Data Quality

PROGRAMMATIC M&E LFA TRAINING

LFA TRAINING 2019/2020

GENEVA, SWITZERLAND

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Presentation outline:

1   **Data Quality and Importance to the Global Fund**

2   **Approach to data quality assessment**

3   **Planning and Implementation**

4   **Expected outputs**

5   **Use of Targeted DQR results**

6   **Case study – Review & Discussion**

What is good quality data ?

- Data fit for purpose - sound data for planning and setting priorities

- Complete – indicator data elements

- Reporting completeness

- Timely reporting

- Accurate

- Reliable

➢ Data Quality is a key risk for the Global Fund

➢ Quality data is required for sound decision making program planning, investment decisions, monitoring, program performance, quality improvement

➢ Health facility data is the primary source for assessing health sector performance. The quality of routine data reported by health facilities should be assessed regularly and required investments should be made to ensure data is reliable and useable

➢ Countries with poor and very poor data quality will receive regular data quality reviews to closely monitor improvements over time

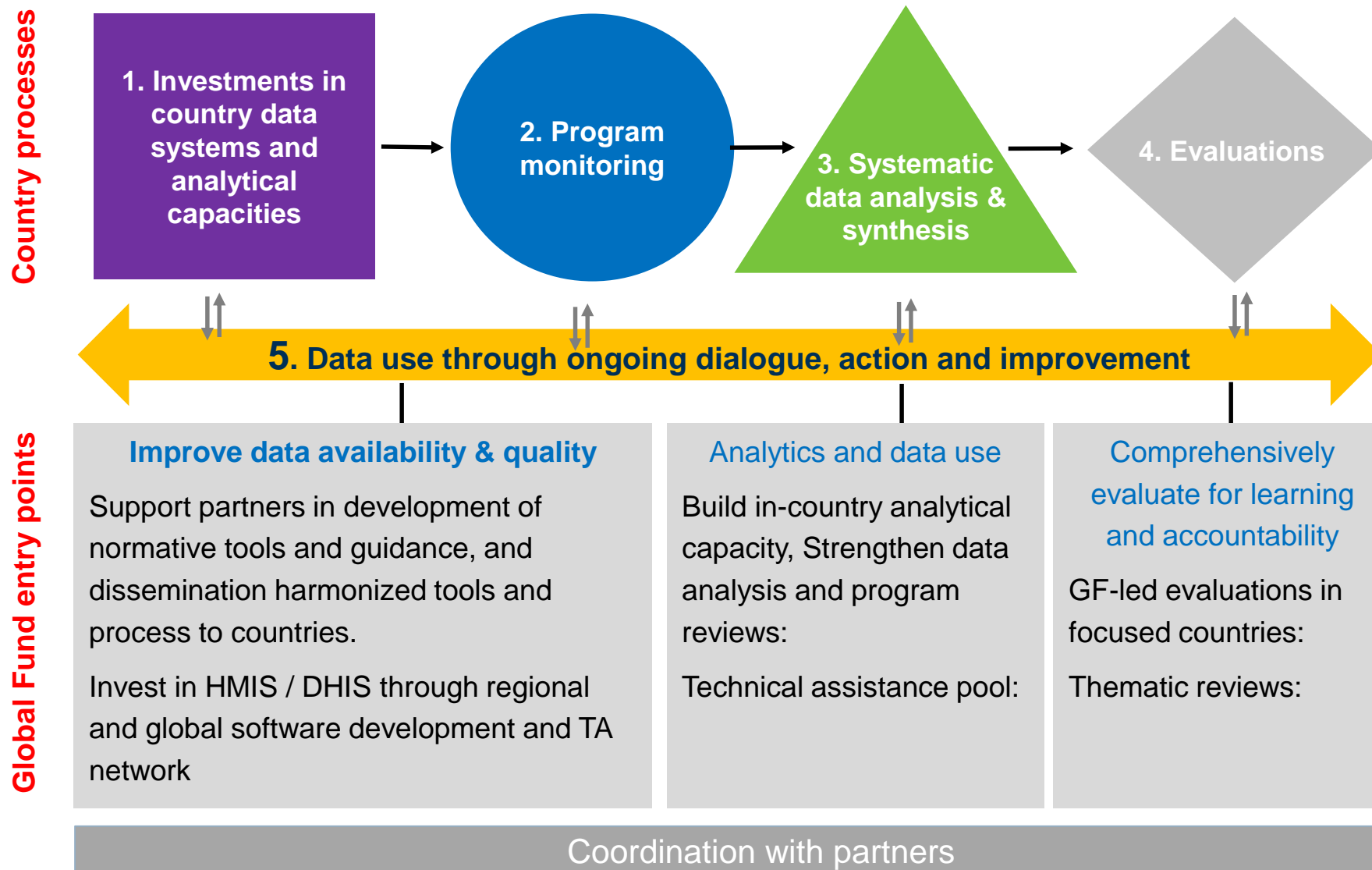➢ Data quality reviews will be less frequent in countries with good data quality

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Why we need good quality data (country level and GF)

Planning / Investments	Program Improvement	Monitoring and Evaluation
• NSP	• Monitoring of implementation	• Quality
• Concept note	• Decision making	• Effectiveness
• Prioritization	• Modification	• Efficiency, etc.
• Targeting	• Annual funding decision	• Results reporting
• Finding missing cases, KPs, etc.	• Reprograming	• KPI, etc.
• Allocation		
• Strategic investment decisions		

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Data Use for Action and Improvement (DUFAI) Framework

Country processes

1. Investments in country data systems and analytical capacities	**2. Program monitoring**	**3. Systematic data analysis & synthesis**	**4. Evaluations**

5. **Data use through ongoing dialogue, action and improvement**

Global Fund entry points

Improve data availability & quality

Support partners in development of normative tools and guidance, and dissemination harmonized tools and process to countries.

Invest in HMIS / DHIS through regional and global software development and TA network

Analytics and data use

Build in-country analytical capacity, Strengthen data analysis and program reviews:

Technical assistance pool:

Comprehensively evaluate for learning and accountability

GF-led evaluations in focused countries:

Thematic reviews:

Coordination with partners

Purpose:

To track program performance and to assist in effective Management, and timely decision-making through systematic collection of data alongside program implementation

- Performance

- M&E System Strengthening Activities

- Program Quality

- Data Quality

| Assurance	Main service provider	Assurance	Service provider
Review of data systems (community/ facility)	Country led (TA as needed) identified service provider	Partners review	Partners
Program quality/ data quality spot checks	LFA	Country evaluations	GF-led with service provider in focused countries
			Country led with TA if needed
Health facility assessment (national/targeted)	Country led (TA as needed)/ LFA/ identified service provider	Thematic reviews	Service provider
Data quality reviews (national/targeted)	Country led (TA as needed/ LFA/ identified service provider	Prospective Country Evaluations	Service provider
Review of Laboratory systems	Country led (TA as needed)/ LFA/ identified service provider	Population-based surveys	Country led (TA as needed) or partner contracted service provider
Routine programmatic analysis	Country led (TA as needed) or identified service provider in some scenarios		
Program reviews	Country led (TA as needed) with support of identified service provider in some scenarios	**The LFA service providers should have technical skills and competencies**	

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Programmatic and M&E Assurance options	Associated LFA Service (2018 LFA Services list)
1. Review of data systems (community/facility)	M&E system assessment
2. Program and/or data quality spot checks	− Program and/or data quality spot checks; − Joint programmatic, financial and supply chain spot checks
3. Health facility assessments	Targeted HFA
4. Data quality reviews	**Targeted DQR**
5. Review of laboratory system	Review of medical lab systems/services, including lab-related supply chain
6. Program reviews	n/a
7. Partner reviews	n/a
8. Routine programmatic analysis	n/a
9. Population -based surveys	n/a
10. Country evaluations	n/a
11. Thematic reviews	n/a
12. Prospective Country Evaluations	n/a
13. Community monitoring	n/a
	PU/DR or PU: Verification of Programmatic Performance; Review of grant documents (PF, M&E plan)

DQR Tools

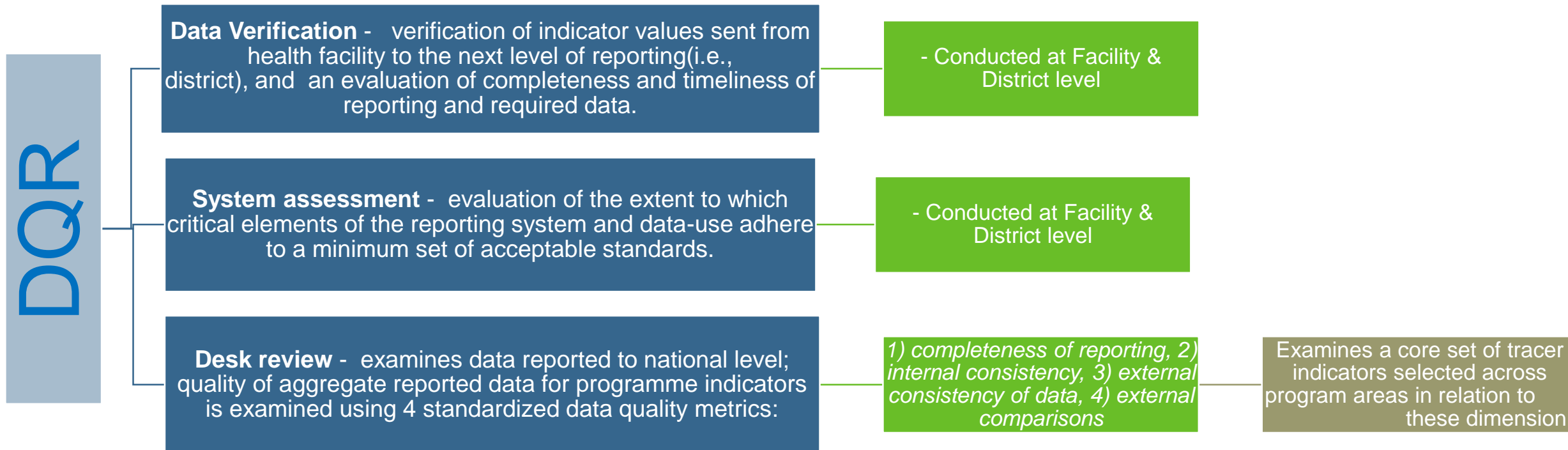**WHO DQR**

Framework and Metrics

Modules 1, 2 & 3
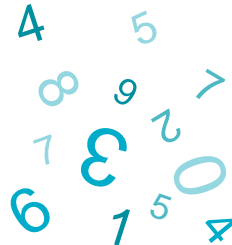
❖   Multi-pronged and harmonized approach for data quality assurance: DQR framework is a collaborative effort of WHO, GF, GAVI, JSI & MEASURE Evaluation

❖   Data quality analysis of a set of core tracer indicators across multiple program areas & a system assessment

❖ Permits the Global Fund to know that the routine data have undergone a known minimum level of scrutiny which lends **credibility and confidence in the data**

Approach to data quality: WHO Data Quality Review (DQR) Framework

Purpose	➤ To assess facility-reported data, including routine monitoring of data from priority health programs; ➤ Provides risk assurance for service delivered at health facilities

- Harmonized and holistic assessment of the quality of data collected from health facilities
- Quantifies problems of data completeness, timeliness and accuracy according to program areas;
- Identifies weaknesses in the data management system
- Monitors performance of data quality over time
- Results in a data quality improvement plan to address weaknesses in data

Scope	Recommended frequency
National DQR: nationally representative sample	➤ **National DQR:** within 2 years if the 'data quality' rating is poor/ very poor and every 3-4 years, if the 'data quality' rating is moderate/good
Targeted DQR: 20-40 sites, with a geographic area generally, not statistically representative	➤ **Targeted DQR:** based on programmatic risks and context

DQR tool has **3 components** implemented together in a national DQR; targeted DQR implement all or some with a smaller and more targeted sample size (~20-40), and in a geographic area in a country

DQR

Data Verification - verification of indicator values sent from health facility to the next level of reporting(i.e., district), and an evaluation of completeness and timeliness of reporting and required data.

- Conducted at Facility & District level

System assessment - evaluation of the extent to which critical elements of the reporting system and data-use adhere to a minimum set of acceptable standards.

- Conducted at Facility & District level

Desk review - examines data reported to national level; quality of aggregate reported data for programme indicators is examined using 4 standardized data quality metrics:

1) completeness of reporting, 2) internal consistency, 3) external consistency of data, 4) external comparisons

Examines a core set of tracer indicators selected across program areas in relation to these dimension

➢ Questionnaires for Data Verification, System Assessment

➢ LFA Excel tool for data entry and analysis

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1. Completeness of facility reporting per selected program indicator

2. Timeliness of facility reporting per selected program indicator

3. Data Accuracy

> i. Verification Factor per indicator
>
> ii. % Exact Match, % Over & % Under reporting per indicator

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Applies to health-facility reporting to the next level.

➢ Example: Health Facility to districts, and district reporting to the regional or provincial levels

o **Completeness of indicator data: minimum set of variables**
  ▪ Measures whether the health facilities have included information on each of the selected indicators in their monthly reporting form.

o **Completeness of facility reporting:**
  ▪ Assessed by measuring whether all health facilities that are supposed to report actually do so

o **Timeliness of facility reporting:**
  ▪ Assessed by measuring whether all health facilities that submitted reports did so before a pre-defined deadline

o **Focus**

Consistency of reported data and original records

o **Process:**

➤ Data Verification

➤ Requires collection of primary data from health facilities

➤ Assess the **reporting accuracy** for selected indicators through the review of source documents in health facilities, and in the national database/HMIS

➤ Yields a verification factor: the degree of disparity between the reported number and recounted number

o **Calculation**

➤ Recounted number of service outputs recorded in source documents at health facilities, divided by the number of service outputs reported through the reporting system for selected indicators

**Targeted
Data Quality
Review**

- ➢ A **focused review** and assessment of data quality with a **smaller and more targeted sample**

- ➢ Country teams can select any or all three components of the DQR to implement, based on objectives of the assessment

  1. Data Verification

  2. M&E Systems Assessment

  3. Desk Review

- ➢ Targeted DQR may focus on 1 or more diseases (HIV, TB, malaria)

- ➢ Conducted by LFA

- ➢ ~ 20-40 sites

- When a national DQR did not cover a program area of concern (e.g. community services)

- To assess the quality of reported data for specific program areas supported by GF grants

- When there is an identified data quality risk & country context

- To assess the strengths and limitations of data prior to using it for planning and program management

- As requested by Country Team

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The data quality assessment approach differentiates assessment methods/activities across the three country categories:

Country Category	Assessment Approach	
High Impact countries	*Targeted DQR can be conducted anytime, based on risk and context*	
Core countries	*Targeted DQR can be conducted anytime, based on risk and context*	
Focus countries	*Ad hoc based on risks*	

Planning Targeted DQR

1 MECA is available to support Country Team PHME Specialist during the planning, implementation and to review report

2 Planning for programmatic assurance activities starts each year in August during the annual Assurance planning process

3 PHME Coordinates with the LFA to define specific objectives, budget and LoEs for implementing DQR.

4 Targeted DQR : Guidance, Generic scope of work, tools, planning and reporting templates available

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Planning a Targeted DQR

- **Customized Terms of Reference** to document and agree with GF Country Team on the objectives, scope and details of the assessment

- **Planning Template** – to document and finalize with the GF Country Team all planning details for the assessment
  - ✓ LFA plans to implement the tasks and deliverables; Country team approval prior to the start of activities
  - ✓ Coordination of planned activities with the country stakeholders: the Ministry of Health, Principal Recipients and with the specific focal points in country

  Sampling Approach – Purposive /Convenience
  - ✓ Sites selected for Data Verification and Systems Assessment should be agreed with the Country team [20-40sites]
  - ✓ Ensure sites selected provide health services for the selected indicator and has source documents
  - ✓ LoEs & Budget approval by the Country team prior to start of activities

- **Facility & District Data Verification, M&E Systems Assessments**
  - ✓ DQR Guidance
  - ✓ User Guide to the WHO Data Quality Review Toolkit
  - ✓ Questionnaires for data verification and System Assessment
  - ✓ Excel Sheet for Data entry and Analysis
  - ✓ Reporting Template

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Agree with the CT on scope and details of the assessment, and complete the planning template

What is needed
1. Statement of Work/Terms of Reference incl. Budget
2. WHO DQR Guidance –Framework & Metrics
3. GF Planning Template
4. DQR Tools: Questionnaires,
5. Data Entry Excel Sheets for data capture and analysis
6. Reporting template-The primary report to be submitted for the Targeted DQR assessment, containing key results and recommendations from all three components

WHO Recommended Program Indicators to Assess for Data Quality

- **Antenatal care 1st visit (ANC1)**

  - Number (%) of pregnant women who attended at least once during their pregnancy

- **DTP3/Penta3**

  - Number (%) of children < 1 year receiving three doses of DTP/Penta vaccine

- **Currently on ART**

  - Number and % of people living with HIV who are currently receiving ART

- **Notified cases of all form of TB**

  - Number (%) of all forms of TB cases (i.e. bacteriologically confirmed plus clinically diagnosed) reported to the national health authority in the past year (new and relapse)

- **Confirmed malaria cases**

  - Number (%) of all suspected malaria cases that were confirmed by microscopy or RDT

HIV

- People living with HIV who have been diagnosed

- Number (%) of people living with HIV who have been diagnosed

- HIV care coverage: Number (%) of people living with HIV who are receiving HIV care (including ART)

- PMTCT ART coverage: Number (%) of HIV-positive pregnant women who received ART during pregnancy

- ART retention: Number (%) of people living with HIV and on ART who are retained on ART 12 months after initiation (and 24, 36, 48, and 60 months)

- Viral suppression: Number (%) of people on ART who have suppressed viral load

TB

- Notified cases of all forms of TB

- TB treatment success rate

- Second-line TB treatment success rate

TB-HIV

Proportion of registered new and relapse TB patients with documented HIV status

- Number of new and relapse TB patients who had an HIV test result recorded in the TB register, expressed as a percentage of the number registered during the reporting period

- Proportion of HIV-positive new and relapse TB patients on ART during TB treatment

- Number of HIV-positive new and relapse TB patients who received ART during TB treatment expressed as a percentage of those registered during the reporting period

MALARIA

- Malaria diagnostic testing rate: Number (%) of all suspected malaria cases that received a parasitological test [= Number tested / (number tested + number presumed)]

- Confirmed malaria cases receiving treatment: Number (%) of confirmed malaria cases treated that received first-line antimalarial treatment according to national policy at public sector facilities

- Malaria cases (suspected and confirmed) receiving treatment: Number (%) of malaria cases (presumed and confirmed) that received first-line antimalarial treatment

- IPTp3 : Number (%) of pregnant women attending antenatal clinics who received three or more doses of intermittent preventive treatment for malaria

Steps to Implement Data Verification and System Assessment

1. Planning including coordination with PR, MoH & in country stakeholders

2. Sampling approach: objective is not a representative sample but rather a focused review

3. Adaptation of survey tools

4. Field work / Data collection

5. Quality control

6. Data management, analysis, interpretation

7. Report writing including prioritized recommendations

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❑ **Outputs of Targeted DQR - Data Verification**

✓ Data flow per indicator

✓ Completeness of Indicator Data

✓ Reporting Completeness

✓ Reporting Timeliness

✓ Accuracy: Verification Factor per indicator, over and under reporting

System Assessment Tracer indicators = **minimum set of acceptable standards**
1. % Availability of guidelines at facility level
2. % Availability of trained staff
3. % Availability of tally sheets, registers and reports in forms in last 6 months
4. Receipt of supervision written feedback including on data quality
5. Analysis and use of data

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- **Template:** A structure to report the results of the assessment including analytical outputs and prioritized recommendations

  ⭐**New!** Include the Data Flow per indicator

➤ **Facility Level Data Quality Metrics**

(1) Verification Factor(VF)

  ⭐ **New!** Include Rating per Program indicator

(2) Facility /District Level Reporting Performance

  ✓Completeness of Indicator data

  ✓Completeness of Facility Reporting

  ✓Timeliness of Facility Reporting

Accuracy key	Very poor >20%	Poor +/-11% to 20%	Moderate + /- 6% to 10%	Good +/-5%
Indicator	**Verification Factor**	Ratio of recounted number of events from source documents *divided* by the reported number of events from the HMIS	**Enter Result**
	1. Exact match	% of facilities for which source data **exactly match** reported data	**Enter Result**
	2. Over-reporting	% of facilities that **over-report** by more than 10% (VF < 0.90)	**Enter Result**
	3.Under-reporting	% of facilities that **under-report** by more than 10% (VF > 1.10)	**Enter Result**

S/n	Disease component	Name of Facility	Indicator	Verification factor (ratio of recounted/reported)			
				Reported value for 3 months	Recounted value for 3 months	Verification Factor	Rating per Indicator Very poor/Poor/Moderate/Good

[1]

For TB indicators only measured by Quarter to delete the Month 1 and Month 2 columns and change the Month 3 name to the quarter name.

Detailed Facility Level Data Verification Results

No	District	Name of Service Delivery Point(SDP)	Month 1:			Month 2:			Month 3:		
			Verification Factor	Weighted Error	Reason for variance	Verification Factor	Weighted Error	Reason for variance	Verification Factor	Weighted Error	Reason for variance
#of SDPs assessed		Total									

Summary Facility Level Reporting Performance by Indicator

S/n	Disease component/Program area	Indicator	Facility level Data Quality Metrics		
			1) Timeliness of facility reporting: % of submitted facility monthly reports received on time	2) Completeness of facility reporting: % of expected facility monthly reports that were actually received	3) Completeness of Indicator data: % reports that were complete (out of all received)

- Verification of reported results for grant management

- Assurance purposes

- Implement actionable, recommendations for data quality improvements

- To monitor status of data systems and for improvements

- To monitor the quality of data at facility, district and national level

- To track Data Quality indicators and ratings for all countries(HI/Core)

- For the M&E System Profile-DASHBOARD
    (used for country portfolio reviews, etc.)

Tracking Data Quality Results

Country	Current Risk	HMIS Data Quality	Final DQR Score	DQR Timeliness of facility reporting	DQR Completeness of facility reporting	DQR Accuracy(VF)	Source /Status
A	2.77	93%	92%	83.75% [78.0%, Malaria: 89.5%]	100%	Malaria and TB indicators:1.00	Targeted DQR 2018
B	2.33	82%	not reported	not reported	not reported	HIV ART VF = 1	Targeted DQR 2017
C	2.26	49%	51%	20%	82%	Accuracy : 0.998	National DQR 2017
D	1.67	78%	not reported	not reported	not reported	VF: 1	Targeted DQR 2016
E	1	97%	Rating 4: very good from report	100%	100%	VF for 2 HIV indicators:0.99 and 1.01 Score= 1.0	Targeted DQR 2017
F	3.33	32%	99%	98%	100%	VF range 0.99-2.98	National DQA-ART 2018
G	3.00	83%	97%	94%	100%	Malaria cases tested: 0.94 Suspect cases 0.98 Suspect cases tested: 0.91 Malaria cases confirmed& ACT Prescription: 1.04 Malaria cases 1.05	Targeted DRQ 2019
H	2	76%	not reported	not reported	not reported	TB: 0.99 Malaria 0.83 HIV: 0.97 Score =0.93	National DQR 2018
I	2.65	86%	not reported	not reported	not reported	PLHIV on ART VF = 0.876	National DQA ART 2018
J	3.67	60%	not reported	not reported	not reported	Malaria : suspect cases tested -recount / reported -verification Site 1) 411/248[1.65]; site 2)261/262 [0.99; site 3) 1240/413[3.0]	Targeted DQR 2016
K	3.00	84%	97%	not reported for HIV/TB/Malaria Indicators	HIV/TB/Malaria: 91.1% ;99.5%; 99.2%	Data accuracy: TB cases VF = 1.01; Malaria VF = 1.08; Current on ART =0.95 Average: 1.01	National DQR 2018
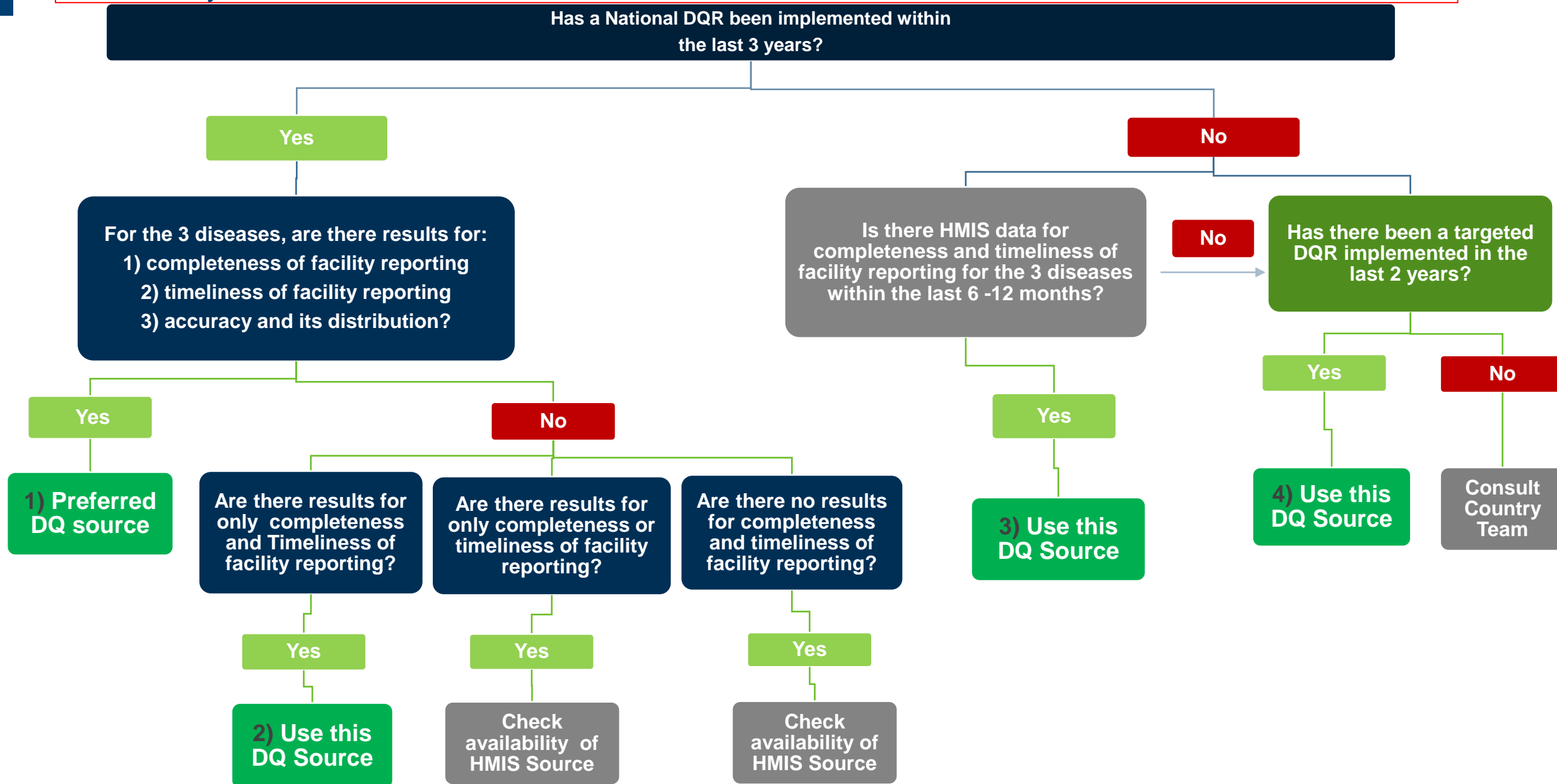
Targeted DQR Case Study

i)   Completed Targeted DQR Planning template

- Review the information on the template
- Discuss the tools and process for implementing this targeted DQR
- What are critical outputs envisaged?

ii) Presentation to the larger group