its early stages and no impact evaluations have been conducted,

however, a large longitudinal household survey (2006-2010) documenting changes in PBF and non-PBF provinces, is available. Early evidence points to significant increases in utilization in a relatively short period of time: for example, curative care utilization rose from 1.16 visits per child in 2009 to 1.6 visits per child in 2010; institutional deliveries increased from 51% to 62%; and the number of monthly voluntary counselling and testing increased from 36,356 to 45,495.

To summarize, the IHP PBF impact evaluation presents an important opportunity to produce evidence on how the rapid scale-up of health services with PBF intervention affects quality and quantity of care in Congolese health system. Besides USAID/DRC, the MSP is the main audience to make an evidence-based decision on whether or not to expand to the national scale. The baseline report provides an insight into the characteristics of targeted facilities and their catchment population, more importantly from the perspective of the evaluation, illustrates that the methodology used to measure results are consistent with those found in other populations and samples. The discussion also give a flavor of some emerging issues such as sustainability which will be investigated more fully in the final report by analyzing the combined baseline and follow-up data.

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