Tuberculosis Data Quality Checklist

Guide for Operational District TB Supervisors

Contents

Abbreviations

CENAT	National Center for Tuberculosis and Leprosy Control
HF	health facility
M&E	monitoring and evaluation
OD	operational district
TB	tuberculosis
VF	verification factor
WHO	World Health Organization

Introduction

The goal of the tuberculosis (TB) monitoring and evaluation (M&E) system in Cambodia is to produce quality data that are used for TB surveillance; monitor progress toward the national TB program's targets; and inform decisions on program planning, management, policymaking, and resource allocations. The data generated by the TB M&E system need to be of high quality and credible so that decision makers at every level of the program can rely on the data and use them to optimize the coverage and quality of TB care services to end TB in the country.

Purpose of the Tuberculosis Data Quality Checklist

This checklist, adapted from World Health Organization's (WHO) Data Quality Review modules (see the Reference section at the end of this resource), is designed to facilitate routine and periodic data quality checks conducted through desk reviews and supervisory visits. The checklist will help systematically identify data quality problems across health facilities (health centers and referral hospitals) at the operational district (OD) level. The data quality checks may identify areas requiring improvement and corrective actions.

The checklist is designed for TB supervisors at the OD level to conduct data quality checks on report availability and timeliness, data accuracy, completeness of reported indicator data and internal consistency of reported data. Based on the findings summarized in the checklist, TB supervisors at the OD level will prepare summary reports based on the desk review and field level verification of the data received from health facilities, provide the necessary feedback to health facilities (HFs), and share the findings from the data quality checks with provincial TB supervisors.

Data quality dimensions covered by the checklist

The checklist focuses on the following dimensions of data quality:
  A. Report availability
  B. Reporting timeliness
  C. Completeness of reported indicator data
  D. Verification of data accuracy
  E. Internal consistency over time

Definitions of these dimensions and their associated assessment forms follow.

A. Report availability

This measures the extent to which the expected number of reports were actually received by the higher administrative unit in a given time period. A completeness rate of 100 percent at the OD level indicates that the OD received reports from all HFs under its administration. A sample completed
form is given on the next page.

Korng Pisey Data Quality Check															
OD TB supervisor's checklist for availability of health facility reports															
Name of health facility	Enter the number of monthly reports received by OD from the health facility												Expected no. monthly reports to be sent to OD	Actual no. of monthly reports received by OD	Reporting availability rate (%) (P=O/N*100)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
វាលអង្គពេល	1	0	0	0	0	0	0	0	0	0	0	0	12	1	8
ពោធិ៍មាស	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
និទាន	0	1	0	0	0	0	0	1	0	1	0	0	12	3	25
ស្វាយចប	0	0	1	0	0	0	0	0	1	0	0	0	12	2	17
កក់ព្រះខែ	0	0	0	1	0	0	0	0	0	0	0	0	12	1	8
ពោធិ៍ចំរើន	0	0	0	0	1	0	0	0	0	0	0	0	12	1	8
ព្រៃញាតិ	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
ពោធិ៍អង្រង	0	0	0	0	0	0	1	0	0	0	0	0	12	1	8
OD totals	3	3	3	3	3	2	3	3	3	3	2	2	96	33	34

Metrics	Summary results	
	Number	Percent
Number and percent of HFs with availability of reporting rate between 75% - 90%	0	0
Number and percent of HFs with availability of reporting rate below 75%	6	75
Number and percent of HFs with availability of reporting rate 90-100%	2	25
Number and percent of HFs with availability of reporting rate more than 100 %	0	0

| | | Total number of health centres | 8 |

B. Reporting timeliness:

A national schedule specifies when monthly TB reports should be submitted to the next higher level (as recommended by the National Center for Tuberculosis and Leprosy Control [CENAT]). Reports should be received by the end of second week of the following month. This assessment looks at the timeliness of the HFs submitting reports to the OD level, per CENAT's reporting dates. A sample completed form follows.

Number of cases tested using GeneXpert															
Number of TB notification															
OD supervisors checklist for assessment of reporting timeliness															
Names of health facility	**Actual number of monthly reports received by OD during the year**	**Monthly reports received by OD by the report submission deadline**												**Total number of monthly reports received by OD by submission deadline**	**Report submission timeliness rate (P = O / B*100)**
		Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
វាលអង្គពេល	1	1	0	0	0	0	0	0	0	0	0	0	0	1	100
ពោធិ៍មាស	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
និទាន	3	1	0	0	0	0	0	0	1	0	1	0	0	3	100
ស្វាយចប	2	0	0	1	0	0	0	0	0	1	0	0	0	2	100
កក់ព្រះខែ	1	0	0	0	1	0	0	0	0	0	0	0	0	1	100
ពោធិ៍ចំរើន	1	0	0	0	0	1	0	0	0	0	0	0	0	1	100
ព្រៃញញាតិ	12	0	0	0	0	0	1	0	0	0	0	0	0	1	8
ពោធិ៍អង្រង	1	0	0	0	0	0	0	1	0	0	0	0	0	1	100
OD Totals	33	3	1	2	2	2	2	2	2	2	2	1	1	22	67
Metrics														**Summary Results**	

	Number	Percent
Number and percent of HF with timeliness rate 75% or below	1	13
Number and percent of HF with reporting completeness rate between 75% - 99%	0	0
Number and percent of HF with 100% reporting timeliness	7	88
Number and percent of HF more 100% reporting timeliness	0	0

Total health centres	8
1 means monthly report received by OD by submission deadline	
0 means monthly report submitted after the deadline passed	

C. Completeness of reported indicator data (list of the indicators to be assessed for data quality at the end of the forms)**:**

Completeness of indicator data is measured by examining the proportion of non-zero values for specific indicators. This is achieved in two ways:

1. By measuring the proportion of blank cells (i.e., the cells where a specific indicator value should be recorded, but is left blank) on reporting forms.
2. By measuring the proportion of cells with a zero recorded as the value whereas it is not zero (or called non-true zero value).

Missing data should be clearly differentiated from true zero values in OD and HF reports. A true zero value indicates that no reportable events occurred during the specified reporting period. A missing value indicates that reportable events occurred but were not in fact reported.

Korng Pisey Data Quality Check															
Number of bacteriologically confirmed pulmonary TB cases															
OD TB supervisor's checklist for assessment of Reporting Completeness Rate															
Name of health facility	**Enter the number of monthly Indicator report received by OD from the health facility**												**Total expected no. of values for the indicator**	**Total actual no. of non-missing values for the given indicator**	**Completeness rate**
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
វាលអង្គាពេល	1	0	0	0	0	0	0	0	0	0	0	0	12	1	8
ពោធិមាស	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100

និទាន	0	1	0	0	0	0	0	1	0	1	0	0	12	3	25
ស្វាយចប	0	0	1	0	0	0	0	1	0	0	0	0	12	2	17
កក់ព្រះខែ	0	0	0	1	0	0	0	0	0	0	0	0	12	1	8
ពោធិ៍ចំរើន	0	0	0	0	1	0	0	0	0	0	0	0	12	1	8
ព្រៃញាតិ	0	0	0	0	0	1	0	0	0	0	0	0	12	1	8
ពោធិ៍អង្រង	0	0	0	0	0	0	1	0	0	0	0	0	12	1	8
OD totals	2	1	3	1	1	0	1	2	0	2	0	0	96	22	23

Metrics	Summary results
	Number
Number of health facilities with completeness rate below 90 %	7
Number of health facilities with 100 % expected results	1
Number of health facilities between 91-99 %	0
Number of health facilities with reporting completeness rate more than 100 %	0
Total number of health centres	8
Operational Districts are marked in red if 10% or more of their values are missing.	

1 means report contains the value of the specific indicator being assessed

0 means no value of the specified indicator is reported in the monthly report

D. Verification of data accuracy:

The objective of data verification is to measure the extent to which data in source documents (e.g., TB patient registration book, TB patient treatment card) used by HFs have been accurately aggregated and reported to the OD level. This allows errors that occur in data reporting to be identified for specific indicators and provides an estimate of the facility's degree of overreporting or underreporting.

For data verification, data from source documents (e.g., TB patient registration book, TB patient treatment cards) are compared with data that are reported through the TB monthly reports (TB MIS) to determine the proportion of reported results that can be verified from the source documents. The values for selected indicators from specific reporting periods are recounted using the relevant source documents at HFs. This recounted value is then compared with the value initially reported to the OD level for the given reporting period. The ratio of the recounted value to the reported value is called the "verification factor" (VF) and constitutes a measure of the indicator's accuracy. A sample completed form follows.

Number of TB notification						
OD TB supervisor checklist for data accuracy check						
Name of health centre	Data reported in the monthly report	Figure recounted from the TB register	Verification Factor	VF < 0.90	VF > 1.10	VF = 1.0 (within +/- 10%)
			VF = C/B	(over-reporting)	(under-reporting)	(Exactly matches the reported data)
A	B	C	D	E	F	G
រាលអង្គរពោល	7	7	1.0	0	0	1
ពោធិ៍មាស	13	13	1.0	0	0	1
និទាន	4	4	1.0	0	0	1
ស្វាយចចប	1	2	2.0	0	1	0
កក់ព្រះខែ	1	0	0.0	1	0	0
ពោធិ៍ចំរើន	5	7	1.4	0	1	0
ព្រៃញាតិ	11	9	0.8	1	0	0
ពោធិ៍អង្រេង	1	2	2.0	0	1	0

Total number of health facilities over-reporting						2		
Total number of health facilities under-reporting							3	
Total number of health facilities exactly matching								3

Only one indicator is used for completing this exercise to calculate the data accuracy check

Column B: Enter the value of the selected indicator from the monthly report
Column C: Enter the value of the selected indicator as recounted from the TB Register for the corresponding month

E. Internal consistency over time:

Internal consistency of data relates to the coherence of the data being evaluated. In addition to measuring data accuracy by comparing data in source documents and in aggregated reports, as described above, internal consistency examines the plausibility of reported data for selected indicators based on the history of reporting those indicators and comparisons with other program indicators that have a predictable relationship to determine whether an expected relationship exists in the observed data between the two indicators.

1. Internal consistency over time (based on the history of reporting of the same indicator) is examined by comparing the value of a variable/indicator with the value of the same variable at earlier time periods. The trend of values for a given indicator/variable is evaluated to determine whether the reported value is extreme in relation to other values reported during the year or over several months/years.

   Usually, a cut-off is set to allow a certain range of variability of reported data that are expected to happen over the months. In general, if a HF has a ratio of the current month's value for a given indicator to the average value of the preceding 12 months for the same indicator that is more than +/- 33 percent different from the OD ratio for the same indicator, then the HF's report is flagged for further scrutiny.

   Note: This standard is somewhat arbitrary. The issue is to set it high enough that you are flagging the largest disparities.

2. Internal consistency in comparison with other related program indicators examines the extent to which the reported values of two related indicators follow a predictable pattern. If this pattern is not followed at the national level or for a particular subpopulation, it may indicate data quality problems. Consistency between the reported values of two indicators is defined as the ratio between the reported values of the two indicators. For some indicators, the ratio should be 1 or below; for other indicators the ratio is ≥1. Ideally, it should be within an acceptable limit or range. In general, there are four types of possible relationships:
   a. The values are roughly equal
   b. A is always greater than B
   c. B is always greater than A
   d. Drop-out rate: this should never be negative

Such relationships should be considered when checking for internal consistency in comparison with other related program indicators. A sample completed form follows.

	Number of cases tested using GeneXpert															
	OD TB Supervisor Checklist for Internal Consistency Over Time															
Name of health centre	Preceding Months (Specify below)												Current month (Specify below) 2023	Average of preceding 12 months in 2022 G = (A+B+C+D+E+F+G+I+J+K+L)/12	Ratio of current month to the average of preceding 12 months (O=M/N)	% Difference between health centre ratio and OD ratio [O (health centre)- O (OD)] / O (OD) X 100
	Jan -22	Feb -22	Mar -22	Apr -22	May -22	Jun -22	Jul -22	Aug -22	Sep -22	Oct -22	Nov -22	Dec -22				
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
វាលអង្គពោល	3	4	3	3	1	1	1	2	2	2	1	1	2	2	1	0
ពោធិមាស	1	0	1	1	0	1	2	1	1	1	4	2	2	1	2	60
និទាន	2	0	1	3	1	0	1	2	1	1	5	3	2	2	1	20
ស្វាយចចប	1	1	1	2	1	1	0	1	0	1	6	4	2	2	1	26
កក់ព្រះខែ	2	0	0	1	1	0	2	1	2	1	7	5	2	2	1	9
ពោធិចំរើន	4	4	2	2	3	3	2	4	2	1	3	6	2	3	1	-33
ព្រៃញាតិ	3	2	2	3	3	3	2	2	4	1	4	7	2	3	1	-33
ពោធិអង្រ្កង	2	2	0	0	0	2	1	2	0	1	3	3	2	1	2	50
OD Totals	18	13	10	15	10	11	11	15	12	9	33	31	16	16	1	
															Number	Percent
Total number of Health Facilities															8	
HC with at +/- 33% or more difference between the HFs and operational district ratio															4	50
HC with at less than +/- 33% difference between the HFs and operational district ratio															4	50
Total number															8	

Only one indicator is used for completing this exercise to calculate the internal consistency over time

Data quality metric calculations at the OD level

Data quality metric	Definition	Calculation
Completeness and timeliness of reporting		
Availability of HF report	% of monthly TB reports from the HFs that were actually received at the OD level of the total number of expected reports for a given time period (e.g. year) 1. Number and percent of HFs with availability of reporting rate between 75% - 90% 2. Number and percent of HFs with availability of reporting rate below 75% 3. Number and percent of HFs with availability of reporting rate 90-100% 4. Number and percent of HFs with availability of reporting rate more than 100 %	Numerator: Number of HF monthly reports received at the OD level during a given period Denominator: Number of monthly reports expected from the HFs during the same period
Timeliness of HF reporting	% of monthly TB reports submitted by the HFs to the OD level that were received on time (i.e., within the report submission deadline [by the end of second week of the following month]) 1. Number and percent of HC with timeliness rate 75% or below 2. Number and percent of HC with reporting completeness rate between 75% - 99% 3. Number and percent of HC with 100% reporting timeliness	Numerator: Number of monthly TB reports received from HFs on time Denominator: Total number of monthly TB reports actually received from the HFs (within the deadline)
Completeness of reported indicator data	(a) % of data elements that are non-zero values	Numerator: Total number of monthly reports received from the HFs at the OD level for a given time period that contain a non-zero value for

		the specified data elements (e.g., number of notified TB cases all forms) Denominator: Total number of HF monthly reports received during the same time period.
	(b) % of data elements that are non-missing values *Note: The expectation is that in the current situation of the TB epidemic, there will be no missing data or zero values reported by any HF*	Numerator: Total number of monthly reports from the HFs at the OD level for a given time period that contain a missing value for the specified data elements (e.g., number of notified TB cases all forms) Denominator: Total number of HF monthly reports received during the same time period.

Internal consistency of reported data

Verification of data accuracy through a HF site visit	% agreement between verified counts for selected indicators in sampled HF records and reported values for the same HFs The metric measuring the degree of parity (or disparity) between the recounted and reported values of the same variable is called the verification factor (VF). At the OD level, the assessment results can be summarized as: - % of HFs that over reported by more than 10% (i.e., VF < 0.90), - % of HFs that underreported by more than 10% (i.e., VF > 1.10)	Numerator: Recounted number of events from the source documents Denominator: Reported number of events in the monthly reports in the TB MIS

	- % of HFs for which source data exactly match reported data (within +/- 10% [i.e., VF=1.0 or +-10%])	
Internal consistency of reported value of a given indicator over time	Ratio of indicator value for the current month compared with the average value of the same indicator in the preceding twelve months This ratio for a specified indicator calculated for each HF can be compared with the ratio calculated from the OD reports to see if the variation, if any, happened for a specific HF or was a general occurrence throughout the district. (Note: If a deviation from the average trend seen in the HF is more that 33% either way, then it can be a data quality issue, unless there is a valid reason; for example, the occurrence of a high number of cases that month due to a sudden flare up of the epidemic as a result of the large number of in-migration).	Numerator: Value of the indicator as reported in the current monthly report Denominator: Average of the values of the same indicator reported in the preceding twelve months

Indicators to be assessed for data quality

To assess the data quality metrics, such as the completeness of indicator data reporting, data accuracy verification, and consistency of the reported value of a given indicator over time, it is recommended that every OD TB supervisor use a short list of indicators to assess those data quality dimensions. CENAT will recommend the list of indicators to be reviewed to the OD level. The following is a list of suggested indicators that can be used for the data quality review:

I. Number of TB notification
II. Number of bacteriologically confirmed pulmonary TB cases
III. Number of cases tested using GeneXpert
IV. Number of cases tested positive for rifampicin resistance
V. Number of clinically diagnosed pulmonary TB cases
VI. Number of contacts who are initiated on TB preventive treatment
VII. Number of TB patients who are HIV positive

The checklist can be used to measure the dimensions of data quality mentioned above, and examples are available in the following pages for reference, including a data use and feedback form, which highlights the feedback given by the OD level to HFs. The checklist focuses on the

following dimensions of data quality. Once the data are entered electronically, the calculation will be done automatically. If the data entered is in handwritten form, a formula is provided to do the calculation manually:

A. Report availability rate
B. Reporting timeliness
C. Completeness of reported indicator data
D. Verification of data accuracy
E. Internal consistency over time

Data quality assessment tools

Health Facility Report Availability Assessment

OD name: _____

Date: _____

Period covered: From_____To_____

Name of the OD TB supervisor completing the tool: _____

Korng Pisey Data Quality Check															
OD TB supervisor's checklist for availability of health facility reports															
Name of health facility	**Enter the number of monthly reports received by OD from the health facility**												**Expected no. monthly reports to be sent to OD**	**Actual no. of monthly reports received by OD**	**Reporting availability rate (%) (P=O/N*100)**
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
វាលអង្គរពេល	1	0	0	0	0	0	0	0	0	0	0	0	12	1	8
ពោធិ៍មាស	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
និទាន	0	1	0	0	0	0	0	1	0	1	0	0	12	3	25
ស្វាយចចប	0	0	1	0	0	0	0	0	1	0	0	0	12	2	17
កក់ព្រះខែ	0	0	0	1	0	0	0	0	0	0	0	0	12	1	8
ពោធិ៍ចំរើន	0	0	0	0	1	0	0	0	0	0	0	0	12	1	8

ព្រែញភ្ញាតិ	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
ពោធិ៍អង្រង	0	0	0	0	0	0	1	0	0	0	0	0	12	1	8
OD totals	3	3	3	3	3	2	3	3	3	3	2	2	96	33	34

Metrics	Summary results	
	Number	Percent
Number and percent of HFs with availability of reporting rate between 75% - 90%	0	0
Number and percent of HFs with availability of reporting rate below 75%	6	75
Number and percent of HFs with availability of reporting rate 90-100%	2	25
Number and percent of HFs with availability of reporting rate more than 100 %	0	0
Total number of health centres	8	

1 means report available
0 means report not available

Reporting Timeliness Assessment

OD name: _____

Date: _____

Period covered: From_____to_____

Name of the OD TB supervisor completing the tool: _____

Number of cases tested using GeneXpert				
Number of TB notification				
OD supervisors checklist for assessment of reporting timeliness				
Names of health facility	Actual number of monthly reports received	Monthly reports received by OD by the report submission deadline	Total number of monthly reports received by OD by submission deadline	Report submission timeliness rate (P = O / B*100)

A	by OD during the year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	O	P
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P

Metrics		Summary Results	
		Number	**Percent**
Number and percent of HF with timeliness rate 75% or below			
Number and percent of HF with reporting completeness rate between - 99%			
Number and percent of HF with 100% reporting timeliness			
Number and percent of HF more 100% reporting timeliness			
	Total health centres		
		1 means monthly report received by OD by submission deadline	
		0 means monthly report submitted after the deadline passed.	

Verification of Data Accuracy

OD name: _____

Date: _____

Period covered: From_____to_____

Name of the OD TB supervisor completing the tool: _____

Indicator assessed for data accuracy: _____
(*Use multiple checklists to assess multiple indicators*)

Name of the health facility	Data reported in the monthly report	Figure recounted from the TB register	Verification Factor VF = C/B	VF < 0.90 (over-reporting)	VF > 1.10 (under-reporting)	VF = 1.0 (within +/- 10%) (exactly matches the reported data)
A	B	C	D	E	F	G
Total number of HFs over-reporting						
Total number of HFs under-reporting						
Total number of HFs exactly matching						

Internal Consistency Over Time

OD name: _____

Date: _____

Period covered: From_____to_____

Name of the OD TB supervisor completing the tool: _____

	Number of cases tested using GeneXpert															
	OD TB Supervisor Checklist for Internal Consistency Over Time															
Name of health centre	Preceding Months (Specify below)												Current month (Specify below) 2023	Average of preceding 12 months in 2022 G = (A+B+C+D+E+F+G+I+J+K+L)/12	Ratio of current month to the average of preceding 12 months (O=M/N)	% Difference between health centre ratio and OD ratio [O (health centre) - O (OD)] / O (OD) X 100
	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22				
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
															Number	Percent

Total number of Health Facilities		
HC with at +/- 33% or more difference between the HFs and operational district ratio		
HC with at less than +/- 33% difference between the HFs and operational district ratio		

Total number of health facilities	

Only one indicator is used for completing this exercise to calculate the internal consistency over time

Examples of data quality assessment tools

A. Example of report availability rate

In this example, the OD has 8 HFs. Therefore, the expected number of reports at the OD level would be 96 (1 reports per month x 12 months). However, the actual number of reports received was 33 (as shown in the last row of the table). Therefore, the report availability rate for this OD is 33/96 / = 34%.

The table below shows the report availability rate of each individual HF. With this information, the number and percentage of HFs achieving 90%–100% reporting compliance, 75%–90% reporting compliance, below 75% reporting compliance, and reporting more than 100% can be measured. In the example below, two HFs submitted 12 out of 12 monthly reports in a given year, (i.e., their reporting availability rates were 100 %). On the other hand, 6 of the 8 HFs submitted only 1,3,2,1,1, and 1 respectively in 12 months achieving 8,25,17,8,8, and 8 % report availability rate.

Korng Pisey Data Quality Check															
Number of TB notification															
OD TB supervisor's checklist for availability of health facility reports															
Name of health facility	**Enter the number of monthly reports received by OD from the health facility**												**Expected no. monthly reports to be sent to OD**	**Actual no. of monthly reports received by OD**	**Reporting availability rate (%) (P=O/N*100)**
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
រាលអង្គពេល	1	0	0	0	0	0	0	0	0	0	0	0	12	1	8
ពោធិមាស	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
និទាន	0	1	0	0	0	0	0	1	0	1	0	0	12	3	25
ស្វាយចចប	0	0	1	0	0	0	0	0	1	0	0	0	12	2	17
កក់ព្រះខែ	0	0	0	1	0	0	0	0	0	0	0	0	12	1	8

ពោធិ៍ចំរើន	0	0	0	0	1	0	0	0	0	0	0	0	12	1	8
ព្រៃញាតិ	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
ពោធិ៍អង្រង	0	0	0	0	0	0	1	0	0	0	0	0	12	1	8
OD totals	3	3	3	3	3	2	3	3	3	3	2	2	96	33	34

Metrics	Summary results	
	Number	**Percent**
Number and percent of HFs with availability of reporting rate between 75% - 90%	0	0
Number and percent of HFs with availability of reporting rate below 75%	6	75
Number and percent of HFs with availability of reporting rate 90-100%	2	25
Number and percent of HFs with availability of reporting rate more than 100 %	0	0

Total number of health centres   8

> **1 means report available**
> **0 means report not available**

B. Example of timeliness reporting

When calculating reporting timeliness, only the reports that were submitted to the OD level are taken into consideration. The number of reports that were not submitted at all are not included in the calculation.

For example, HF II in the table below submitted 12 out of 12 monthly reports, and 12 reports were submitted by the submission deadline. Thus, the reporting timeliness is 100 % although the reporting completeness is only 67 %.

OD supervisors checklist for assessment of reporting timeliness																
Names of health facility	Actual number of monthly reports received by OD during the year	Monthly reports received by OD by the report submission deadline												Total number of monthly reports received by OD by submission deadline	Report submission timeliness rate (P = O / B*100)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
វាលអង្គពេល	1	1	0	0	0	0	0	0	0	0	0	0	0	1	100
ពោធិ៍មាស	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
និទាន	3	1	0	0	0	0	0	0	1	0	1	0	0	3	100
ស្វាយចចប	2	0	0	1	0	0	0	0	0	1	0	0	0	2	100
កក់ព្រះខែ	1	0	0	0	1	0	0	0	0	0	0	0	0	1	100
ពោធិ៍ចំរើន	1	0	0	0	0	1	0	0	0	0	0	0	0	1	100
ព្រៃញាតិ	12	0	0	0	0	0	1	0	0	0	0	0	0	1	8
ពោធិ៍អង្រង	1	0	0	0	0	0	0	1	0	0	0	0	0	1	100
OD Totals	33	3	1	2	2	2	2	2	2	2	2	1	1	22	67

Metrics	Summary Results	
	Number	Percent
Number and percent of HF with timeliness rate 75% or below	1	13
Number and percent of HF with reporting completeness rate between 75% - 99%	0	0
Number and percent of HF with 100% reporting timeliness	7	88
Number and percent of HF more 100% reporting timeliness	0	0
Total health centres	8	

	1 means monthly report received by OD by submission deadline
	0 means monthly report submitted after the deadline passed.

C. Completeness of reported indicator data

Completeness of indicator data is measured by examining the proportion of non-zero values for specific indicators. This is achieved in two ways: by measuring the proportion of blank cells (i.e., the cells where a specific indicator value should be recorded, but is left blank) on reporting forms and by measuring the proportion of cells with a zero recorded as the value whereas it is not zero (or called non-true zero value).

Korng Pisey Data Quality Check															
Number of bacteriologically confirmed pulmonary TB cases															
OD TB supervisor's checklist for assessment of Reporting Completeness Rate															
Name of health facility	**Enter the number of monthly Indicator report received by OD from the health facility**												**Total expected no. of values for the indicator**	**Total actual no. of non-missing values for the given indicator**	**Completeness rate**
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
វាលអង្គពេល	1	0	0	0	0	0	0	0	0	0	0	0	12	1	8
ពោធិ៍មាស	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
និទាន	0	1	0	0	0	0	0	1	0	1	0	0	12	3	25
ស្វាយចប	0	0	1	0	0	0	0	1	0	0	0	0	12	2	17
កក់ព្រះខែ	0	0	0	1	0	0	0	0	0	0	0	0	12	1	8
ពោធិ៍ចំរើន	0	0	0	0	1	0	0	0	0	0	0	0	12	1	8
ព្រៃញាតិ	0	0	0	0	0	1	0	0	0	0	0	0	12	1	8
ពោធិ៍អង្រួង	0	0	0	0	0	0	1	0	0	0	0	0	12	1	8
OD totals	2	1	3	1	1	0	1	2	0	2	0	0	96	22	23

Metrics	Summary results
	Number
Number of health facilities with completeness rate below 90 %	7
Number of health facilities with 100 % expected results	1
Number of health facilities between 91-99 %	0
Number of health facilities with reporting completeness rate more than 100 %	0
Total number of health centres	8
Operational Districts are marked in red if 10% or more of their values are missing.	
Only one indicator is used for completing this exercise to calculate the completeness of Indicator Data	1 means report contains the value of the specific indicator being assessed 0 means no value of the specified indicator is reported in the monthly report

D. Verification of data accuracy

The indicator/data element used to assess data accuracy is pre-selected. The list of recommended indicators/variables is provided on page 11. Use multiple checklists to assess multiple indicators.

The indicator used in this example is: Number of bacteriologically confirmed pulmonary TB cases.

This checklist is used at the time of supervisory visits to HFs.

The OD supervisor pre-populates the data for Column B (reported data) from the HF reports submitted to the OD level. At the time of the supervisory visit to the HFs, the supervisor recounts the figure from the TB register, compares the recounted figure with the reported figure, and calculates the verification factor to assess the accuracy of the data and any over-reporting or underreporting for that specific indicator or indicators.

Number of cases tested using GeneXpert						
OD TB supervisor checklist for data accuracy check						
Name of health centre	Data reported in the monthly report	Figure recounted	Verification Factor	VF < 0.90	VF > 1.10	VF = 1.0 (within +/- 10%)

A	B	from the TB register (C)	VF = C/B (D)	(over-reporting) (E)	(under-reporting) (F)	(Exactly matches the reported data) (G)
A	**B**	**C**	**D**	**E**	**F**	**G**
រាលអង្គពោល	1	1	0	0	0	1
ពោធិមាស	13	13	1	0	0	1
និទាន	1	2	2	0	1	0
ស្វាយចចប	1	1	1	0	0	1
កក់ព្រះខែ	1	1	1	0	0	1
ពោធិ៍ចំរើន	5	7	1	0	1	0
ព្រៃញាតិ	11	9	1	1	0	0
ពោធិ៍អង្រង	1	2	2	0	1	0
Total number of health facilities over-reporting				1		
Total number of health facilities under-reporting					3	
Total number of health facilities exactly matching						4
Only one indicator is used for completing this exercise to calculate the data accuracy check						
Column B: Enter the value of the selected indicator from the monthly report **Column C: Enter the value of the selected indicator as recounted from the TB Register for the corresponding month**						

E. Internal consistency over time

The number of events reported in each month can fluctuate as seen in this table. However, if deviation from the average trend seen in the OD is more that 33% either way, it can be a data quality issue, unless there is a valid reason; for example, the occurrence of a high number of cases that month due to a sudden flare up of the epidemic as a result of the large number of in-migration.

Number of cases tested using GeneXpert						
OD TB Supervisor Checklist for Internal Consistency Over Time						
Preceding Months (Specify below)						

Name of health centre	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Current month (Specify below) 2023	Average of preceding 12 months in 2022 G = (A+B+C+D+E+F+G+I+J+K+L)/12	Ratio of current month to the average of preceding 12 months (O=M/N)	% Difference between health centre ratio and OD ratio [O (health centre) - O (OD)] / O (OD) X 100
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
វាលអង្គពោល	3	4	3	3	1	1	1	2	2	2	1	1	2	2	1	0
ពោធិ៍មាស	1	0	1	1	0	1	2	1	1	1	4	2	2	1	2	60
និទាន	2	0	1	3	1	0	1	2	1	1	5	3	2	2	1	20
ស្វាយចចប	1	1	1	2	1	1	0	1	0	1	6	4	2	2	1	26
កក់ព្រះខៃ	2	0	0	1	1	0	2	1	2	1	7	5	2	2	1	9
ពោធិ៍ចំរើន	4	4	2	2	3	3	2	4	2	1	3	6	2	3	1	-33
ព្រៃញាតិ	3	2	2	3	3	3	2	2	4	1	4	7	2	3	1	-33
ពោធិ៍អង្រង	2	2	0	0	0	2	1	2	0	1	3	3	2	1	2	50
OD Totals	18	13	10	15	10	11	11	15	12	9	33	31	16	16	1	

		Number	Percent
	Total number of Health Facilities	8	
HC with at +/- 33% or more difference between the HFs and operational district ratio		4	50
HC with at less than +/- 33% difference between the HFs and operational district ratio		4	50
	Total number of Health Facilities	8	

Only one indicator is used for completing this exercise to calculate the internal consistency over time

Data use and feedback checklist

This checklist is to record and monitor the feedback given by the OD level to health facilities.

OD name: _____

Date: _____

Period covered: From_____to_____

Name of the OD TB supervisor completing the tool: _____

Name of health facility	During the period covered, as specified above:			
	Written feedback was given to the health facility on the data quality assessment done	OD office prepared charts for TB indicators showing health facility performance	The health facility attended the TB performance review meeting held at the OD level	Written feedback was given to the health facility on TB program performance based on the TB indicators
A	**B**	**C**	**D**	**E**
Total number of HFs				

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