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DQA STRATEGIC PLAN FOR THE PMTCT PROGRAM IN CAMEROON

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CHAPTER 1: BACKGROUND

1.1 Introduction

With adult HIV prevalence at 4.5% in 2012 (DHS. 2011), Cameroon's population of close to 21 million (2010 census figures) faces one of West and Central Africa's most severe epidemics. Approximately 660,000 Cameroonians currently live with HIV (UNAIDS epidemiological fact sheets, 2014), and women account for a larger disease burden (5.6% in women compared to 2.9% in men) with an estimated 7.8% of pregnant women HIV-infected (HIV+). Quality data from the HIV/AIDS information system are needed to design interventions, quantify progress towards targets, improve program performance and manage resources efficiently.

Since April 2012, the Cameroon Ministry of Public Health (MOH), ICAP, and other partners and stakeholders have been collaborating to harmonize and strengthen the PMTCT/MNCH program in Cameroon through revising and integrating the data collection and reporting tools to capture data for PMTCT, Gyneco-obstetric care and Family planning. As a result, PMTCT/MNCH data collection and reporting processes in Cameroon are now standardized for all service providers (state owned, confessional and private health facilities) within one information system with paper-based recording and reporting at sites and a mix of paper-based and electronic reporting at district, regional and national levels. However, unreliable data has been noted in the routine information system and different approaches to assure the quality of data are used by different stakeholders. These differences highlight the need to also standardize the data quality assurance approach to ensure availability and use of quality data in the PMTCT/MNCH program.

The development of this strategic document is guided by Cameroon National (2014-2017) Strategic Plan, on HIV and AIDS that emphasizes strengthening of monitoring, evaluation and use of quality data for decision making. This document operationalizes the data quality assurance mandate stated in National Strategic Plan of HIV/AIDS (PSN 2014-2017). This Data Quality Assurance Strategy also aligns with other national and international development plans (Box 1).

Box 1. Guiding documents

- Cameroon National Strategic Plan 2014-2017
- Cameroon Vision 2035
- Cameroon Vision 2035 Sector Plan for Health
- Millennium Development Goals

1.2 Definition of Data Quality and Data Quality Assessment

Quality data are data that are valid, reliable, accurate, precise, and complete and timely. Some key dimensions of data quality are defined in Table 1. Data quality assessments (DQA) provide evidence to show if the information collected cumulatively represents the program or project activities. These assessments provide the opportunity for reviewing data, understanding its weaknesses and strengths as well as identifying areas of improvement.

Table 1: Operational definitions of data quality dimensions

Accuracy	Accuracy refers to the extent to which the data reflect the actual/correct information. It defines validity of the data and is achieved by minimizing errors from recording or interviewer bias and transcription.
Completeness	Completeness means that an information system from which the results are derived is appropriately inclusive: It represents the complete list of records (eligible persons) and the fields in each record are provided appropriately.
Reliability	The same results are obtained when the same indicators are measured more than once using the same method(s).
Precision	This means that the data have sufficient detail. For example, an indicator requires the number of individuals who received HIV counselling & testing and received their test results, by sex of the individual. In this case, an information system lacks precision if it is not designed to record the sex of the individual who received counselling and testing.
Timeliness	Data are timely when they are up-to-date (current), and when the information is available on time. Timeliness is affected by: o the rate at which the program's information system is updated; o the rate of change of actual program activities; and o when the information is actually used or required
Integrity	Data have integrity when the system used to generate them is protected from deliberate bias or manipulation for political or personal reasons.
Confidentiality	Confidentiality means that clients are assured that their data will be maintained according to national and/or international standards for data. This means that personal data are not disclosed inappropriately, and that data in hard copy and electronic form are treated with appropriate levels of security (e.g. kept in locked cabinets and/or in password protected files).

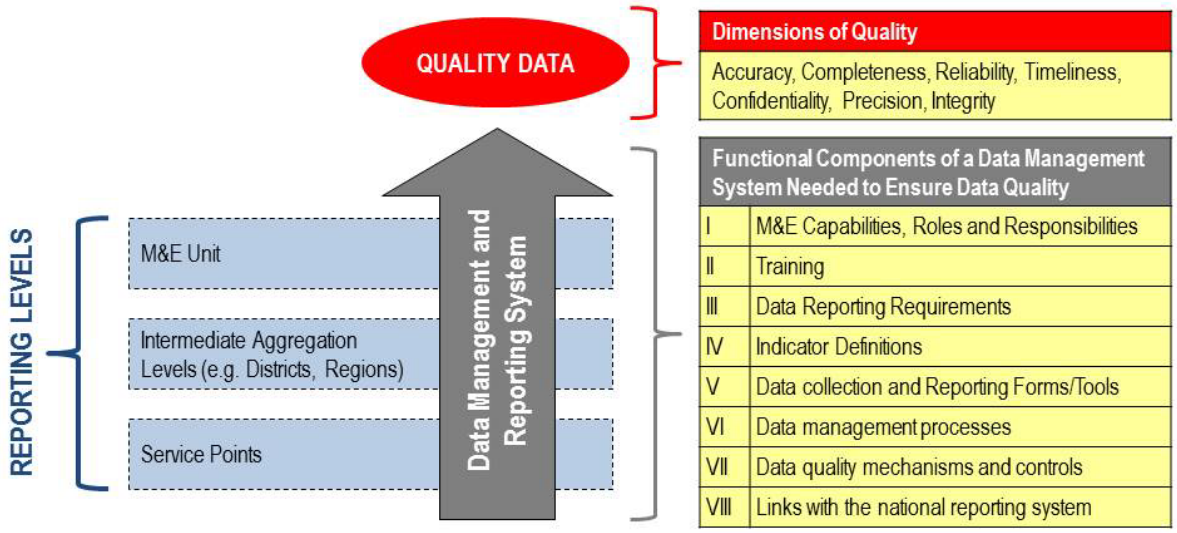
1.3 Purpose and Focus of DQA strategy

This strategy will support the availability of quality data for evidence-based decision making, resource allocation, policy development and ultimately improve the quality of PMTCT/MNCH services in the country by policy makers, program managers and health service providers. It is a framework for the execution of data quality activities by all stakeholders, including health facility, district management, regional and central level teams as well as teams from development partners, non-governmental organizations, International agencies, private sector, faith based organization (FBO) and community based Organization (CBO). Paper based and electronic tools will be used to implement data quality assessments at all levels of the health pyramid.

1.4 Conceptual framework

The quality of reported data and use of information is dependent on the underlying data management and reporting structures. Key functional components of a data management and reporting system are required at all levels of the system to ensure good quality data. The relationship between the structures and key components of data management system, and the quality of data are highlighted in Figure 1.

Figure 1. Conceptual Framework: Data Management and Reporting Systems, Functional Areas, and Data Quality. Available at http://www.cpc.unc.edu/measure/resources/publications/ms-08-29.



CHAPTER 2: DATA QUALITY ASSESSMENT METHODS

This chapter outlines the procedures and tools to use in conducting a DQA to routinely identify data quality gaps at facility level and monitor activities to improve data quality. The methods described here will assess if health facilities are collecting and reporting data accurately, completely and on time, and whether the data agree with results from other data sources.

2.1 Tools

A job aid to guide users through DQA data collection including using the DQA tool is provided in Appendix 1. There are four main parts to the DQA tool (Appendix 2), and an additional data collection tool is also provided to help assess completeness in Part A (Appendix 3). After the assessment has been conducted, a Site Level Score Card is generated (Appendix 4).

Parts of the DQA tool

- Part A. Documentation Review. This part of the DQA is used to assess availability of source documents (registers) as well as the completeness and accuracy of client records in the registers.
- Part B. Cross-check recorded results with other data sources. Cross-checks involve comparing entries in one source document to the same or related entries in another source document. This will help in determining how valid and consistent are information captured at site in the different registers.
- Part B. Recounting reported results. This part enables a quantitative comparison of recounted data to reported data to assess reporting accuracy.
- Part D. Timeliness of reporting. This part is used to assess availability of reports and timeliness of recent reporting.

Format to use DQA tool

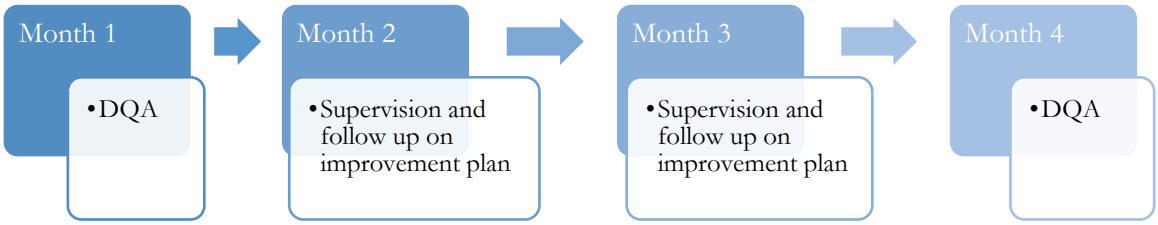
The DQA tool has been prepared to be used either electronically or in paper-based format. If data will be entered into the DQA tool electronically, the Site Score Card will generate automatically in the template and can be printed to provide a copy for feedback to the health facility. If data collection will be completed on paper, the DQA tool and completeness form have been formatted in a PDF document for easy printing. In this paper-based version, the DQA tool itself has spaces to write the summary and final comments, and thus the DQA tool will serve as the Site Score Card and feedback for the health facility.

2.2 Planning

Periodicity

Where possible, DQA should be conducted quarterly followed by supervision and follow up of the improvement plan for data quality. If quarterly visits to every site are not possible, high volume facilities or facilities that have identified problems should be prioritized for more frequent visits. However all facilities should have a DQA conducted at least once per year as a minimum since DQA activities are an important part of supervision and support provided to the site by the District MOH staff.

Figure 2. Example DQA schedule of prioritized health facility.



Selection of Data Elements, Indicators and Cross-checks

Three master lists of recommended data elements, indicators and cross-checks have been prepared based on data quality issues observed during supervisions and trainings of end users (Appendices 5-7). During each DQA, five should be selected from each of these lists to be assessed at the health facility. Five data elements per register will be used with the PMTCT/MNCH registers in Part A to measure completeness, the indicators will be used in Part B to compare recounted results to the monthly reporting form, and the cross-checks will be used in Part C to measure accuracy across different data sources.

Selection of reporting period

DQA can only be conducted for a time period that has been completed and the results already reported. In addition, the time period selected should come after the most recent DQA so that any changes to data management practices that have happened since the last DQA will be represented. For instance, if the previous DQA was in April and a DQA is being conducted during the month of July, the month of May or June should be selected to assess.

2.3 Implementation

Source documents

Antenatal Care, Labour and Delivery, Laboratory, Postnatal Care-Mother and Postnatal Care-Infant registers will be the primary source of data, as well as the PMTCT/MNCH monthly reporting forms. If a health facility uses other registers or source documents for related PMTCT/MNCH data, these can also be used during cross-checks to verify consistency of data.

Supervision of DQA activities

While the District MOH should visit all health facilities in their District to conduct DQA regularly (see first section under 2.2 on periodicity), the Regional and Central MOH, as well as other supporting Implementing Partners, will participate in a subset of DQA visits to supervise and support District level MOH staff according to a supervision schedule determined by each group.

Debriefs and improvement plan

Key findings from the assessment should be shared with the management of the health facility immediately after the assessment. An improvement should be developed in collaboration with the facility management and progress reviewed at each follow up visit. In addition, data from all assessments conducted should be compiled and summarized to be presented during coordination meetings at the district and regional levels.

Ethical considerations.

The data quality assessment must be conducted with the utmost adherence to the ethical standards of the country and, in line with the norms of the MoH. While the DQA teams may require access to personal information (e.g., medical records) for the purposes of recounting and cross-checking reported results, under no circumstances will any personal information be disclosed in relation to the conduct of the audit or the reporting of findings and recommendations. The team should neither photocopy nor remove documents from sites.

CHAPTER 3: ROLES AND RESPONSIBILITIES OF STAKEHOLDERS

Accurate and reliable information are of value to decision makers. When decision makers have access to high quality data, they are more likely to invest in information systems and hence data quality improvement as a part of such a system. Stakeholders are responsible for directing and supporting staffs so that they may effectively perform their duties. This lays emphasis on mentoring by focusing on joint assessment and collective problem solving, strengthened relationship and two-way communication.

Table 2: Roles and Responsibilities of Stakeholders for PMTCT / MNCH DQA

Stakeholders	Role in Identifying quality issue	Role in addressing data quality issue
MoH	▪ Provide feedback on the quality of data available for policy planning. ▪ Analyse and use data, disseminate findings. ▪ Provide supportive supervision. ▪ Monitor the quality of data collected through the different data collecting systems. DHIS, MFL, MCUL and provide feedback.	Support implementation of DQA protocol. ▪ Advocate for quality PMTCT information. ▪ Finance activities to implement data quality assessment. Operationalize the implementation of DQA: ▪ Provide national guideline such as standard operating procedure. ▪ Develop and disseminate PMTCT information product and provide data quality feedback to all levels.
Donors, Development partners and implementing partners.	▪ Provide feedback on the quality of data available for planning and program monitoring, ▪ Participate in DQA exercise. ▪ Provide supportive supervision.	Support implementation of DQA protocol: ▪ Ensure the use of HIV information towards support of the integrated PMTCT information system. ▪ Provide resources (both technical and financial support) for implementation of DQA protocol. ▪ Use the national PMTCT information system.
REGIONAL LEVEL		
Regional HIV/PMTCT Management Team	▪ Monitor and analyse data received from district provide feedback on data quality, ▪ Participate in DQA, ▪ Provide supportive supervision.	Support the implementation of DQA protocol and supportive supervision in collaboration with the district staff to health facilities. ▪ Oversee the development of data improvement action plan at health facility level. ▪ Coordinate and supervise the implementation of action plan to improve data quality.
District Team HIV/PMTCT	▪ Monitor and analyse data received from health facility and provide feedback on quality data, ▪ Participants in DQA exercise, ▪ Provide supportive supervision.	Support the implementation of DQA protocol and supportive supervision at health facilities. ▪ Initiate the development of data improvement action plan at health facility level. ▪ Follow up the implementation of action plan to improve data quality.
SERVICE DELIVERY LEVEL		
Facility management Team	▪ Provide feedback on the quality of data available for planning and program monitoring. ▪ Validate data with facility staff.	▪ Allocate resources, ▪ Ensure that data quality forums are held, ▪ Provide routine support supervision and convene regular data review meetings to ensure data quality assurance. ▪ Assist in debriefing meetings of DQA exercise.
Health workers	▪ Monitor data collected and provide immediate feedback to staff responsible for recording and entering data.	▪ Implement DQA protocol, ▪ Ensure quality collection of quality data and sharing of information to management/decision markers/stakeholders. ▪ Assist in debriefing meetings of DQA exercise.

APPENDICES

Appendix 1. Methodology to use DQA Tool, a Job Aid

Appendix 2. DQA Tool

Appendix 3. Data Completeness Tool

Appendix 4. Site Level DQA Score Card

Appendix 5. Master List of Data Elements Selected

Appendix 6. Master List of Indicators Selected

Appendix 7. Master List of Cross-checks Selected

Appendix 1: Methodology to use DQA Tool, a Job Aid

1) Enter the information at top of DQA tool about where and when review takes place and select a reporting period to review since last DQA.
2) Part A. Collect all relevant PMTCT/MNCH registers for Documentation Review.
    a. Q1 and Q2. Answer "Yes" "Partly" "No" or "N/A" for each register.
    b. Q3-Q4. Fill in Completeness Form.
        i. Select 5 columns to review in each register, enter the column number in the top row. Randomly select 20 clients (example n°1 1st page of the reporting month, n°2 in the 2nd page) from each register and enter their serial numbers in the first column under each register. Assess the completeness and accuracy for each entry in the register, using the following codes :
            - Record 0 when data which are supposed to be filled are missing
            - Record 1 when data are recorded correctly
            - Record 2 when data are recorded that are not supposed to be recorded
        ii. For each column used, count how many 0s, 1s and 2s were entered and calculate the % completeness and % accuracy. Calculate the average %s for each register.
    c. Q5. Enter any comments on findings from Documentation Review.
3) Part B. Use the same registers as for Part A, as well as any other supplementary data sources.
    d. Q6. Select and record 5 cross-checks from list to review.
    e. Q7-Q8. Randomly select 20 clients from ANC register from the reporting months before the time period selected for review, e.g. women who would have time to have given birth and returned for postnatal follow-up. Trace these clients through all relevant registers at the facility to check for agreement in related fields, according to the cross-check list items selected.
    f. Q9. Calculate the % consistency.
4) Part C. Collect all monthly reporting forms (MRF) available from the select reporting period.
    g. Q10. Select and record 5 indicators from list to review.
    h. Q11-Q12. Recount selected indicators from the registers. Fill in the recounted numbers and what was reported in MRF.
    i. Q13-Q15. Calculate the ratio Recounted/Reported, the absolute value of the ratio and fill in comments.
5) Part D. Q16-Q20. Use the MRFs from Part C and review for their availability and timeliness.
6) DQA Site Score Card.
    j. Electronic use. All information and scores will auto-populate in the Site Score Card sheet. Print a copy to provide feedback to the health facility.
    k. Paper-based use. Fill in the summary column at the far right of the paper-based DQA tool and final comments at the end of the document. Make a copy to provide feedback to the health facility.
7) **After DQA data collection and scoring, hold a debriefing meeting with Chief and staff of HF or DMO to review results and develop recommendations to improve performance.**

Appendix 2: DQA Tool

PMTCT/ MNCH DATA QUALITY ASSESSMENT TOOL : Electronic version							
Name of Health Facility							
District, Region							
Date of Review							
Reporting Period Reviewed							
Note: empty cells in white need to be filled in directly; empty cells in gray are calculated either by hand or autopopulate in excel							
A - Documentation review: Review availability and completeness of all indicator source documents for the selected reporting period.							
Answer codes for Part A, Q1 and Q2:		Yes (completely)		Partly		No (not at all)	N/A
		ANC	L&D	PNC-M	PNC-I	Lab	COMMENTS - detailed responses will help guide strengthening measures
1	Review available source documents for the reporting period being verified for each of the integrated PMTCT / MNCH registers. Is the register available?						
2	For each available register, review data from the time period since the last DQA. Is the register being used for all eligible entries?						
3	Using the completeness tool, determine the % compleness for up to 20 client records for up to 5 columns in each register. What is the overall completeness for each register?						
4	From the completeness tool, what is the overall recording accuracy for each register?						
5	If source documents are not available or not complete, comment on how this might have affected reported numbers.						
B - Cross-check recorded results with other data sources: Review consistency of related entries across different registers.							
		Cross-check 1	Cross-check 2	Cross-check 3	Cross-check 4	Cross-check 5	COMMENTS - detailed responses will help guide strengthening measures
6	Select up to 5 logics from Master List of Cross-Checks, fill in cross-check logic number here.						
7	Enter the number of entries reviewed for each cross-check [F]						
8	Enter the number of entries that meet the cross-check logic and show **agreement** between sources [G]						
9	Calculate the percentage of consistency between data sources for each cross-check [G/F]						

PMTCT/ MNCH DATA QUALITY ASSESSMENT TOOL : Electronic version							
Name of Health Facility							
District, Region							
Date of Review							
Reporting Period Reviewed							
Note: empty cells in white need to be filled in directly; empty cells in gray are calculated either by hand or autopopulate in excel							
C - Recounting reported results: Recount results from source documents, compare the verified numbers to the site reported numbers and explain discrepancies (if any).							
		Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5	COMMENTS - detailed responses will help guide strengthening measures
10	Select indicators from suggested indicator list, fill in indicator numbers from monthly summary form here.						
11	Recount the number of people, cases or events recorded during the reporting period by reviewing the *source document*s. [D]						
12	Enter the number of people, cases or events reported by the site during the reporting period from the monthly summary form. [E]						
13	Calculate the percentage of recounted to reported numbers. [D/E]						
14	Calculate the absolute value of the percentage from 100% and subtract from 100%, so that none are over 100%. [1 - absolute value(1 - (D/E))]						
15	What are the reasons for the discrepancy (if any) observed (i.e., data entry errors, arithmetic errors, missing source documents, other)?						
D -Timeliness of reporting		Monthly summary form	COMMENTS - detailed responses will help guide strengthening measures				
16	How many reports should have been submitted by this health facility to the District during the reporting period being verified? [A]						
17	Of these, how many reports were submitted? [B]						
18	Calculate the percentage of submitted reports. [B/A]						
19	Of these, how many reports were submitted on time? [C]						
20	Calculate the percentage of timely reports. [C/A]						

Appendix 3: Data Completeness Tool

PMTCT/ MNCH DATA QUALITY ASSESSMENT COMPLETENESS FORM		
Name of Health Facility		Codes to Enter
District, Region		Code 0 = Not filled but should have been filled
Date of Review		Code 1 = Filled or correctly not filled
Reporting Period Reviewed		Code 2 = Incorrectly filled data

Instructions: (1) Select up to 5 columns from the Master List for Data Elements for each relevant register, enter them under each Register in the row labeled 'Column #'. (2) Randomly select up to 20 clients from each register (example n°1 1st page of the reporting month, n°2 in the 2nd page ...) and enter their serial numbers in each column labeled 'SN'. (3) Assess completeness and accuracy of entries for selected clients for selected columns.

Note: empty cells in white need to be filled in directly; empty cells in gray are calculated either by hand or autopopulate in excel

Register :	ANC Register						L&D Register						PNC-M Register						PNC-I Register						Lab Register					
Column # :	SN						SN						SN						SN						SN					
1																														
2																														
3																														
4																														
5																														
6																														
7																														
8																														
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11																														
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13																														
14																														
15																														
16																														
17																														
18																														
19																														
20																														
Count = 0 [A]																														
Count = 1 [B]																														
Count = 2 [C]																														
% Complete [1-A/(A+B+C)]																														
% Accurate [1-C/(A+B+C)]																														
Ave % Complete																														
Ave % Accurate																														

Appendix 4: DQA Site Score Card

PMTCT/ MNCH DATA QUALITY ASSESSMENT SITE SCORE CARD

Name of Health Facility	
District, Region	
Date of Review	
Reporting Period Reviewed	

		ANC	L&D	PNC-M	PNC-I	Lab	Average % availability
Availability	Registers available						
	Registers used						

		ANC	L&D	PNC-M	PNC-I	Lab	Average % completeness
Completeness	Columns assessed						
							Average % Record Accuracy
	Summary						
Recording Accuracy	Summary						

		Cross-check 1	Cross-check 2	Cross-check 3	Cross-check 4	Cross-check 5	Average % consistency
Consistency	Cross-checks assessed						
	Summary						

		Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5	Average % Report Accuracy
Reporting Accuracy	Indicators assessed						
	Summary						

	% MSF submitted	% MSF timely	% timeliness
Timeliness			

Key for Interpreting Scores	Poor (0-59 %)	Fair (60-79 %)	Good (80-100 %)

SUMMARY

Data Quality Dimensions	
Availability	#N/A
Completeness	#N/A
Consistency	#N/A
Recording Accuracy	#N/A
Reporting Accuracy	#N/A
Timeliness	#N/A

Comments (note if specific columns contributed to poor completeness):

Appendix 5: Master List of Data Elements Selected

Column numbers are indicated for each register – these refer to columns in PMTCT/MNCH Registers currently in use. Registers are under revision at the time of developing this document. An updated master list will be provided for the new version registers when those are distributed to health facilities.

ANC Register Data Elements

3. Preg ID
15. Known HIV+ before current pregnancy
17. HIV test results at First ANC
40. Already on HAART at First ANC
43. WHO Staging
45. CD4 Results
46. Eligible for HAART
47. Tick if referred off site for HAART
48 Date Initiated on HAART
49. Date ARV given to mother
50. Infant AZT or NVP syrup given
52. Partner HIV tested
53. Partner Test Results
62. Mother given ARVs at follow up visits

L&D Register Data Elements

4. Preg ID
16. Previous HIV test results
17. Date Tested for HIV at L&D
18. HIV test result at L&D or immediate post-partum
20. ARV prophylaxis in L&D (regimen and date)
21. Newly Initiated on ART in this pregnancy
26. Live birth
32. ARV prophylaxis provided to infant

PNC Mother Register Data Elements

3. Preg ID
22. Previous HIV test results
23. HIV Test Date
24. HIV Test Result
25. Partner HIV Tested
26. Partner HIV Test Result
30. Postpartum 7day tail of ARVs (date started)
38. Methods of contraception and unmet need

PNC Infant Register Data Elements

3. Preg ID
8. Child Client No
28. 1st DNA PCR, Date Blood Drawn
29. 1st DNA PCR, Date results provided by lab
30. 1st DNA PCR, Test Result
60. Confirmatory PCR, Date Blood Drawn
61. Confirmatory PCR, Date results provided by lab
62. Confirmatory PCR, Test Result
63. Confirmatory PCR, Date Guardian received result
64. Final HIV Status
65. Outcome
66. Infant/Child ART ID
67. Referrals

Laboratory Data Elements

9. Reason for the test
10. HIV Test Name
11. Result
36. Date sample sent to referral lab
38. Results
39. Date results received by patient
40. Date Blood Drawn
41. PMTCT Regimen Mother/Baby
44. Results
45. Date received by patient

Appendix 6: Master List of Indicators Selected

Indicator numbers are indicated from the Monthly Reporting Form.

I-ANTENATAL CONSULTATION (ANC)	3	Number of pregnant women who were tested for HIV for the first time during this pregnancy during the month.
	4	Number of pregnant women who received their HIV test results during the month.
	11	number of pregnant women who tested negative for HIV during first ANC visit who retested for HIV during the 3rd or 4th ANC visit during the month.
	20a	Number of HIV+ pregnant women (not eligible for HAART) who have received ARV prophylaxis (sd-NVP) during the month .
	20b	Number of HIV+ pregnant women (not eligible for HAART) who have received ARV prophylaxis (AZT) during the month
II-LABOUR AND DELIVERY	24b	Number of pregnant women who were newly tested HIV+ at labour and delivery and initiated on HAART.
	27	Number of deliveries of HIV+ mothers during the month (deliveries at health facility PLUS outside the health facility)
III-POSTPARTUM CARE (MOTHER)	32	Number of HIV+ pregnant women who delivered out of the health facility and brought their babies within 72 hours after birth during the month.
IV-POSTPARTUM CARE (INFANT)	36a	Number of HIV Exposed Infants who came for follow-up consultation during the month.
	38	Number of HIV Exposed Infants from whom DBS/PCR samples were collected at 6- 8 weeks of age during the month.
	43	Number of HIV Exposed Infants age 9-18months who tested HIV positive by rapid test and the results are confirmed by PCR during the month.

Appendix 7: Master List of Cross-Checks Selected

Column numbers are indicated for each register – these refer to columns in PMTCT/MNCH Registers currently in use. Registers are under revision at the time of developing this document. An updated master list will be provided for the new version registers when those are distributed to health facilities. In addition, those conducting cross-checks can consider using other columns that should have a consistent relationship. Cross checks should be performed on all registers used in a facility. If one of the registers is not used, then cross-checks should just be carried out on those in use; as a result, in this section facilities should not be penalized for missing data from a register that they are not using.

Cross-check number	Description	Cross check Logic	Register columns needed
CC1	HIV status of pregnant woman	If ANC 15=Y or ANC 17 = P or N, then L&D 16 = P or N	LD 16 ANC 15/17
CC2	HIV status of pregnant or postpartum woman	PNCM 22 = L&D 18 (or ANC 15/17 if no L&D register)	PNCM 22 L&D 18 (ANC 17/15)
CC3	ARVs received by HIV+ pregnant woman in ANC	L&D 19 = ANC 48 or ANC 49	L&D 19 ANC 48/49
CC4	ARV prophylaxis received by HIV+ pregnant woman in ANC and L&D	PNCI 22 = L&D 20 and/or ANC 49	PNCI 22 L&D 20 ANC 49
CC5	ART received by HIV+ pregnant woman	PNCM 31 = ANC 40 or ANC 41 or ANC 48	PNCM 31 ANC 40/41/48
CC6	Already on ART before current pregnancy	PNCI 23 = ANC 41	PNCI 23 ANC 40
CC7	ART newly received by HIV+ pregnant woman	PNCI 24 = PNCM 32 = ANC 48 and L&D 21 = Y	PNCI 24 PNCM 32 L&D 21 ANC 48
CC8	Partner of pregnant woman tested for HIV	If ANC 52 = Y, then PNCM 25 = Y	PNCM 25 ANC 52
CC9	Prophylaxis provided for HIV exposed infant	If L&D 32 is filled, PNCM 33 = Y and PNCI 25 = Y	PNCI 25 PNCM 33 L&D 32