Tuberculosis Data Quality Checklist

Guide for Operational District TB Supervisor

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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, policy making, and resource allocations. The data generated by the TB M&E system needs 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. 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 reporting completeness and timeliness, data accuracy, 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 data received from health facilities (HFs), provide the necessary feedback to 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. Reporting completeness
B. Reporting timeliness
C. Completeness of indicator data
D. Verification of data accuracy
E. Internal consistency over time

Definitions of these dimensions and their associated assessment forms follow.

A. Reporting completeness

This measures the number of reports that were received by the administrative unit compared to the total number of expected reports in a specific time period (usually one year). 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 follows.

OD TB supervisor's checklist for Reporting Completeness Assessment															
Name of health facilities	Enter the number of monthly reports received by OD from the health centre												Expected no. monthly reports to be sent to OD	Actual no. of monthly reports received by OD	Reporting completeness 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
M	1	1	1	1	2	2	2	1	2	1	1	1	12	16	133
N	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
O	1	1	0	1	1	0	1	0	0	1	1	1	12	8	67
P	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
Q	1	1	0	0	0	1	1	1	1	1	1	1	12	9	75
R	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
S	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
T	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
U	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
V	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
OD totals	10	10	8	9	10	10	11	9	10	10	10	10	120	117	98

Metrics	Summary results	
	Number	Percent
Number and percent of HF with reporting completeness rate between 75%-90%	1	9
Number and percent of HF with reporting completeness rate below 75%	2	
Number and percent of HFs with reporting completeness rate 90-100%	7	64
Number and percent of HFs with reporting completeness rate more than 100 %	1	9
Total number of health facilities	11	

B. Reporting timeliness:

This measures the number of reports from HFs submitted to the OD level by the specified reporting deadline compared to the number of reports actually received.

A national schedule specifies when monthly TB reports should be submitted to the next administrative level (as recommended by the National Center for Tuberculosis and Leprosy Control [CENAT]). Reports should be received by the end of the second week of the following month. A sample completed form to assess reporting completeness at OD level follows.

Note that the "Actual number of monthly reports received by the OD level" in column B in the "Reporting Timeliness Assessment" form is the same as the "Actual number of monthly reports received by the OD level" in column O of the "Reporting Completeness Assessment" form given above.

Reporting Timeliness Assessment Tool															
OD supervisors checklist for assessment of reporting timeliness															
Names of health centre	**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
M	16	1	1	1	1	1	1	1	1	1	1	1	1	11	69
N	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
O	8	1	1	0	1	1	0	1	0	0	1	1	1	8	100
P	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
Q	9	1	1	0	0	0	0	1	1	0	1	1	1	7	78
R	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
S	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
T	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
U	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
V	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
OD Totals	117	10	10	8	9	9	8	10	9	8	10	10	10	110	94
Metrics														**Summary Results**	

	Number	Percent
Number and percent of HF with timeliness rate 75% or below	1	10
Number and percent of HF with reporting completeness rate ben 75% - 99%	1	10
Number and percent of HF with 100% reporting timeliness	8	80
Number and percent of HF more 100% reporting timeliness	0	0
Total health facilities	10	

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

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

1. By measuring the number of HF reports in which no value is recorded for selected indicators in place of expected indicators value (i.e., the cells where a specific indicator value should be recorded but is left blank).
2. By measuring the number of zero values for selected indicators on reports from administrative units.

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.

At OD level, the number and percentage of HF reports in which no value is recorded (i.e., missing value) for selected indicators in place of an expected indicator value will be assessed. The example below shows the percentage of missing value for TB notification. In this form "1" means that the HF report has no missing value for the indicator in the report for the month in question, and "0" means that the value for the specific indicator is missing in the report for the corresponding month.

OD TB supervisor's checklist for assessment of completeness of Indicator Data (List the name of the indicator used for reporting here….)															
Name of health facilities	Enter the number of monthly Indicator report received by OD from the health centre.												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	0	P
M	1	1	1	1	1	1	1	1	1	1	1	2	12	13	108

N	1	0	1	0	1	1	1	1	1	1	1	1	12	10	83
O	1	0	1	1	1	1	1	1	1	1	1	1	12	11	92
P	1	1	0	1	1	1	1	1	1	1	1	1	12	11	92
Q	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
R	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
S	1	1	0	1	1	1	1	1	1	1	1	1	12	11	92
T	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
U	1	1	1	0	1	1	1	1	1	1	1	1	12	11	92
V	1	1	1	1	1	1	0	1	1	0	1	1	12	10	83
OD totals	0	1	3	1	1	0	1	2	0	2	0	0	120	113	94

Metrics	**Summary results**
	Number
Number of operational districts with completeness rate below 90 %	2
Number of operational districts with 100 % expected results	3
Number of operational districts between 91-99 %	4
Number of OD with reporting completeness rate more than 100 %	1
Total number of health facilities	**10**

D. Verification of data accuracy:

The objective of data verification is to measure the extent in 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.

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
M	1	1	1.00	0	0	1
N	1	0	0.00	1	0	0
O	1	0	0.00	1	0	0
P	1	1	1.00	0	0	1
Q	1	1	1.00	0	0	1
R	1	1	1.00	0	0	1
S	1	1	1.00	0	0	1
T	1	1	1.00	0	0	1
U	1	1	1.00	0	0	1
V	1	1	1.00	0	0	1
Total number of health facilities over-reporting				2		
Total number of health facilities under-reporting					0	
Total number of health facilities exactly matching						8

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.

a. 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:
b. The values are roughly equal
c. A is always greater than B
d. B is always greater than A
e. 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.

OD TB Supervisor Checklist for Internal Consistency Over Time																
Name of health centre	Preceding Months (Specify below)												Current month (Specify below)	Average of preceding 12 months in 2020 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	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Feb-23			
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
O	1	1	0	1	1	0	1	0	0	1	1	1	1	1	2	40
P	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
Q	1	1	0	0	0	0	1	1	1	1	1	1	1	1	2	40
R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
T	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
U	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
V	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
OD Totals	10	10	8	9	9	8	10	9	9	10	10	10	10	9	1	

Metrics	Summary Results	
	Number	Percent
HF with at 33% or more difference between the HF and operational district ratio	2	20
HF with at less than 33% difference between the HF and operational district ratio	8	80
Total number	10	

Data Quality Metric Calculations at the OD Level

Data quality metric	Definition	Calculation
Completeness and timeliness of reporting		
Completeness of HF reporting	% 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)	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])	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 indicator data	(a) % of data elements that are non-zero values (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 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. 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 overreported by more than 10% (i.e., VF < 0.90), - % of HFs that underreported by more than 10% (i.e., VF > 1.10) - % of HFs for which source data exactly match reported data (within +/- 10% [i.e., VF=1.0 or +-10%])	Numerator: Recounted number of events from the source documents Denominator: Reported number of events in the monthly reports in the TB MIS
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 four 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. Reporting completeness
B. Reporting timeliness
C. Completeness of indicator data
D. Verification of data accuracy
E. Internal consistency over time

Data Quality Assessment Tools

Reporting Completeness Assessment

OD name: _____

Date: _____

Period covered: From_____To_____

Name of the OD TB supervisor completing the tool: _____

(*Use multiple checklists to assess multiple indicators)*

OD TB supervisor's checklist for Reporting Completeness Assessment															
Name of health facilities	Enter the number of monthly reports received by OD from the health centre.												Expected no. monthly reports to be sent to OD	Actual no. of monthly reports received by OD	Report completeness 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
OD totals															

Metrics	Summary results	
	Number	Percent
Number and percent of HF with reporting completeness rate between 75% - 90%		

Number and percent of HF with reporting completeness rate below 75%		
Number and percent of HFs with reporting completeness rate 90-100%		
Number and percent of HFs with reporting completeness rate more than 100 %		
Total number of health facilities		

Reporting Timeliness Assessment

OD name: _____

Date: _____

Period covered: From_____to_____

Name of the OD TB supervisor completing the tool: _____

(*Use multiple checklists to assess multiple indicators)*

OD Supervisors checklist for assessment of reporting timeliness															
Names of health centre	**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**

OD Totals															

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 75% - 99%		
Number and percent of HF with 100% reporting timeliness		
Number and percent of HF with more than 100% reporting timeliness		

Total health facilities

Completeness of Reported Indicator

OD name: _____

Date: _____

Period covered: From_____To_____

Name of the OD TB supervisor completing the tool: _____

(*Use multiple checklists to assess multiple indicators)*

OD TB supervisor's checklist for assessment of completeness of Indicator Data (List the name of the indicator used for reporting here….)															
Name of health facilities	**Enter the number of monthly Indicator reports received by OD from the health centre.**												**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**	**0**	**P**
M															

N															
O															
P															
Q															
R															
S															
T															
U															
V															
OD totals															

Metrics	**Summary results**
	Number
Number of operational districts with completeness rate below 90 %	
Number of districts with 100 % expected results	
Number of districts between 91-99	
Number and percent of HFs with reporting completeness rate more than 100 %	

Total number of health facilities

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)*

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 = 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 health facilities over-reporting						

Total number of health facilities under-reporting	
Total number of health facilities exactly matching	

Internal Consistency Over Time

OD name: _____

Date: _____

Period covered: From_____to_____

Name of the OD TB supervisor completing the tool: _____

(*Use multiple checklists to assess multiple indicators)*

OD TB Supervisor Checklist for Internal Consistency Over Time															
Name of health centre	**Preceding Months (Specify below)**												**Current month (Specify below)**	**Average of preceding 12 months in 2020 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	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Feb-23**			
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**

OD Totals															

Metrics	**Summary Results**	
	Number	**Percent**
HF with at 33% or more difference between the HF and operational district ratio		
HF with at less than 33% difference between the HF and operational district ratio		
Total number		

Examples of Data Quality Assessment Tools

A. Example of completeness reporting

In this example, the OD has 27 HFs. Therefore, the expected number of reports at the OD level would be 24 (2 reports per month x 12 months). However, the actual number of reports received was 577 (as shown in the last row of the table). Therefore, the reporting completeness rate for this OD is 577/648 / = 89 percent.

The table below shows the reporting completeness rate of each individual HF. With this information, the number and percentage of HFs achieving 90 percent–100 percent reporting compliance, 75 percent–90 percent reporting compliance, below 75 percent reporting compliance, and reporting more than 100 percent can be measured. In the example below, two HFs submitted 20 and 19 of the 24 monthly reports in a given year, (i.e., their reporting completeness rates were 83 percent and 79 percent, respectively). On the other hand, 13 of the 27 HFs submitted all 24 monthly reports, thus achieving a 100 percent reporting completeness rate.

OD TB supervisor's checklist for Reporting Completeness Assessment															
Name of health facilities	**Enter the number of monthly reports received by OD from the health centre**												**Expected no. monthly reports to be sent to OD**	**Actual no. of monthly reports received by OD**	**Reporting completeness 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
M	1	1	1	1	1	1	1	1	1	1	1	2	12	13	108
N	1	1	1	1	1	1	1	1	1	1	1	6	12	17	142
O	1	1	0	1	1	0	1	0	0	1	1	1	12	8	67
P	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
Q	1	1	0	0	0	1	1	1	1	1	1	1	12	9	75

R	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
S	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
T	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
U	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
V	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
OD totals	10	10	8	9	9	9	10	9	9	10	10	16	120	119	99

Metrics	Summary results	
	Number	Percent
Number and percent of HF with reporting completeness rate between 75% - 90%	1	9
Number and percent of HF with reporting completeness rate below 75%	2	
Number and percent of HFs with reporting completeness rate 90-100%	6	55
Number and percent of HFs with reporting completeness rate more than 100 %	2	18
Total number of health facilities	11	

Only one indicator is used for completing this exercise to calculate the completeness rate.
0 means no report submitted.

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 I in the table below submitted 580 out of 580 monthly reports, and all 580 reports were submitted by the submission deadline. Thus, the reporting timeliness is 100 percent although the reporting completeness is only 90 percent for this HF.

OD supervisors checklist for assessment of reporting timeliness															
Names of health centre	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
M	16	1	1	1	1	1	1	1	1	1	1	1	1	11	69

N	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
O	8	1	1	0	1	1	0	1	0	0	1	1	1	8	100
P	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
Q	8	1	1	0	0	0	0	1	1	0	1	1	1	7	88
R	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
S	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
T	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
U	10	1	1	1	1	1	1	1	1	1	1	1	1	12	120
V	12	1	1	1	1	1	1	1	1	1	1	1	1	12	100
OD Totals	114	10	10	8	9	9	8	10	9	8	10	10	10	110	96

Metrics	Summary Results	
	Number	Percent
Number and percent of HF with timeliness rate 75% or below	**1**	**10**
Number and percent of HF with reporting completeness rate between 75% - 99%	**1**	**10**
Number and percent of HF with 100% reporting timeliness	**7**	**70**
Number and percent of HF more 100% reporting timeliness	1	**10**
Total health facilities	**10**	

Note: "0" means that the report was submitted but that it was not submitted by the submission deadline.

C. Completeness of indicator data

When calculating the completeness of indicator data, it is measured by examining the proportion of non-zero values for a specific indicator. This is achieved in two ways:

1. By measuring the number of HF reports in which no value is recorded for selected indicators in place of expected indicators value (i.e., the cells where a specific indicator value should be recorded, but is left blank).
2. By measuring the number of zero values for selected indicators on reports from administrative units

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.

At OD level, the number and percentage of HF reports in which no value is recorded (i.e., missing value) for selected indicators in place of an expected indicator value will be assessed. The example below shows the percentage of missing value for TB notification. In this form "1" means that the HF report has no missing value for the particular indicator in the report for the month in question, and "0" means that the value for the specific indicator is missing in the report for the corresponding month.

OD TB supervisor's checklist for assessment of completeness of Indicator Data (List the name of the indicator used for reporting here….)

Name of health facilities	Enter the number of monthly Indicator report received by OD from the health centre.												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	0	P
M	1	1	1	1	1	1	1	1	1	1	1	2	12	13	108
N	1	0	1	0	1	1	1	1	1	1	1	1	12	10	83
O	1	0	1	1	1	1	1	1	1	1	1	1	12	11	92
P	1	1	0	1	1	1	1	1	1	1	1	1	12	11	92
Q	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
R	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
S	1	1	0	1	1	1	1	1	1	1	1	1	12	11	92
T	1	1	1	1	1	1	1	1	1	1	1	1	12	12	100
U	1	1	1	0	1	1	1	1	1	1	1	1	12	11	92
V	1	1	1	1	1	1	0	1	1	0	1	1	12	10	83
OD totals	0	1	3	1	1	0	1	2	0	2	0	0	120	113	94

Metrics	Summary results
	Number
Number of operational districts with completeness rate below 90 %	2
Number of operational districts with 100 % expected results	3
Number of operational districts between 91-99 %	4
Number of OD with reporting completeness rate more than 100 %	1
Total number of health facilities	**10**

D. **Verification of data accuracy**

The indicator/data element used to assess data accuracy is preselected. 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 prepopulates 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.

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 = 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**
M	**1**	**1**	**1.00**	**0**	**0**	**1**
N	**1**	**0**	**0.00**	**1**	**0**	**0**
O	**1**	**0**	**0.00**	**1**	**0**	**0**
P	**1**	**1**	**1.00**	**0**	**0**	**1**
Q	**1**	**1**	**1.00**	**0**	**0**	**1**
R	**1**	**1**	**1.00**	**0**	**0**	**1**
S	**1**	**1**	**1.00**	**0**	**0**	**1**
T	**1**	**1**	**1.00**	**0**	**0**	**1**

U	1	1	1.00	0	0	1
V	1	1	1.00	0	0	1
Total number of health facilities over-reporting				2		
Total number of health facilities under-reporting					0	
Total number of health facilities exactly matching						8

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 than 33 percent 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.

OD TB Supervisor Checklist for Internal Consistency Over Time																
Name of health centre	Preceding Months (Specify below)												Current month (Specify below)	Average of preceding 12 months in 2020 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	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Feb-23			
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
O	1	1	0	1	1	0	1	0	0	1	1	1	1	1	2	40
P	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
Q	1	1	0	0	0	0	1	1	1	1	1	1	1	1	2	40
R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
T	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7

U	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
V	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-7
OD Totals	10	10	8	9	9	8	10	9	9	10	10	10	10	9	1	

Metrics	Summary Results	
	Number	Percent
HF with at 33% or more difference between the HF and operational district ratio	2	20
HF with at less than 33% difference between the HF and operational district ratio	8	80
Total number	10	

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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