

DRC-IHPplus

TECHNICAL HIGHLIGHT

Integrated Health Project Plus

in the Democratic Republic of Congo



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Photo by Warren Zelman

The Integrated Health Project Plus (IHPplus) was implemented in the Democratic Republic of Congo (DRC) from June 2015 to June 2018 by Management Sciences for Health (MSH) and Overseas Strategic Consulting, Ltd. (OSC), under a subcontract via Pathfinder/Evidence to Action. This USAID-funded project was designed to avoid a gap in services in USAID-supported health zones upon completion of the USAID Health Office's five-year flagship Integrated Health Project (IHP) in 2015. The two major project components were direct support for service delivery and health systems strengthening activities. The service component included increased use of high impact family planning, maternal, newborn, and child health (FP/MNCH), nutrition, malaria, tuberculosis (TB), HIV and AIDS, water, sanitation, and hygiene services (WASH), and adoption of healthy practices in targeted health zones. The health systems strengthening component included improved implementation of selected policies, program advocacy, and decision-making, particularly at the provincial levels. Ultimately, the project was designed to create better conditions for, and increase the availability and use of, high-impact health services, products, and practices for more than 31 million people in nine provinces of the DRC with 168 target health zones (an increase from the 78 health zones supported by IHP).

Quality of care indicators for maternal and newborn health

A study in eight health zones in the Democratic Republic of Congo

Background and rationale for the study

Despite high rates of institutional delivery (80% overall, 74% in rural areas) in the DRC, maternal and newborn mortality remain high at 846 per 100,000 live births and 28 per 1,000 live birth,¹ respectively. Rural zones fare worse—the newborn mortality rate is 31 per 1,000 live births in rural areas, as compared to urban areas where the mortality rate is 28 per 1,000 live births. Through project monitoring in 78 rural health zones, 38 of which are priority areas, IHPplus identified that poor quality obstetric and newborn care was a major obstacle to improving maternal and newborn survival. For example, only 47% of hospitals provided comprehensive emergency obstetric and newborn care (EmONC), and less than 15% of health centers provided basic EmONC.²

Strengthening information systems to support health data use is a critical component of quality improvement. In the past, research on quality of care has focused on the availability of resources and implementation of clinical guidelines, while often ignoring the regular metrics and monitoring systems used to inform decision making and manage

¹ Ministry of Planning and Ministry of Health, DRC Demographic and Health Survey 2013-2014, Rockville, Maryland, USA : MPSMRM, MSP and ICF International

² Ministry of Health DRC, *Indice de disponibilité de capacité opérationnelle de service (SARA)*, 2014

improvement initiatives. Recognizing the lack of standardized global indicators, in 2013, the World Health Organization (WHO) and the Partnership for Maternal, Newborn, and Child Health (PMNCH), with the participation of numerous stakeholders, identified 13 indicators for assessing the quality of health care provided to mothers, newborns, and children in health facilities.³ These global core indicators, however, required further testing to determine the feasibility of collection and measurement.

As part of IHPplus, MSH focused on improving the quality of maternal and newborn health services in DRC and contributing to the growing body of work on data quality and use at the health facility level. IHPplus supported competency-based training in maternal and newborn health practices in 362 facilities as well as provision of registers and tools for data collection. The Ministry of Health's (MOH) revised approach to capacity building, which consisted of a 15-day training facilitated by gynecologists, obstetricians, and pediatricians, was used. The training included theoretical components, practice on mannequins, and clinical placements.

IHPplus wanted to understand what more was needed to support routine use of data for quality improvement. Thus, IHPplus, with the DRC's MOH and the University

of Kinshasa's School of Public Health (UK-SPH), embarked on a study to evaluate the availability, quality, and utility of selected WHO-proposed indicators for assessing the quality of maternal and newborn health care in health facilities. Nine of the 13 indicators proposed in the WHO consultation were selected for the study, focusing on indicators related to maternal and newborn health and excluding those that were outside the scope of IHPplus or not feasible to collect at the health center level. The final set included four related to maternal health, three related to newborn health, and two general indicators (table 1).

Research was designed to answer the following three questions:

1. What is the availability and quality of data for the nine maternal and newborn health quality-of-care indicators at the facility level in DRC in IHPplus-supported sites as compared to others?
2. How are essential maternal and newborn health data used in health facilities?
3. How can the MOH and IHPplus best support health facilities to monitor and improve quality of care for mothers and newborns?

Table 1. WHO quality-of-care indicators selected for the study

Maternal health indicators	Newborn health indicators
<ul style="list-style-type: none"> ▪ Proportion of antenatal care (ANC) visits at which blood pressure was measured ▪ Proportion of women who received oxytocin in the minute following birth ▪ Proportion of women with severe pre-eclampsia or eclampsia treated with magnesium sulfate injection ▪ Proportion of women with severe systemic infection or sepsis in postnatal period, including readmissions 	<ul style="list-style-type: none"> ▪ Proportion of health facilities with functional bags and masks (two neonatal mask sizes) in the delivery areas of maternity services ▪ Proportion of health facilities where kangaroo mother care (KMC) is operational ▪ Proportion of newborns who received all four elements of essential care: <ul style="list-style-type: none"> ○ Immediate and thorough drying ○ Immediate skin-to-skin contact ○ Delayed cord clamping ○ Initiation of breastfeeding in the first hour
General indicators	
<ul style="list-style-type: none"> ▪ Proportion of health facilities that had stock-outs of essential lifesaving medicines for mothers, newborns, and children in a specified period ▪ Proportion of health facilities with soap and running water or alcohol-based rub available in labor, childbirth, neonatal, and pediatric wards 	

³ WHO and PMNCH. Consultation on improving measurement of the quality of maternal, newborn and child care in health facilities. Geneva: World Health Organization; 2014.

Methods

A mixed method cross-sectional study was conducted. Four health zones where IHPplus had supported training and supervision for EmONC were selected using convenience sampling on the basis of security and location within the IHP catchment area. Each of these zones was matched with another health zone that did not receive training by the project; these were selected on the basis of geographic location, the average number of deliveries in the preceding year, population density (rural/peri-urban/urban designation), and average socioeconomic status. The selected health zones included: Dibaya, Kalomba, Luambo, and Ndekesha in Kasai Central Province; Bibanga and Dibindi in Kasai Oriental Province; and Kalenda and Mwene

Ditu in Lomami Province. Within each health zone (both intervention and comparison), the general referral hospital and three health centers were included in the sample for a total of 32 health facilities—8 general referral hospitals and 24 health centers. Health centers were selected on the basis of the highest average number of births per health zone. In each health facility, the last 10 birth records were selected for review. Ethical approval was provided for the study by review boards at the UK-SPH and Population Services International, which provides ethical review for MSH studies in the United States. All interview participants provided formal written consent to participate in the study.

Table 2. Methods and sampling by research question

Research question	Method	Sampling	Total sample
What is the availability and quality of data for the nine maternal and newborn health quality-of-care indicators at the facility level in DRC?	Birth records review	Last 10 births in each health facility	320
	Health facility assessment	Each health facility	32
How is essential maternal and newborn health data used in health facilities?	Semi-structured interviews	Hospitals: Doctor in-charge of maternity; head nurse for delivery room Health centers: Nurse in-charge or deputy	39
How can the DRC MOH and IHPplus best support health facilities to monitor and improve quality of care for mothers and newborns?	All methods	N/A	N/A

Methods included a review of birth records using a standard template based on WHO norms adapted to the context, a rapid health facility assessment, direct observations, and semi-structured interviews conducted with health providers and health administrators (table 2). Data were collected in February 2016 by eight research assistants who were trained in using the tools, including field test, and supervised by researchers from the UK-SPH and representatives from the MOH. Quantitative data were entered into Epidata 3.1. Stata 12 (StataCorp) was used for analysis. Descriptive statistics were used to summarize health facility characteristics in the intervention and comparison groups, and chi-square tests

were used to compare the intervention and comparison groups, as well as hospitals and health centers. Semi-structured interviews were recorded, transcribed, and analyzed in Dedoose.

We used a convenience sample because of the challenges of data collection in DRC, and thus may have introduced bias. For example, lower-volume facilities located in the periphery are likely different than the sample we selected. In addition, we did not observe and compare practice with reporting and thus were not always able to tease out if the observed data reflect poor quality of care or poor recording practices.

Results

A total of 32 health facilities were visited for the study, including 8 general referral hospitals and 24 health centers across the 8 selected health zones. Most health facilities were staffed by nurses—on average three per facility—and there

were no midwives nor obstetrician-gynecologists in any of the sites. One-third of health facilities were located less than 5 kilometers from the next referral level, and 5 were more than 50 kilometers away.

Table 3. Description of the health facilities surveyed

Variables	n
Type of health facility	
General referral hospital	8
Health center	16
Trained in MNCH approaches and competencies	
Yes	16
No	16
Number of persons who received competency-based training in maternal and newborn health (median) [EIQ]	1 [1-2]
Distance separating health centers from next referral level	
N/A	8
≤ 5 km	8
6-10 km	4
11-20 km	3
21-35 km	5
36-50 km	2
> 50 km	2
Personnel (median)	
General physicians	0 [0-1]
Obstetricians	0 [0-0]
Nurses	3 [2-5]
A2 level birth attendants	0 [0-0]
A1 level birth attendants (midwives)	0 [0-0]
Matrons	1 [0-2]
Nutritionists	2 [1-3]

Availability and quality of data

The Congolese National Health Information System (NHIS) only captures a few of the nine quality of care indicators for maternal and newborn health studied: only two indicators are consistent with WHO definitions, five are partially collected but not consistent, and two are not collected at all (table 4 provides more details). Several other sources of data, such as birth records, registration forms, and partographs, contain some quality of care information, but they are not analyzed and reported in the system. For example, for the purposes of this study, data on the timeliness of oxytocin administration was manually collected. The study team reviewed partographs for documentation of the time of delivery and the time of oxytocin administration and calculated the difference. For maternal complications, the charts for women with documented complications were reviewed to collect data on their conditions and were also reviewed for the type of treatment. Data from the birth records review and the health facility assessment were used to calculate each of the selected indicators.⁴ The performance was mixed, ranging from 10% to 87% (figure 1). Although the availability and quality of the data varied across the different

indicators, data availability and quality were generally poor but better at sites where competency-based training was conducted.

The indicator related to ANC performed the best, with 87% of women having their blood pressure checked during a visit; however, record quality and availability was limited for ANC. Only 10% of hospital records and 28.75% of health center records had ANC forms ($p=0.001$). Intervention sites performed better, with 38% of birth records having ANC forms versus the comparison sites in which 10% included the forms ($p=0.000$). Sixty percent of women received oxytocin in the first minute following delivery, with a lower proportion in the health centers as compared to the hospitals (58% vs. 65%). According to the records, in 10% of facilities assessed, oxytocin was not immediately provided after the birth, whereas 96 records (30%) had no information on the time of administration. Health facilities that had received the training had better quality records than those without, for example, 96.25% of intervention facility records included the time of delivery as compared to 70.63% at comparison sites ($p=0.000$).

⁴ All but four indicators were calculated using birth record reviews: percentage of health facilities with functional bags and masks, percentage of health facilities in which KMC is operational, and the two general indicators were determined through the health facility assessment.

A little more than one-third of health facilities (12) reported routinely practicing KMC, with hospitals functioning at a higher rate for KMC (50%) than health centers (33%). Three essential newborn care practices performed the weakest according to the records, with immediate and thorough drying, skin-to-skin contact, and delayed cord clamping recorded in 10–12% of reviewed charts. Early initiation of

breastfeeding within the first hour performed much better at 64%. When asked, about two-thirds of health facilities reported that they perform all of these practices routinely for each birth, thus this low performance is probably partially attributable to poor data quality. No differences were noted across the different types of health facilities.

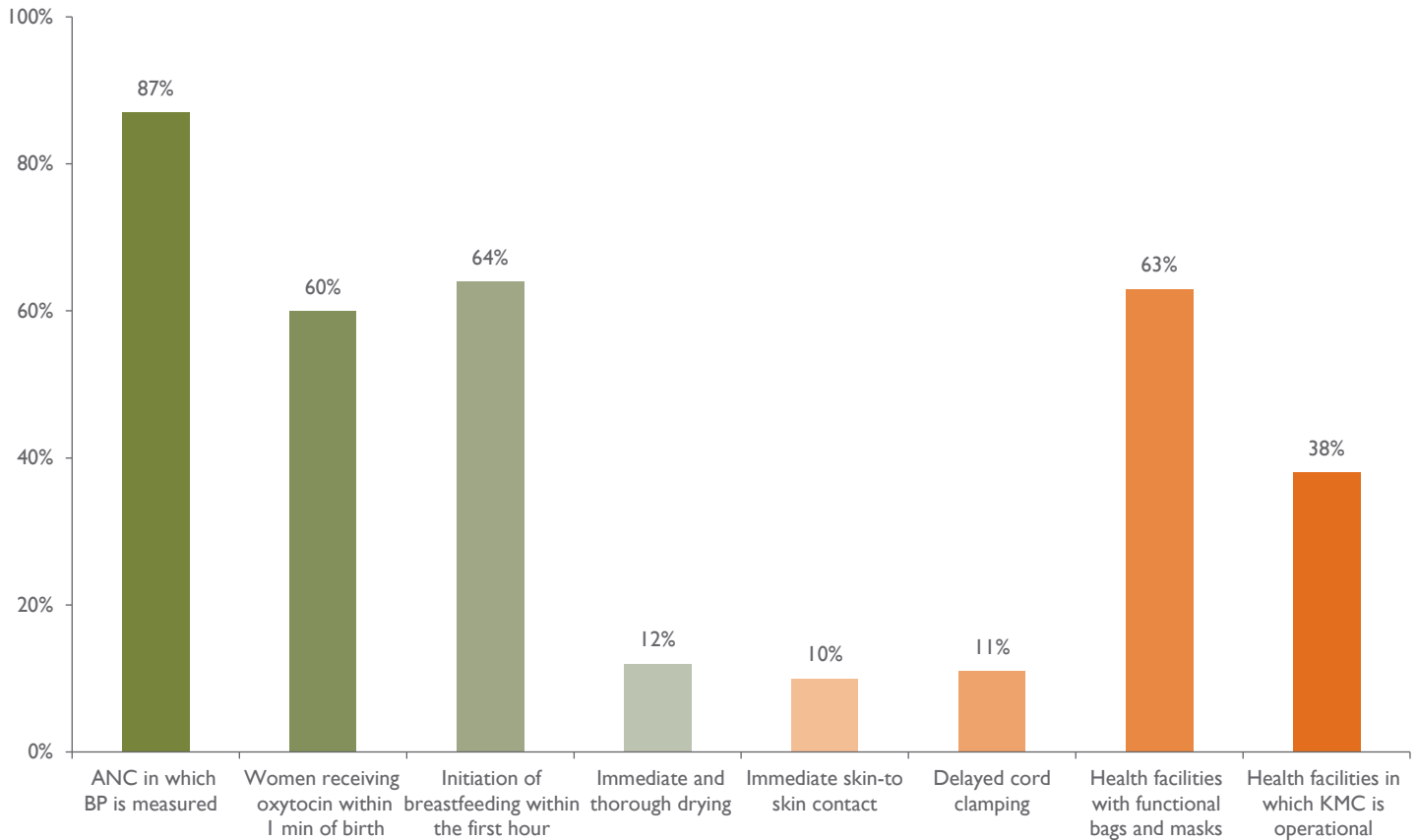


Figure 1. Performance on selected indicators across the sites

Across all sites, only eight cases of postpartum hemorrhage were found in the birth records (2.5%), although at hospitals the rate was 6.25%. No cases of pre-eclampsia/eclampsia, severe systemic infection, or sepsis were found in the postnatal period (including readmissions). To broaden the analysis, the team also reviewed the records for potential symptoms, such as fever and abdominal pain, but still found no cases. These findings are surprising, given that WHO estimates the incidence of pre-eclampsia at 8–10% in DRC. No recorded cases of neonatal sepsis were found in any of the health facilities.

The majority of health facilities (81%, n=32) had not experienced an oxytocin stock-out in the last three months, yet nearly all reported that they had never been supplied with misoprostol. More than half declared never receiving

magnesium sulfate (17/32), and only seven had not experienced stock-outs in the previous three months. Dexamethasone stock-outs had occurred in almost one-third of health facilities (11/32), and more than half said they had never been supplied with injectable amoxicillin 1 gr (17/32). Nearly half had never been supplied with ceftriaxone injection 1 gr, and 18.75% have experienced stock-outs. Chlorhexidine was available in the last three months in 66% of health facilities.

Rainwater (9/32), managed sources/protected wells (8/32), and tap (15/32) were the main sources of water supply. More than three-quarters of health facilities reported continuous availability of water and soap (25/32). The majority (28/32) are continuously supplied with antiseptic.

Table 4. Availability and quality of data in NHIS

Indicator	Quality of data	Availability in NHIS
Proportion of ANC visits at which blood pressure was measured	Antenatal consultation records were available in 77 (24%) of the charts; not included in NHIS	No
Proportion of women who received oxytocin in the minute following birth	30% (n=96) of records did not have information about oxytocin	Available but not uniformly collected
Proportion of women with severe pre-eclampsia or eclampsia treated with magnesium sulfate injection	No cases found in the records; not included in NHIS but captured in partograph	Available but not uniformly collected
Proportion of women with severe systemic infection or sepsis in postnatal period, including readmissions	No cases found in the records	No, but captured in partograph
Proportion of health facilities with functional bags and masks (two neonatal mask sizes) in the delivery areas of maternity services	N/A (observation)	No
Proportion of health facilities where KMC is operational	N/A (health facility assessment)	Yes
Proportion of newborns who received all four elements of essential care: <ul style="list-style-type: none"> ▪ Immediate and thorough drying ▪ Immediate skin-to-skin contact ▪ Delayed cord clamping ▪ Initiation of breastfeeding in the first hour 	Low coverage may indicate poor recording	Available, but not uniformly collected
Proportion of health facilities that had stock-outs of essential lifesaving medicines for mothers, newborns, and children in a specified period	N/A (health facility assessment)	Available, but not uniformly collected
Proportion of health facilities with soap and running water or alcohol-based rub available in labor, childbirth, neonatal, and pediatric wards	N/A (health facility assessment)	Yes

Use of data

Based on the semi-structured interviews, IHPplus found that data are largely recorded by nurses at both health center and hospital levels. In examining the transcripts, no doctors described their role as recording data. The doctors reported that they use the data primarily for supervision, for example, to organize supervision visits if performance appears to be poor and to review the quality of data; neither was done systematically. There were no differences between the different types of facilities included in the study.

My role is that of a coordinator. I check if what is collected is consistent with what is in the register. If there is an error, I help with the correction before transmitting the data to the health zone.

Hospital-based doctor

All informants interviewed for this study indicated that maternal and neonatal health data are analyzed in their health facility. It appears that analysis is done for two purposes: (1) reviewing and identifying errors before submitting reports; and (2) comparing the results obtained across time periods to assess achievement of objectives. Data analysis is usually conducted at routine monitoring meetings, but these are held inconsistently.

Health providers who participated in the study unanimously stated that maternal and neonatal health data are commonly used for decision making. The vast majority of respondents stated that they have often used relevant data in their services for making critical decisions in MNCH. Examples included decisions related to individual cases, such as the partograph for delivery care, and for planning, such as ANC registers to monitor when women initiate ANC. However, some discordant respondents in hospitals felt that the data needed to make critical decisions are not always available. For example, some women are referred without documents, arriving to give birth without an ANC card or referral notes.

Health providers noted that consistency, completeness, and availability of collection tools are often lacking due to multiple barriers, including disruptions in availability of tools for data collection, the large number of reports and forms to submit, poor capacity and availability of personnel, and lack of protocols for analysis. Furthermore, although some reported routinely receiving feedback on reports, including written reports with tables and graphics, many noted that they have never received any feedback on monthly reports.

Because our goal is to attend an expected 57 deliveries a month, if we have 53 women... there are still 4 women who have not arrived. Where have they delivered? It is essential to work in collaboration with the community and to find solutions in relation to that.

Charge nurse, health center

Recommended actions by the MOH and IHPplus

On the basis of these findings, major actions were recommended and carried out by the MOH with support from IHPplus. To improve the availability of data on quality, it was recommended and agreed that:

- Data collection tools (partographs, registers, NHIS framework) should be revised to make relevant data available for decision making at different levels of the system
- A chapter on indicator definitions and data collection and analysis should be added to the competency-based training to ensure that providers, especially nurses, have the skills to routinely capture quality data
- An archiving system should be set up to store files and NHIS reports and templates

After the tools were revised, they were reproduced and supplied to all health facilities.

To promote greater use of data, respondents agreed that monitoring meetings needed to be held on a routine basis and according to standards for how meetings should be conducted. Working with the MOH, IHPplus produced a

meeting guide that described the frequency, participants, and actions needed to conduct these meetings so that health facilities know how to analyze the data. Tools were provided to participants on which indicators needed to be calculated and how to calculate them.

Through these actions, it was also expected that the quality of data would improve over time, both through better skills for data capture and more routine use of collected data. In addition, it was important to develop criteria to validate data both at the level that they are produced and at the central-office level. These criteria were developed with the NHIS bureau, and health zone management teams were then trained to conduct data quality checks.

The study did not include observations on the provision and documentation of care. Therefore, we are unable to determine, in some circumstances, what was poor quality care versus poor quality data capture. Additional studies are needed to better understand this and the relationships between them.

Conclusion

In this study, the availability of data on quality of care for maternal and newborn health in health facilities was limited. Data were not systematically available to follow the continuum of quality care from pregnancy to delivery to postpartum, either for routine or emergency cases. Existing data quality was weak, as demonstrated by the absence of recorded cases of pre-eclampsia and sepsis and less than 3% reporting of postpartum hemorrhage in regions with high maternal and newborn mortality. Health facilities whose providers benefited from MNCH skills training had better data availability than those in the comparison group; hospitals and health centers differed based on the indicator itself. Of the nine indicators, two were fully consistent with the WHO definition and routinely reported in the NHIS; four were partially in line with the WHO definitions; and three indicators were not at all integrated into the NHIS.

This study shows that health providers play different roles in recording, collecting, analyzing, and transmitting data. The providers highlighted that the poor consistency and completeness of the data are affected by the lack of standard understanding of data recording and analysis. Both of these issues reflect the need to build capacity among a variety of providers to ensure that good quality data is available to guide quality improvement. All WHO quality indicators need to be routinely integrated into the health system to aid providers and managers in collecting and analyzing data to facilitate improvements in quality of care to reduce maternal and newborn mortality.

Despite these challenges, by working with the government, IHPplus was able to take decisive actions to begin mitigating the barriers to good data on quality of MNCH care.