



Reproductive Health Cost Reporting System

Results of a Pilot Test in Nigeria

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ABBREVIATIONS

ANC	antenatal care
ART	antiretroviral therapy
IUCD	intrauterine contraceptive device
MOU	memorandum of understanding
NGO	nongovernmental organization
RHCRS	Reproductive Health Cost Reporting System
SFH	Society for Family Health
STI	sexually transmitted infection
USAID	United States Agency for International Development

BACKGROUND

The objective of the MEASURE Evaluation project, which is funded by the United States Agency for International Development (USAID), is to enable countries to strengthen their national, community, and facility-based systems to generate high-quality health information that is used to inform decisions about policies, programs, and resource allocations at all levels of the health system. One of the ways the project fulfills this objective is by working to improve understanding of the costs and cost-effectiveness of health systems and health services. To this end, MEASURE Evaluation has developed the Reproductive Health Cost Reporting System (RHCRS). The RHCRS is a management tool that can help health service delivery organizations capture and analyze financial and other data on a regular basis. It is designed to treat financial, commodity, labor, and other cost data as inputs to a system that allows service delivery organizations to estimate what it costs to deliver specific health services, what the cost drivers are, and how these costs may differ across service delivery points, across regions, and over time.

As part of the development and testing of the RHCRS, we conducted two pilot tests in Nigeria. We expected to conduct pilot tests in Ethiopia and Ghana with providers associated with nongovernmental organizations (NGOs), but for several reasons, those tests were not feasible. Consequently, USAID/Nigeria agreed to test the system there.

SITE SELECTION

We initially expected to work with sites affiliated with the Society for Family Health (SFH), an NGO based in Abuja, Nigeria that primarily supports social marketing of contraceptive products. SFH provided us with a list of hospitals and clinics they work with or support. However, the sites on the list that SFH provided were mostly in the outskirts of Abuja or in neighboring states such as Niger and Nasarawa, and cost and logistical considerations called for us to work in Abuja. Therefore, we worked with an Abuja-based consultant to generate more site lists within Nigeria's Federal Capital Territory. The project reached out to more than 50 private hospitals within Federal Capital Territory in June and July of 2019. Of these, two hospitals (Hospital A, in Abuja, and Hospital J, in Gwagwalada, outside of Abuja) agreed to participate and signed memorandums of understanding (MOUs) with MEASURE Evaluation for this pilot. (To maintain data confidentiality, we will not name the two sites in this report.) A few other clinics and hospitals showed strong interest, but the rest were skeptical and unwilling to release their cost information. The two hospitals that agreed to participate in the pilot were enthusiastic. Both were eager to discover what contributed to their cost factors and see if that knowledge could help them improve their service, at the lowest possible cost to the patients. Our target was to pilot the RHCRS with two facilities, so we selected the first two that signed an MOU. Others reached out after we started the pilot, and these facilities are good candidates for a scale-up stage, should the opportunity present itself.

Hospital A is a private “one-stop” multispecialty hospital. The mission of Hospital A is to bridge gaps in services available in the local healthcare system by drawing on the resources of a highly skilled, hardworking, and well-motivated team of vibrant medical specialists in their fields of medicine, backed by modern state-of-the-art medical equipment to provide a wide range of efficient health services for Nigerians.

Hospital J is also a private medical hospital on the outskirts of Abuja in the Federal Capital Territory. This hospital also provides efficient health services to citizens of Nigeria and others, offering affordable care to the populace across diverse service areas. Hospital J is in a semiurban section of Abuja and serves a large population of low-income clients. As a result, this hospital also offers a lot of charity services, according to the chief medical director. Hospital J leadership particularly wants to know cost factors that can help them position their institution to continue to serve their clients and remain in business.

STEPS IN THE PILOT TESTS

After each hospital committed to participate in the pilot by signing an MOU, we conducted a one-day overview and orientation to the system for hospital staff at each site, with an emphasis on each component, especially the data capture. Cooperation was generally very good, but some personnel were difficult to access, especially during the time and labor interviews. In Hospital A, the orientation training included staff from all the departments in the hospital (laboratory, pharmacy, nursing, clinical, medical records, radiography, human resources, administrative, procurement, finance, etc.), and in Hospital J, the orientation included staff from all departments.

Reproductive Health Cost Reporting System: A User Guide contains a complete description of the items necessary to set up and use the RHCRS.¹ The two pilot sites quickly took these steps:

Configuration of the system to reflect the situation in the hospital required the following:

- A list of all services delivered
- A classification of services by service type
- A list of employee types and average salaries by type
- A list of all commodities and their related unit costs
- A map of commodities used for each service the program offers

Data capture consisted of the following:

- Generating the following Excel sheets—through the online RHCRS blank data capture:
 - Labor time per service for each labor type
 - Commodities purchased, capital acquisitions, number of clients provided with each service during the year, recurrent costs incurred, training costs and number of staff by type
- Filling in the data in the Excel data-capture sheets
- Mapping commodities to services
- Uploading the Excel sheets to the online RHCRS system

Reports generated after all the data were uploaded and online were these:

- Unit costs per service
- Unit costs per service by cost element

¹ Moreland, S., Foley, S., & Gobin, S. (2018). Reproductive Health Cost Reporting System: A User Guide. Retrieved from <https://www.measureevaluation.org/resources/publications/ms-18-126>

ASSESSMENT OF THE PILOT TESTS

The two pilot tests went well. The test in Hospital A was more successful than the test in Hospital J, which had computer and Internet connectivity issues and staffing availability issues. Our assessment of the pilots is organized around engagement, data capture, data analysis, and future sustainability. Although we wanted to include a data use component in the pilot, time and resource constraints precluded that. An assessment of the pilot experiences follows.

Engagement of the Pilot Site

What were some of the main factors that motivated the hospitals to work with MEASURE Evaluation on the RHCRS Pilot?

The leadership of Hospital A was motivated to find out the actual cost (or cost benefits) of healthcare services that the hospital offers. The leadership and management explained that a lot of money is being spent to run the facility, so they expected the RHCRS to help them determine their profit or loss margin. They were also motivated to work with us because they hoped that the RHCRS would enable them to keep effective records and gather useful data.

The leadership of Hospital J was motivated to participate in the pilot when they discovered that the RHCRS would help them determine patient charges per service and, as a result, manage funds and budget more efficiently. Senior management at Hospital J informed us that they have been costing based on “cost assumptions per patient.” They believed that the RHCRS could help them solve the challenges of costing. They were also motivated to work with us by the hope that the RHCRS would enable them to improve their records and data.

With whom did the project work?

In Hospital A, the project had conversations and discussions with the top management body, which led to the signing of the MOU, and a top human resource manager was assigned to work with us alongside two other support staff, both of whom were data clerks.

In Hospital J, we had conversations and discussions with the top management. The hospital’s administration manager was assigned to work with us along with two other support staff.

On a scale of 1 to 5, how engaged were they?

Our consultant reported that for Hospital A, top management’s support of the pilot—on a scale of 1 to 5—received a score of 4, clinical staff, 3; and procurement staff, 2.

In Hospital J, all staff with whom the consultant engaged were very cooperative, and she assigned all a score of 5.

Data Capture

Were data available easily for the system?

Hospital A was very open with its data, and all available data requested were released and entered in the system.

In the case of Hospital J, data capture was challenging because of weak record keeping. Also, Hospital J originally neglected to complete the matrix that maps health commodities to particular services. After this

oversight was noted, Hospital J began to fill in the information but was slow to do so, mainly because this was a time-consuming task given the large number of services and commodities.

Which data were the easiest and which were the most challenging to collect?

For Hospital A, the easiest data to collect were the service delivery, labor cost, and training data. The most challenging were capital cost and commodity cost data, owing to inappropriate records. For example, the RHCRS system requires the mapping of commodities to services, where appropriate, and this often proved a challenge for the hospital staff because it was a new concept for them.

For Hospital J, the easiest data to collect were those on recurrent cost, labor cost, and training. The most challenging were commodity cost data, owing to inappropriate data records.

Were there any data that we could not get?

For Hospital A, we were not able to get the actual and correct data of commodities that were consumed for laboratory services.

For Hospital J, we were able to obtain most but not all of the required data. One of the key pieces of data concerns the commodities. Each of the commodities must be mapped to the services that use it, and Hospital J neglected to fill in this matrix. When staff started to correct the omission, they ran into computer issues and Internet connection issues, which are ongoing.

How cooperative were providers during the service time interviews?

Each of the hospitals assigned an overseer and a data clerk; however, we needed to interview representatives of various points of service, and because of scheduling problems, some staff in Hospital A could not give us the amount of time required for the interviews. Nevertheless, we received enough information to populate the RHCRS. In Hospital J, staff were cooperative when appointments were set up, and they were willing to work independently.

How did the RHCRS Excel data capture sheets work? Were there any issues in uploading?

For both hospitals, the Excel data capture sheets worked well and were easy to use. There were neither issues in downloading the data entry sheets nor in uploading the completed files.

Data Analysis and Display

Who at the hospital reviewed the results?

In the case of Hospital A, the human resources manager reviewed the results. At Hospital J, it was the administrative manager.

Did the system produce cost reports that seemed reasonable and understandable?

In both hospitals, the results were reasonable. For example, those procedures that require a lot of staff time or health commodities were more costly. A sample of results for both sites is shown in the Appendix.

Were any results surprising to the hospital?

In both cases, according to interviews, the hospitals were surprised by the high cost of the consumable commodities in the different units.

Sustainability

Will the hospital work to fill in some of the data gaps?

Hospital A had few data gaps to fill in, and Hospital J worked diligently to complete the commodity-service matrix. However, both hospitals must set up structures to continue updating the system with new commodities and services.

Will the hospital continue to work with the RHCRS and update it with new data?

During briefings with both hospitals, the managing directors were enthusiastic about the RHCRS and said they would like to continue to use it. Both hospitals have said they will update the system at the end of the year. However, for this to be a reality, the hospitals will have to define and assign new roles for the staff who would help with data capture, especially for a second round of data.

What areas worked best?

The Excel worksheet (data capture sheet) was easy to work with. Downloading, data entry, and uploading all went smoothly when the system was functioning.

Challenges Encountered

- The process of linking commodities to services was time-consuming. Hospital A offered 179 services using 679 commodities, and Hospital J offered 200 services using 431 commodities.
- Hospital staff encountered a few glitches in the system, which seem to be related to Internet connectivity. However, these issues were resolved in the course of the work.
- Data on the cost of commodities were difficult to collect because of poor documentation or records that were unavailable.
- Data on laboratory commodity quantities and costs were not available in the two facilities.
- Some clinical staff were not available for the necessary interviews to collect information for the service time module, possibly owing to their busy schedules.

RESULTS

Data were collected for 2018. The Appendix contains two tables that show a sample of results for the two hospitals of the cost per element for several services, with a focus on reproductive health services. They show considerable variation in the cost-per-service elements across services and between the two hospitals. For example, the cost for child immunization in Hospital A (3,341) is ten times that for Hospital J (341).

Figures 1 and 2 show the weighted average distribution of each of the cost elements of the services reported in the two tables in the Appendix. As expected, labor costs are the most important element. Capital costs are the second most important.

Figure 1. Cost element distribution for 19 services at Hospital A

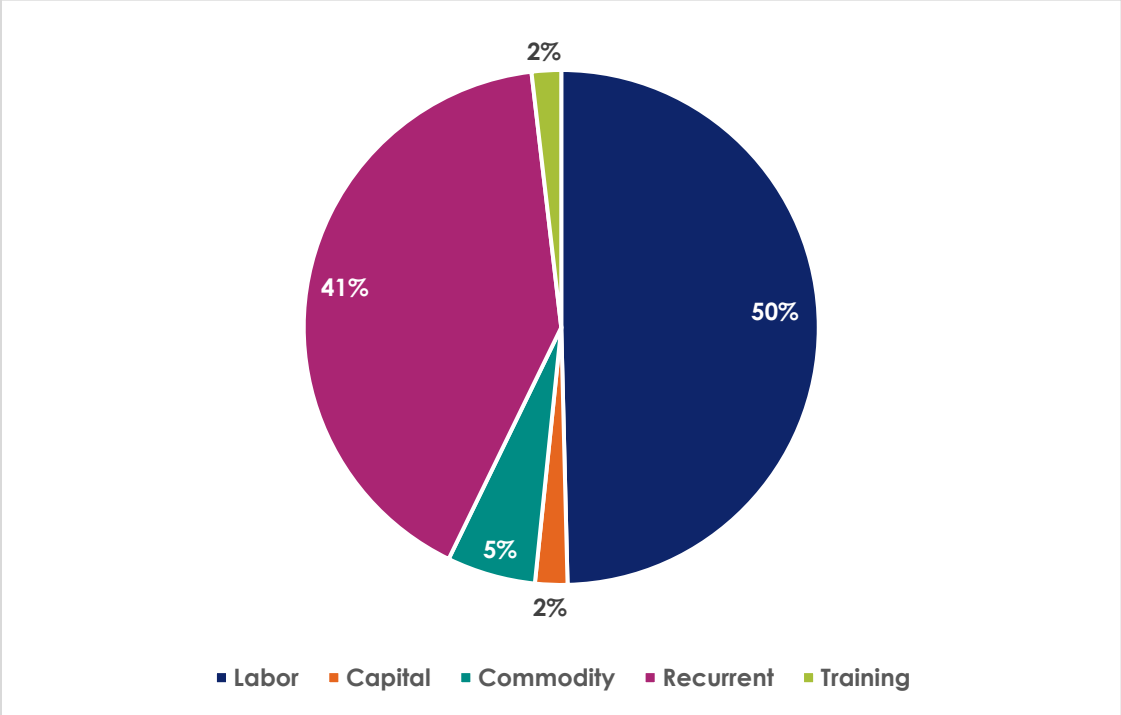
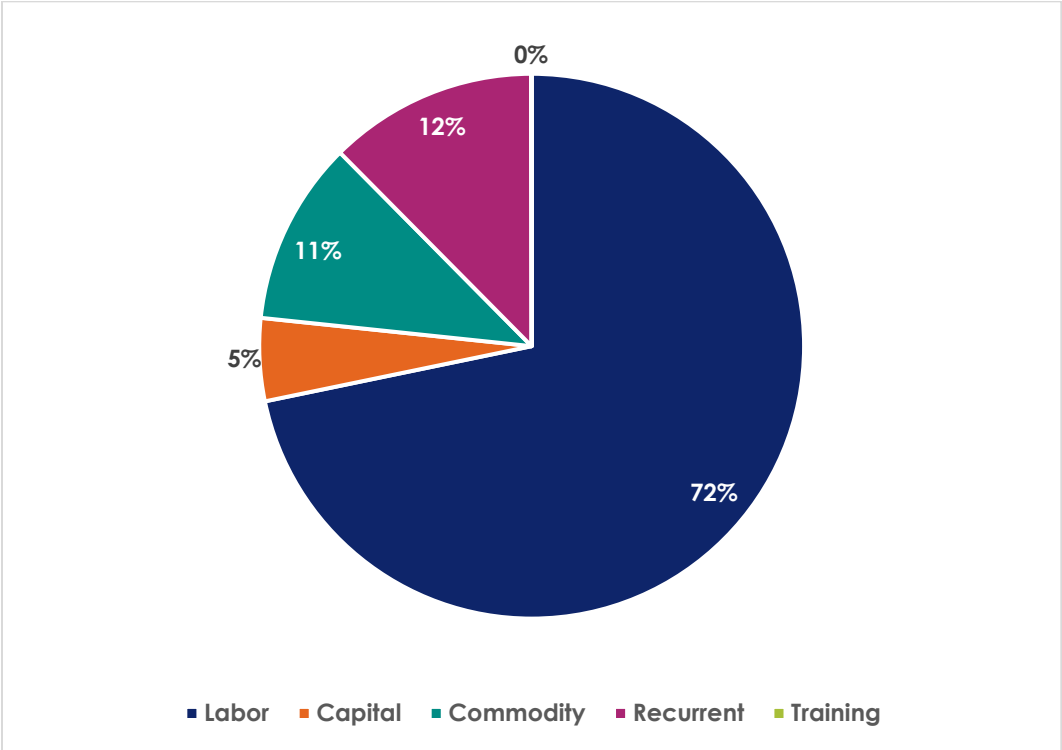


Figure 2. Cost element distribution for 51 services at Hospital J



DISCUSSION

We pilot-tested the RHCRS in two private-sector hospitals in Abuja, Nigeria. Both hospitals were enthusiastic about participating in the pilot tests because they were interested in learning what their services cost, and because they saw the exercise as a way to learn what their data looked like. As noted, the RHCRS uses existing data from different reporting systems, but rarely, if ever, are these viewed together. For example, the pilot tests allowed management to see data on service counts for their services alongside data on commodity costs and labor costs.

Although the engagement of the designated hospital staff was generally good, it was not consistently so. This was largely because the data gathering was time-consuming and was added to the staff's normal workload. Some of the time burden was undoubtedly a result of the start-up costs of learning and configuring the system for the first time, and any updates (e.g., for a second year), should take less time. Also, if the hospitals are to adopt the RHCRS as a management tool, they will need to include this in the job descriptions and management structure of the hospital. In the case of the two pilots, it was the MEASURE Evaluation consultant who provided the supervision and data quality checks. The user guide could be amended to include a supervision and management section and a section on data quality.

Although the orientation we provided to the two hospitals was adequate for the pilot, if the system is to be used by other providers, a more developed training manual (as an adjunct to the user guide) would be helpful.

The online software system works well but could be streamlined in places to make it easier to use. Such changes to the system would not be expensive but are beyond the budget for the current project.

In conclusion, we can say that the RHCRS system works and does what it is supposed to do. However, to be sustainable and useful as a management tool, organizations must embrace it and set up clear management and reporting structures to ensure that data are uploaded and that data quality checks are in place. These conditions are no different from those necessary to successfully set up, maintain, and use any routine health information system.

APPENDIX

Table 1. Hospital A cost per service, by element for selected services (In Naira)

Service	Service count	Labor	Capital	Commodity	Recurrent	Training	Total cost per service
Antenatal care (ANC) Visit 1–4	231	195	10	100	197	9	510
ANC visit 1	321	195	7	75	142	6	425
Cervical cancer	50	32,695	315	2,923	6,364	288	42,583
Cervical cancer screening (Pap smear)	45	4,087	350	200	7,071	320	12,027
Child immunization	250	1,752	72	70	1,455	66	3,414
Child nutrition counseling	180	321	7	372	139	6	845
Generalized sexual and reproductive health counseling	34	321	36	67	735	33	1,193
HIV-positive pregnant mother care and support and follow-up	40	584	84	67	1,705	77	2,517
HIV/rapid test	35	973	80	224	1,623	73	2,974
High vaginal swab	83	973	34	224	685	31	1,946
Implant initial consultation	30	2,335	150	67	3,030	137	5,719
Implant insertion	25	4,671	180	355	3,636	164	9,006
Implant removal	18	2,335	250	306	5,050	228	8,170
Indirect comb test	2	730	1,404	1,492	28,409	1,285	33,319
Infertility care initial	16	13,623	983	863	19,886	899	36,254
Infertility care revisit	10	9,536	1,573	67	31,818	1,439	44,432
Intrauterine contraceptive device (IUCD)	6	487	468	234	9,470	428	11,086
IUCD initial consultation	5	1,168	899	67	18,182	822	21,137
IUCD insertion	8	4,671	562	254	11,364	514	17,364
IUCD removal	5	2,335	899	67	18,182	822	22,305

Table 2. Hospital J cost per service by element for selected services (in Naira)

Service	Service count	Labor	Capital	Commodity	Recurrent	Training	Total cost per service
ANC visit 1–4	67	1,687	40	74	102	0	1,903
ANC visit 1	35	1,124	77	29	195	1	1,427
Antiretroviral therapy (ART) consultation	109	346	15	5	39	0	405
ART follow-up	32	346	52	16	131	0	545
ART adherence counseling	109	-		18			18
Birth preparation and counseling	89	649	35	856	89	0	1,628
Cervical cancer management	2	2,941	3,545	3,000	8,928	25	18,438
Cervical cancer screening (Pap smear)	26	2,205	273	115	687	2	3,282
Cervical cancer screening (visual inspection with acetic acid)	24	1,470	295	-	744	2	2,512
Child immunization	165	281	16	2	41	0	341
Child nutrition counseling	76	324	41	1	104	0	471
Delivery breech	5	1,124	542	20,146	1,365	4	23,182
Delivery Cesarean section	20	3,373	136	4,694	341	1	8,545
Delivery forceps	10	2,811	271	2,016	683	2	5,783
Delivery spontaneous vaginal delivery	30	2,811	90	15	228	1	3,144
Family planning counseling	819	454	4	1	10	0	469
Female condom follow-up consultation	50	324	63	10	158	0	555
Female condom initial consultation	100	324	31	24	79	0	458
Generalized sexual and reproductive health counseling	89	389	35	3	89	0	516
HIV partner test and notification	150	519	11	108	28	0	666
HIV-positive pregnant mother care, support, and follow-up	30	519	56	-	140	0	715
HIV screening (respiratory syncytial virus)	268	281	10	6	25	0	322
HIV/ rapid test	300	562	9	5	23	0	599
IUCD follow-up	20	519	156	8	394	1	1,078
IUCD initial consultation	30	649	104	5	263	1	1,021
IUCD insertion	30	973	104	55	263	1	1,396
IUCD removal	20	973	156	83	394	1	1,607

Service	Service count	Labor	Capital	Commodity	Recurrent	Training	Total cost per service
Male condom initial consultation	10	195	313	10	788	2	1,307
Male condom resupply and follow-up	10	130	313	10	788	2	1,242
Other contraceptive service	20	324	156	138	394	1	1,013
Pelvic inflammatory disease	20	2,205	354	5	893	2	3,460
Post-exposure prophylaxis consultation	10	346	167	-	420	1	934
Post-exposure prophylaxis follow-up	10	346	167	-	420	1	934
Postnatal care	50	562	54	16	137	0	769
Preexposure prophylaxis consultation	20	346	83	-	210	1	640
Preexposure prophylaxis follow-up	20	346	83	-	210	1	640
Pregnancy test	135	562	20	57	51	0	690
Pregnant mother Tt1–2 vaccination	180	281	15	-	38	0	334
Prevention of mother-to-child transmission consultation	20	519	83	-	210	1	813
Prevention of mother-to-child transmission test	30	692	56	36	140	0	924
Prevention of reproductive organ cancer	10	2,941	709	-	1,786	5	5,440
Primary postpartum hemorrhage	10	562	271	30	683	2	1,548
Provider-initiated counseling and testing consultation	10	346	167	108	420	1	1,042
Provider-initiated counseling and testing test	10	450	167	108	420	1	1,146
Psychosexual counseling	30	649	104	-	263	1	1,016
Rape diagnosis and treatment	5	4,411	1,418	-	3,571	10	9,410
Sexually transmitted infection (STI) counseling	190	1,297	16	5	41	0	1,360
STI partner test and notification	250	173	7	4	17	0	200
STI screening	160	519	10	-	26	0	556
Syphilis serology in pregnancy	2	1,124	1,355	475	3,414	9	6,378
Urinary tract infection	120	1,470	59	77	149	0	1,756
Vaginitis	12	2,205	591	200	1,488	4	4,488

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