

# Tuberculosis Monitoring and Evaluation Post-Training Capacity Assessment

Cambodia

September 2022



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Cambodia

## TB DIAH

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## **Abbreviations**

CENAT	National Center for Tuberculosis and Leprosy Control
COMMIT	Community Mobilization Initiatives to End Tuberculosis
M&E	Monitoring and Evaluation
NSP	National Strategic Plan
NTP	National tuberculosis program
OD	Operational District
TB	Tuberculosis
TB DIAH	TB Data, Impact Assessment and Communication Hub
ToT	Training of Trainers

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## Background

Two training of trainers (ToT) sessions were organized to develop the tuberculosis (TB) monitoring and evaluation (M&E) skills of provincial TB supervisors and laboratory supervisors working for the Cambodia National TB Program (NTP). The TB M&E sessions were led by TB DIAH headquarters, in collaboration with the Cambodia's National Center for Tuberculosis and Leprosy Control (CENAT) NTP staff. The main objective of the training was to strengthen the capacity of the NTP to conduct effective M&E. The training consisted of four modules: (1) Cambodia's NTP and TB M&E system, (2) data collection, (3) verification, and (4) analysis.

Through the curriculum, participants learned the fundamentals of TB M&E and surveillance in light of the national priorities set in the Cambodia National Strategic Plan (NSP) for TB. They also gained hands-on experience on how to analyze, interpret, and synthesize TB surveillance data to develop M&E reports, engage stakeholders, and inform programmatic and policy decisions.

The first TB M&E ToT was held in November 2021 and targeted 50 percent of TB provincial supervisors and lab supervisors. The other 50 percent were trained in March 2022. Six months after the last ToT, in August 2022, a post-training evaluation was conducted.

## Purpose

The main purpose of the post-training evaluation is to assess the level of retention of knowledge and skills gained during the ToT. The provincial supervisors serve as mentors for the operational district (OD) level TB staff. Hence, their TB M&E knowledge and skills are important to improve national TB M&E. Understanding the level of TB M&E knowledge post-training will aid the formulation of strategies for continuing education of the supervisors.

The post assessment aims to:

1. Assess the knowledge on TB M&E indicators, their interpretation and analysis
2. Assess the knowledge on data quality assurance

## Methodology

The TB M&E capacity skills assessment tool contains five sections: (1) identification of different types of TB & interpretations of TB M&E and surveillance indicators, (2) TB M&E function, (3) M&E tasks, (4) data quality, and (5) data processing and reporting.

Prior to conducting the assessment, the TB DIAH local team collected the contact information of the participants who attended the ToTs in November 2021 and March 2022. The list of participants was submitted to CENAT's Director for reference.

Upon receiving approval from the CENAT Director, a link to the tool was sent to participants using the 'telegram' platform. A demonstration video of how to access the google form and how to fill out the questionnaire was sent along with the approval letter by the TB DIAH local team.

The respondents who experienced any challenges filling out the form, were able to reach out to the team for assistance. A unique login code was sent to their individual telegram accounts.

The questionnaire was administered via Google form. It was divided into five sections based on the original tool. A link was sent to all of the participants, and they were given two days to fill out the questionnaire and send it back to the TB DIAH local team. Once they submitted their responses, they were immediately given their scores. The respondents had more than one chance to retake the assessment. Only the highest scores were used in the final analysis. The post-evaluation assessment period took place from September 9th-18th, 2022.

## Sample

were those. Participants were TB provincial supervisors, TB laboratory supervisors, and statistic and technical staff from the national level who attended the ToT in November 2021 and March 2022. A total of 60 participants were enrolled.

The respondents completed the questionnaire via a Google form based on the TB M&E capacity skills assessment tool. The answer sheets were sent back to the TB DIAH local team as a soft copy or photograph.

The questions were multiple choice. Each section in the questionnaire had a score, and an overall score was calculated once the tool was completely filled out. The scores ranged as follows:

- From 27–37: **Excellent**
- From 24–26: **Good**
- Below 24: **Poor**

## Data entry and data analysis

Answer sheets were reviewed to ensure the accuracy of the information submitted by the participants. Once reviewed, the responses in the Google form were extracted in Excel format and used for further analysis and reporting.

## Ethical consideration

Every participant gave their consent to be part of the assessment. To ensure confidentiality, a unique identification number was assigned on the answer sheet before the responses were entered into the database.

## Results

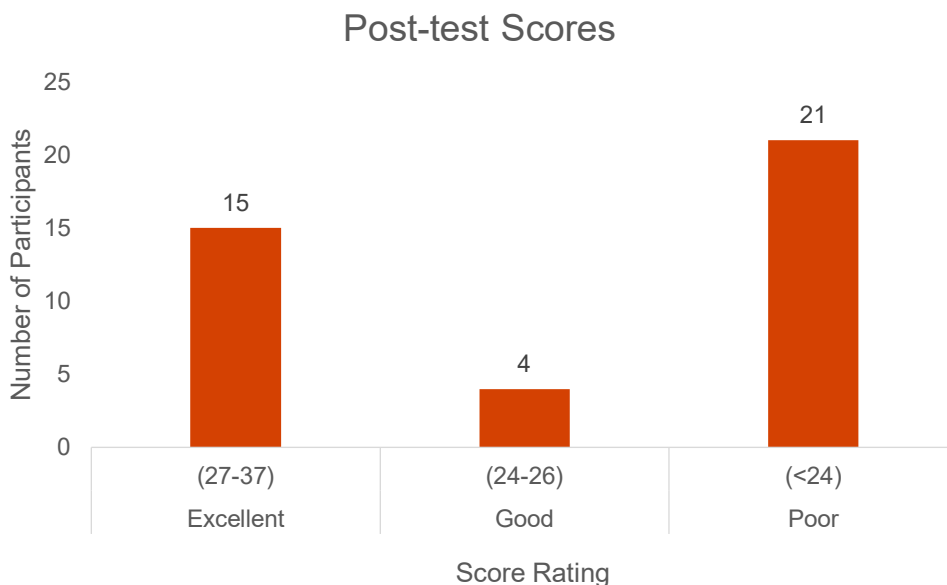
The final breakdown of participants is detailed in Table 1.

**Table 1. List of TB program staff who participated in the assessment**

No.	Role and responsibility of TB program staff at different health structures	Total number
1	TB provincial supervisors (medical)	22
2	TB lab provincial supervisor	14
3	National program (from different department)	4
Total respondents		40 (out of 60) Or 67%

The assessment had three levels of scoring: (1) excellent - ranging from 27-37; (2) good - 24-26; and (3) poor - 24 points and below. The total scores and ranges are shown in Figure 1.

**Figure 1. Respondent questionnaire scores**



Out of 40 participants, 21 scored below 24 and were classified as “poor”. 15 participants scored between 27-37, which is “excellent”, and four scored in the “good” category. Overall, around half of the participants demonstrated knowledge retention while the other half would benefit from continued engagement to enhance their TB M&E knowledge.



## Section 1: TB Definition & TB M&E and Surveillance Indicators

The first objective of the post-evaluation was to assess the knowledge of TB indicators. The tool was divided into five sections, and the three first sections assess knowledge of TB indicators.

**Table 2. The percentage of respondents (N=40) giving the correct answer to TB definition and M&E indicators**

Question	Correct answer	Respondents who gave the correct answer	
		Number	Percentage
Which of the following can be classified as bacteriologically confirmed pulmonary tuberculosis	B. Patients who have been diagnosed as bacteriologically confirmed tuberculosis using sputum smear microscopy or sputum culture or using Xpert MTB/RIF.	38	95%
Which of the following statements is <u>not correct</u> ?	A. A relapse patient is the one who was treated for TB but was defaulted for a long time and is being treated again for TB.	22	55%
Which of the following statements is <u>not correct</u> to classify a TB treatment success case?	A. TB patient who was on anti-TB treatment for over 5 months even though their treatment outcome was not evaluated OR TB patient who no longer complains of any symptoms of tuberculosis.	24	60%
	D. A TB patient who no longer complains of any symptoms of tuberculosis	6	15%
If there are 40,000 cases of TB annually, and each of these patients have on an average 3 close contacts (i.e. members of their household), and the prevalence of active TB among the close contacts is 3%, how many cases of TB can be identified per year by investigating contacts of TB index patients?	B. 3,600	26	65%
The estimated number of TB cases (all forms) in the OD catchment area for the current period is 265. The health facilities in your OD have registered 87 TB patients during this period. Calculate the TB treatment coverage in the OD for the current period.	D. 33%	36	90%
Which is the correct method to calculate the RR/MDR TB treatment success rate for 2018?	D. Percent of rifampicin-resistant (RR)/multidrug-resistant (MDR)-TB cases who were enrolled on treatment in 2018 and got successfully treated	24	60%
Which statement below is <u>not correct</u> for the indicator "Percent of extra pulmonary TB cases notified"?	A. The numerator is new and relapse extrapulmonary TB cases who were bacteriologically or clinically diagnosed during reporting period, and the denominator is the total number of new and relapse TB cases and cases with	22	55%

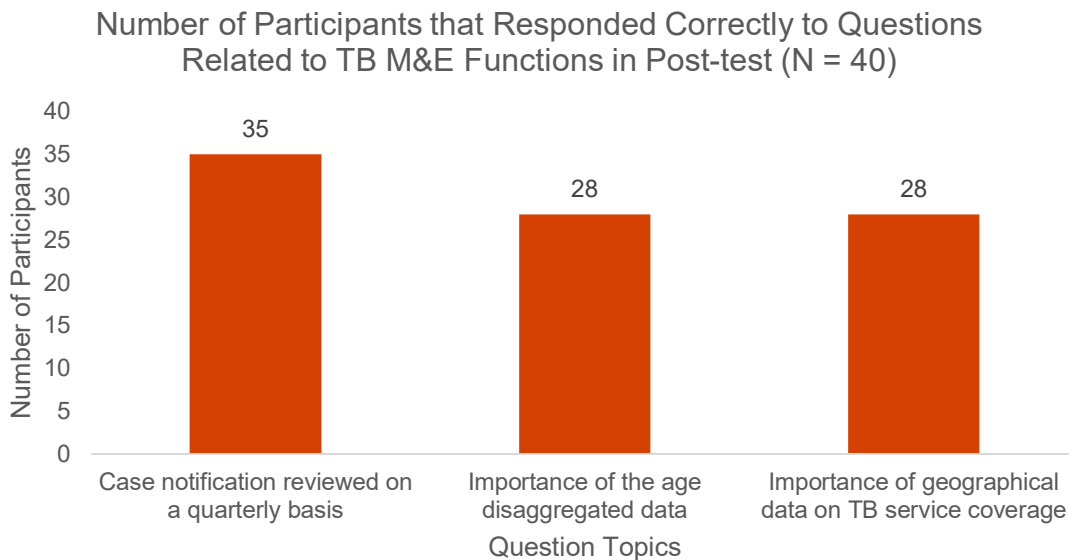
Question	Correct answer	Respondents who gave the correct answer	
		Number	Percentage
	unknown previous TB treatment history during reporting period		
	D. The numerator is extrapulmonary TB cases (new and relapse, bacteriologically confirmed, or clinically diagnosed) notified during the reporting period, and the denominator is total number of bacteriologically diagnosed extrapulmonary cases during the reporting period.	5	13%
Which indicator is calculated using these data: Number of HIV-positive TB patients that started or continued on ART during reporting period divided by Number of new and relapse TB patients recorded as HIV-positive during reporting period?	A. Percent of HIV-positive TB patients started or continued on ART	34	85%
Which of the statements below are relevant to the indicator: "Number of close contacts of bacteriologically confirmed pulmonary TB cases who were screened for TB infection (tested for TB infection) according to national screening protocols during the specified reporting period"?	D. All of the above	23	58%
Which one is <u>not directly related</u> to measuring the internal/external consistency of reported data?	C. Reports are submitted/received on time through the levels of the information system data flow.	24	60%

## Section 2: TB M&E functions competency

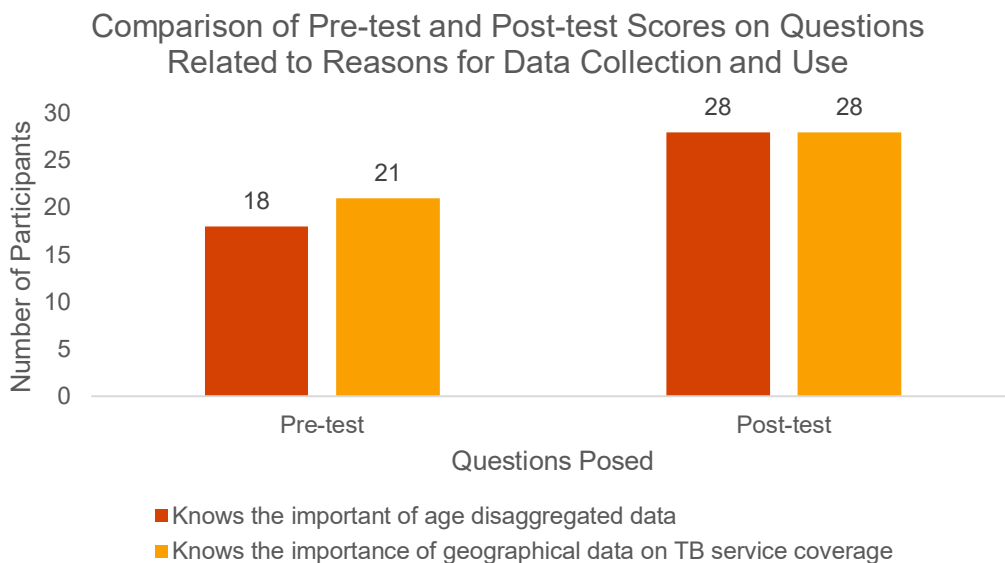
The second section assessed the participants' practice of TB M&E in the TB program.

Out of 40 participants, 35 knew that TB cases should be collected on a quarterly basis. When it came to the importance of collecting data on age and geography, however, only 28 answered correctly.

**Figure 2. Assessing the TB M&E practice of the participants**



**Figure 3: Comparison of pre-test and post-test scores on TB M&E practice**



In the pre-evaluation, 21 of 29 participants knew that collecting geographic data on TB service coverage is important. This increased during the post evaluation from 21 to 28 participants. Also, 28 out of 40 participants from the post training evaluation knew that collecting geographic data is needed for the TB program.

### Section 3: Competency to perform M&E tasks

When asked why population data is needed, only 13 participants among 40 answered correctly. The self-evaluation on TB M&E performance was assessed. Participants performed well when choosing the appropriate charts needed to show various types of M&E information. This section required some calculation and most of the participants answered correctly.

**Table 3. Assessing to TB M&E practice of the participants (N=40)**

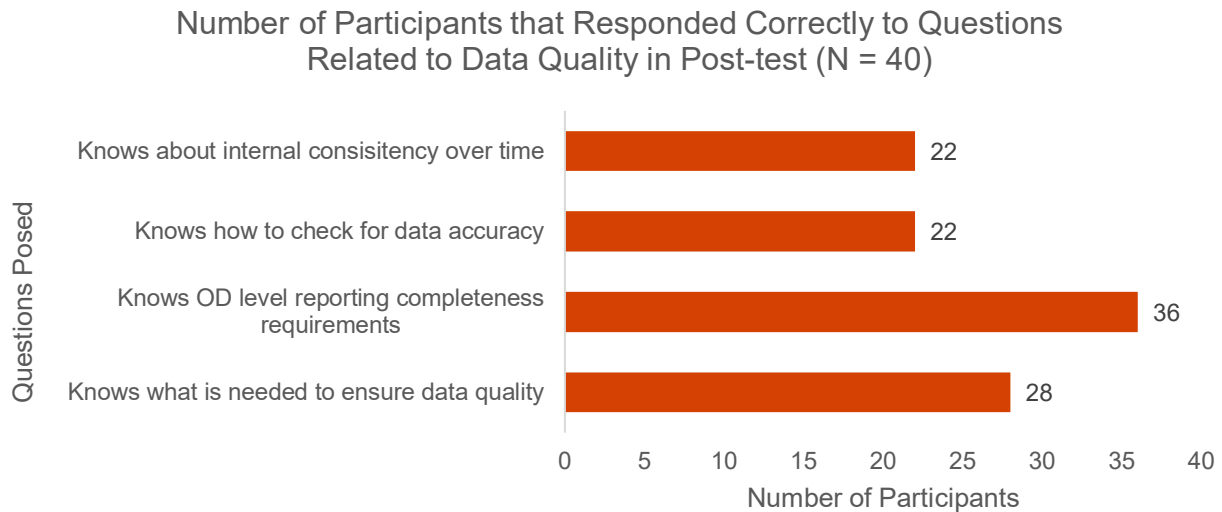
Question	1st Answer		2nd Answer		3rd Answer	
	N	%	N	%	N	%
<b>TB M&amp;E functions competency</b>						
Why population data is needed (e.g., information on the number of people living in the catchment area, disaggregated by relevant characteristics, such as age and sex)?	13	33%	4	10%	9	23%
<b>Competency to perform M&amp;E tasks</b>						
Please choose the correct chart that shows the distribution of people, by their age groups, tested for TB at the four facilities in Muk Kampul OD	27	68%	(n/a)*	(n/a)	(n/a)	(n/a)
Among the operational districts shown in the above graph, which attained the target coverage rate (80%) by the end of 2020?	27	68%	3	8%	8	20%
Which of the statements below apply to this chart?	28	70%	3	8%	(n/a)	(n/a)
A survey in a health center catchment area found 500 children under five years of age who were malnourished. The total population of children less than five years of age in that catchment area was 5,000. What is the malnutrition rate?	38	95%	(n/a)	(n/a)	(n/a)	(n/a)
If the malnutrition rate in children under two years of age was 20 percent and the total number of children less than two years of age was 10,000, calculate the number of children who are malnourished	39	98%	(n/a)	(n/a)	(n/a)	(n/a)

\* Multiple answers were required but not to all the questions, so 'n/a': the answer not required

## Section 4: Assessing Data Quality Assurance and Data Analysis

This section of the tool assessed capacity to check data quality using the existing data quality assurance mechanisms. It also checked ability to define a data quality problem at the program level (figure 4). More than half of the participants confirmed the availability of the report at the district level, and were able to review the report and check its quality.

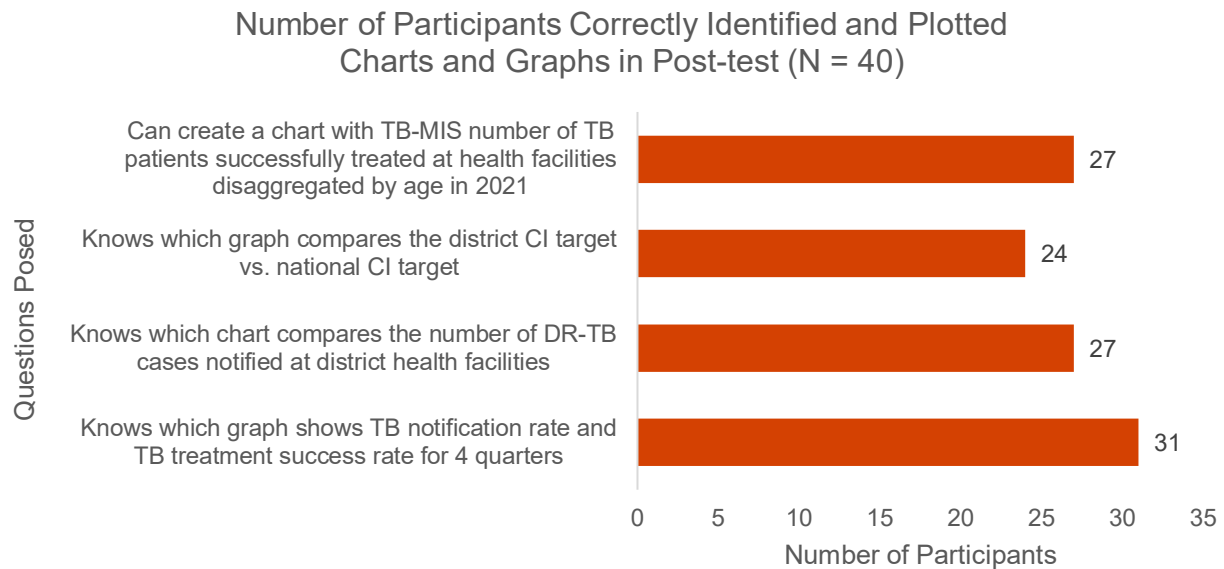
**Figure 4. Self-evaluation of data quality checking capacities in Post-test**



## Section 5: Data processing and reporting

This section asked the participants to choose the correct chart plotted for each question. Most of the participants answered correctly (minimum was 24 out of 40 participants). This showed that they understood the indicators extracted and plotted to use in the report. Despite the difference in the number of participants who took the pre-test (26) vs. the post-test (40), during the assessment of competency to use data (e.g., plotting the chart and data visualization), in the pre-test most of the participants received a “good” score/rating; this score/rating increased in the post-test.

**Figure 5. Self-evaluation of data processing and reporting during post-test**



## Conclusion

The TB M&E capacity skills post-assessment of the national-level managers and provincial TB supervisors provides insight into their existing levels of self-efficacy and competency in carrying out M&E tasks and to the extent to which these tasks are carried out at their respective provinces and ODs, after an initial round of trainings. Overall, almost half of the participants' scores ranged from good to excellent, which indicates that the training imparted good knowledge of TB M&E to support routine work.

An interesting finding was that participants answered questions related to their routine work as TB professionals (e.g., using M&E data) confidently. Implementing daily tasks seems to have been strengthened by the two training sessions.

An area requiring more learning is TB indicators. The participants did not have any issues responding to the field where the TB indicators belonged, but when asked to use the TB indicators, they tended to score lower. Questions testing their knowledge on the TB indicators for the program were answered correctly more often than those that tested how to use those indicators.

Based on the results, in the data use section, most participants can read, interpret, and plot charts and figures. Since half of them still need to strengthen their M&E knowledge, the M&E e-Learning modules will be beneficial, and each participant will be able to connect to the CENAT website and learn on their own time.

## **Assessment Implementation Challenges**

### *CENAT Staff Turnover*

There were two CENAT staff members who participated in the ToTs who were retired from their positions. This is a constraint to the TB program and this assessment as they enhanced their capacity in the M&E field, but did not implement their knowledge.

### *Decline to Participate*

Partners who served as facilitators and as core trainers during the OD level training opted out of participating in the assessment.

### *Participant Response*

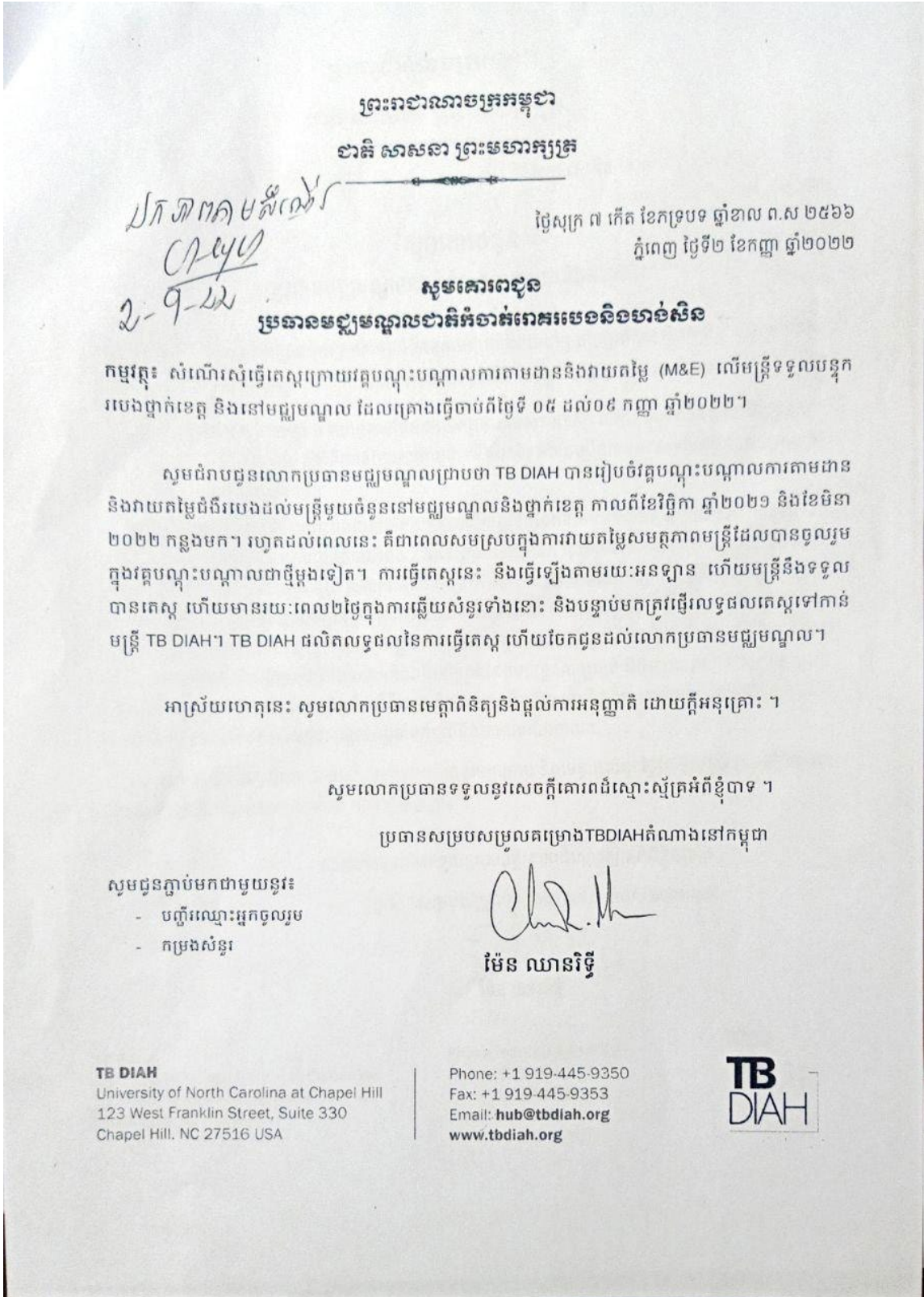
A list of 62 participants were initially targeted for assessment, but only 40 participants (67 percent) responded.

Six non-participants from KHANA/COMMIT provided a clear reason to not participate in the assessment - they knew the answers already. The non-participants from CENAT did not provide any reason for opting out of the post-test. Some of the TB provincial supervisors who did not respond back stated time constraints as a challenge to completing the assessment.

### *The implementation*

The expected length of the assessment was four days (two days to send the form to all respondents and two days to receive the answers). However, the process took longer than expected. Responses were often obtained only with close follow up and it proved time-consuming to register the telephone numbers of participants into the Telegram application which was used to facilitate communication. Additionally, developing and sending to each participant a copy of the official approval letter from CENAT signed by the Director, the Google form link to the assessment, the unique code, and the video instructions to complete the assessment (approximately 13 minute video) all took longer than expected.

**Annex I: Approval letter from CENAT's Director to conduct the evaluation**





## Annex II: Assessment Tool

### Section 1: Definitions of TB & interpreting TB M&E and surveillance indicators

Please select the most accurate answer.	
Q01	<p><b>Which of the following can be classified as bacteriologically confirmed pulmonary tuberculosis?</b></p> <ul style="list-style-type: none"> <li>A. Patients whose lungs are infected with tuberculosis bacilli, without any obvious manifestation of the disease or laboratory evidence</li> <li>B. Patients who have been diagnosed with bacteriologically confirmed tuberculosis using sputum smear microscopy or sputum culture, or using Xpert MTB/RIF</li> <li>C. Patients with tuberculosis showing effusion of the lungs even though there is no radiological abnormality in the lungs</li> <li>D. Patients with signs and symptoms of tuberculosis as well as radiological abnormality in the lungs but no laboratory evidence</li> </ul> <p>Answer: B</p>
Q02	<p><b>Which of the following statements is not correct?</b></p> <ul style="list-style-type: none"> <li>A. A relapse patient is one who was treated for TB but was defaulted for a long time and is being treated again for TB.</li> <li>B. A new TB patient is one who is starting anti-TB treatment for the first time for the current episode of the disease, even though the patient might have been treated for another episode of the infection previously.</li> <li>C. RR-TB (rifampicin-resistant TB) includes all cases of resistance to rifampicin detected using phenotypic or genotypic methods, with or without resistance to other anti-TB drugs. It includes any resistance to rifampicin, whether monoresistance, multidrug resistance, polydrug resistance, or extensive drug resistance.</li> <li>D. An HIV-negative TB patient who is negative at the time of TB diagnosis and develops HIV infection during the course of TB treatment should be reclassified as an HIV-positive TB patient.</li> </ul> <p>Answer: A</p>
Q03	<p><b>Which of the following statements is not correct to classify a TB treatment success case?</b></p> <ul style="list-style-type: none"> <li>A. TB patient who was on anti-TB treatment for over 5 months even though their treatment outcome was not evaluated</li> <li>B. A pulmonary TB patient with bacteriologically confirmed TB at the beginning of treatment who was smear- or culture-negative in the last month of treatment and on at least one previous occasion</li> <li>C. A TB patient who has completed the treatment without evidence of failure but who does not have a negative sputum smear or culture result in the last month of treatment and on at least one previous occasion either because tests were not done or because results are unavailable</li> <li>D. A TB patient who no longer complains of any symptoms of tuberculosis</li> </ul> <p>Answer: A and D</p>

Q04	<p><b>If there are 40,000 cases of TB annually, and each of these patients have on an average 3 close contacts (i.e. members of their household), and the prevalence of active TB among the close contacts is 3%, how many cases of TB can be identified per year by investigating contacts of TB index patients?</b></p> <p>A. 12,000 B. 3,600 C. 1,200 D. 4,000</p>
	Answer: B
Q05	<p><b>The estimated number of TB cases (all forms) in the OD catchment area for the current period is 265. The health facilities in your OD have registered 87 TB patients during this period. Calculate the TB treatment coverage in the OD for the current period.</b></p> <p>A. 30% B. 27% C. 23% D. 33%</p>
	Answer: D
Q06	<p><b>Which is the correct method to calculate the RR/MDR TB treatment success rate for 2018?</b></p> <p>A. Number of rifampicin-resistant (RR)/multidrug-resistant (MDR)-TB cases who were cured in 2019 B. Percent of rifampicin-resistant (RR)/multidrug-resistant (MDR)-TB cases successfully enrolled for treatment in 2018 C. Number of rifampicin-resistant (RR)/multidrug-resistant (MDR)-TB cases who were successfully treated by 2018 D. Percent of rifampicin-resistant (RR)/multidrug-resistant (MDR)-TB cases who were enrolled on treatment in 2018 and subsequently were successfully treated</p>
	Answer: D
Q07	<p><b>Which statements below are not correct for the indicator “Percent of extrapulmonary TB cases notified”?</b></p> <p>A. The numerator is new and relapsed extrapulmonary TB cases who were bacteriologically or clinically diagnosed during the reporting period. B. The numerator is extrapulmonary TB cases (new and relapse, bacteriologically confirmed, or clinically diagnosed) notified during the reporting period. C. The denominator is the total number of bacteriologically diagnosed extrapulmonary cases during the reporting period. D. The denominator is the total number of new and relapse TB cases and cases with unknown previous TB treatment history during the reporting period.</p>
	Answer: A and D

Q08	<p><b>Which indicator is calculated using these data: Number of HIV-positive TB patients that started or continued on ART during the reporting period divided by Number of new and relapse TB patients recorded as HIV-positive during the reporting period?</b></p> <p>A. <math>\frac{\text{\# HIV-positive TB patients started/continued on ART}}{\text{\# of new and relapse TB patients recorded HIV+}}</math></p> <p>B. Percent of HIV-positive TB patients started or continued on ART  C. Percent of DR-TB patients recorded as HIV-positive  D. Percent of TB patients with known HIV status  E. Percent of TB patients recorded as HIV-positive</p>
Answer: A	
Q09	<p><b>Which of the statements below are relevant to the indicator: “Number of close contacts of bacteriologically confirmed pulmonary TB cases who were screened for TB infection (tested for TB infection) according to national screening protocols during the specified reporting period”?</b></p> <p>A. Every contact will first be assessed for active TB as per national protocols; once active TB has been ruled out, assessment for TB infection becomes relevant.  B. This indicator is calculated as “total number of contacts screened” (TB infection screening protocols may vary by country; some countries may screen using a screening test such as the tuberculin skin test [TST] or interferon-gamma release assay [IGRA]).  C. This indicator is used to monitor performance on intensified TB case finding.  D. All of the above  E. Statements ‘A’ and ‘B’ only</p>
Answer: D	
Q10	<p><b>Which one is not directly related to measuring the internal/external consistency of reported data?</b></p> <p>A. Whether data are free of outliers (within bounds), by assessing whether specific reported values within the selected period (such as monthly) are extreme, relative to the other values reported  B. Trends in reporting over time, to identify extreme or implausible values year-to-year  C. Reports are submitted/received on time through the levels of the information system data flow  D. The program indicator compared to other indicators with which they have a predictable relationship, to determine whether the expected relationship exists between the two indicators</p>
Answer: C	
Total score:	_____ / 13 points

## Section 2: TB M&E functions competency

<b>Please choose the correct answers</b>	
Q11	<p><b>TB case notification is reviewed on a quarterly basis to:</b></p> <p>A. Take action and replenish medicines and other supplies (reduce stockouts of essential supplies)  B. Plan preventive and promotive activities  C. Identify disease outbreaks and to address epidemics  D. All of the above</p>
Answer: D	

Q12	<p><b>TB treatment outcomes (success, failure, default, lost to follow-up) are regularly monitored to:</b></p> <ul style="list-style-type: none"> <li>A. Know the effectiveness of interventions for ending TB</li> <li>B. Measure the extent of the population that is being screened for TB</li> <li>C. Know the treatment outcome rate</li> <li>D. Plan for improving follow-up care and lost-to-follow-up patient search</li> <li>E. Assess the knowledge of the staff on TB outcomes</li> </ul> <p>A, C, D</p> <p>Answer: A, C and D</p>
Q13	<p><b>Why is age disaggregated data on key TB indicators important?</b></p> <ul style="list-style-type: none"> <li>A. Since TB is a disease of adults, the data is used to monitor whether people of age group 40 years and above are being properly diagnosed and treated.</li> <li>B. Age disaggregated data is required mainly for reporting to the national TB program.</li> <li>C. It helps to ensure equitable service coverage of people across all age groups.</li> <li>D. Age disaggregated data is difficult to get, and, therefore, it is not reported or used.</li> </ul> <p>Answer: C</p>
Q14	<p><b>Why is gender disaggregated data on key TB indicators important?</b></p> <ul style="list-style-type: none"> <li>A. Since TB is a disease mostly of men, the data is used to monitor whether a higher number of men are being properly diagnosed and treated.</li> <li>B. Gender disaggregated data helps to know which group is most affected by TB.</li> <li>C. It helps to ensure equitable service coverage across all gender groups.</li> <li>D. B, C</li> <li>E. All of the above</li> </ul> <p>Answer: D</p>
Q15	<p><b>How is geographical data on TB service coverage used?</b></p> <ul style="list-style-type: none"> <li>A. It helps to plan for providing directly observed treatment (DOT) to TB patients.</li> <li>B. The data is used to follow up people with TB.</li> <li>C. Geographical data is helpful for disease surveillance and monitoring epidemic response.</li> <li>D. Geographical data is mostly used to develop geographical information system (GIS) maps.</li> </ul> <p>Answer: C</p>
Q16	<p><b>Why are population data needed (e.g., information on the number of people living in the catchment area, disaggregated by relevant characteristics, such as age and sex)?</b></p> <ul style="list-style-type: none"> <li>A. To use as the nominator for calculation of TB program performance indicators</li> <li>B. To use as the denominator for calculation of TB indicators</li> <li>C. To plan the delivery of various health services</li> <li>D. To calculate the workload of the health staff</li> <li>E. B, C</li> <li>F. All of the above</li> </ul> <p>Answer: E ( B and C)</p>
Total score:	<p>_____ / 6 points</p>

### Section 3: Competency to perform M&E tasks

Please solve the following problems in compiling data, calculating percentages, plotting data, and interpreting information.

Q17

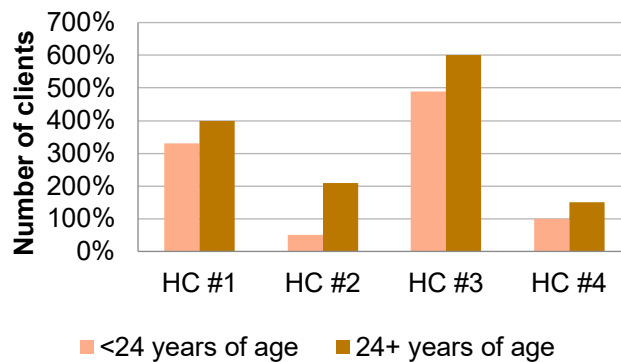
Table 1. below shows the quarterly screening results for Muk Kampul OD. In this OD, government facilities carry out active screening for TB. During a recent review of the data, it was discovered that youth (younger than age 24) account for a significant number of new TB infections. In response to this data, health centers in Muk Kampul OD regularly review TB data to inform decisions related to increasing the uptake of TB screening services among youth.

Table 1. TB counseling and testing monthly summary, December 2009

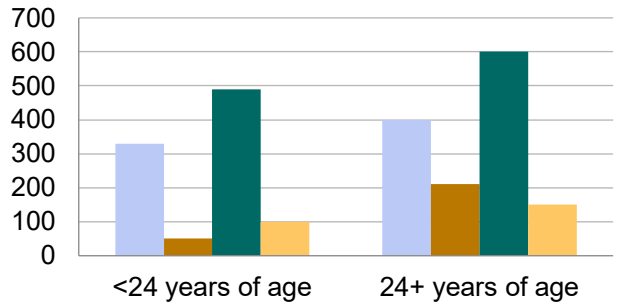
TB Screening Indicators		HC # 1		HC # 2		HC # 3		HC # 4	
		Age of client (in years)							
		<24	24+	<24	24+	<24	24+	<24	24+
TBS1	Number of clients screened for TB	341	401	61	226	501	623	108	151
TBS2	Number of clients tested for TB	339	399	53	220	494	600	108	151
TBS3	Number of clients who received their test results	338	399	40	214	431	487	107	151
TBS45	Number of clients who tested positive for TB	30	41	9	63	96	141	17	19
TBS6	Number of clients referred to TB treatment center	30	41	4	41	84	98	4	8

Please select the correct bar chart that shows the distribution of people, by their age groups, tested for TB at the four facilities in Muk Kampul OD.

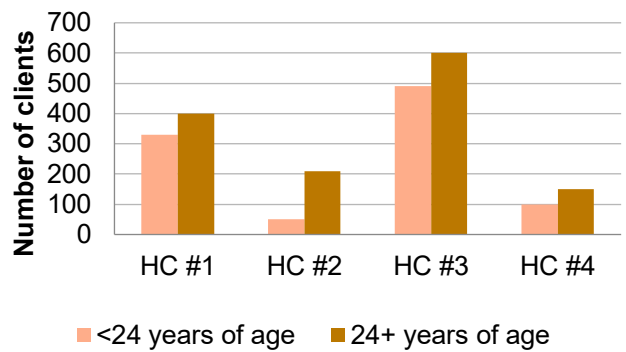
#### A. Age distribution of clients tested for TB by health facility



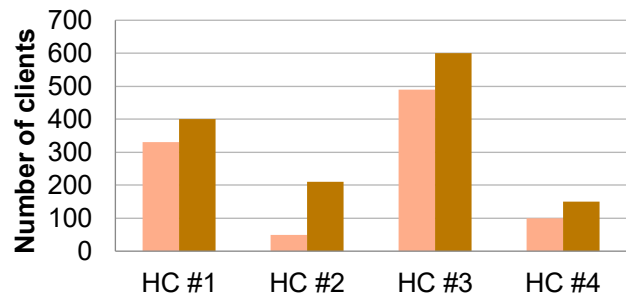
**B. Age distribution of clients tested for TB by health facility**



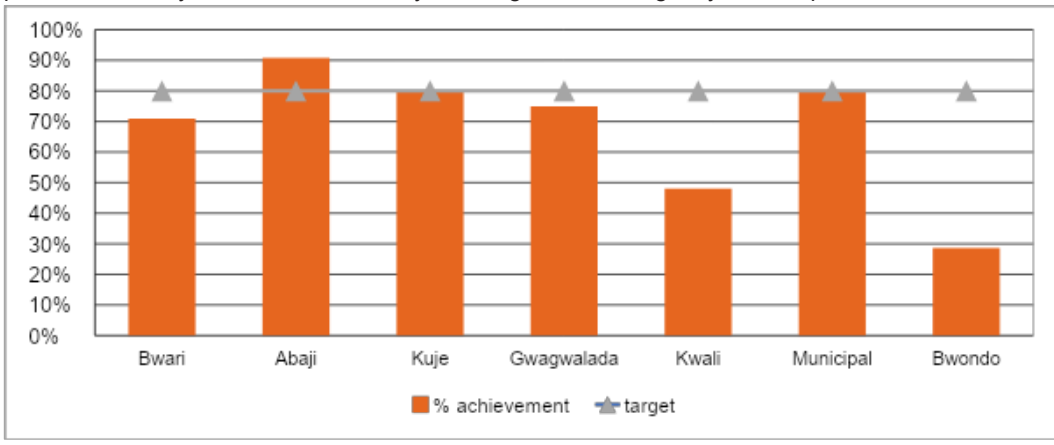
**C. Age distribution of clients tested for TB by health facility**

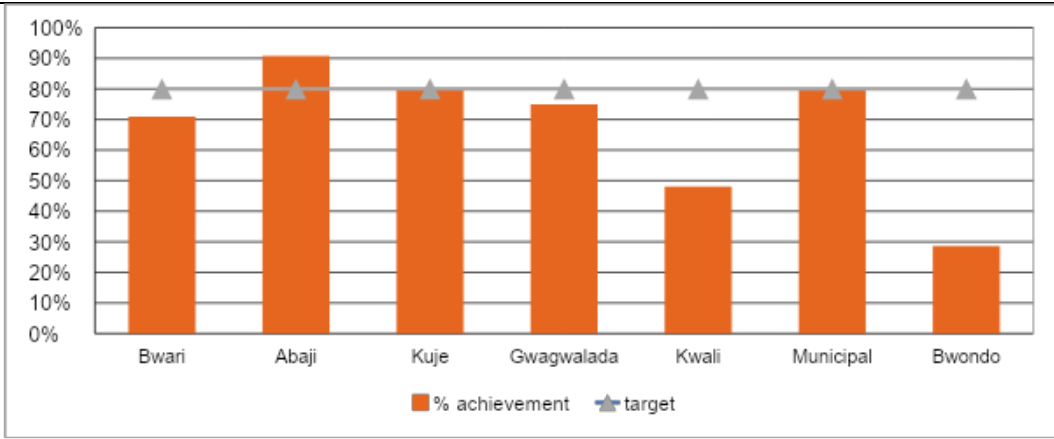


**D. Age distribution of clients tested for TB by health facility**



Answer: C

<p>Q18</p>	<p>Investigating contacts of bacteriologically confirmed pulmonary TB patients is a key strategy to find missing TB cases. The government’s National Strategic Plan set a goal to investigate contacts of all newly diagnosed bacteriologically confirmed pulmonary TB patients. To meet this goal, the National TB Program initiated an effort to visit households of every newly diagnosed bacteriologically confirmed pulmonary TB patient using the village health support group (VHSG). The target is to achieve at least 80% coverage of investigating the contacts of newly diagnosed bacteriologically confirmed pulmonary TB patients. (2 points)</p> <p>Figure 1. Percent of bacteriologically confirmed pulmonary TB patients whose contacts were investigated in the period of January to December 2020 by a local government agency, as compared to the national target</p>  <table border="1" data-bbox="324 472 1372 913"> <caption>Data for Figure 1: Percent of bacteriologically confirmed pulmonary TB patients whose contacts were investigated</caption> <thead> <tr> <th>District</th> <th>% achievement</th> <th>target</th> </tr> </thead> <tbody> <tr> <td>Bwari</td> <td>70%</td> <td>80%</td> </tr> <tr> <td>Abaji</td> <td>90%</td> <td>80%</td> </tr> <tr> <td>Kuje</td> <td>80%</td> <td>80%</td> </tr> <tr> <td>Gwagwalada</td> <td>75%</td> <td>80%</td> </tr> <tr> <td>Kwali</td> <td>50%</td> <td>80%</td> </tr> <tr> <td>Municipal</td> <td>80%</td> <td>80%</td> </tr> <tr> <td>Bwondo</td> <td>30%</td> <td>80%</td> </tr> </tbody> </table> <p><b>Among the districts shown in the above graph, which attained the target coverage rate (80%) by the end of 2020?</b></p> <p>A. Kuje  B. Gwagwalada  C. Abaji  D. Municipal  A, C, D</p> <p>Answer: A, C and D</p>	District	% achievement	target	Bwari	70%	80%	Abaji	90%	80%	Kuje	80%	80%	Gwagwalada	75%	80%	Kwali	50%	80%	Municipal	80%	80%	Bwondo	30%	80%
District	% achievement	target																							
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Gwagwalada	75%	80%																							
Kwali	50%	80%																							
Municipal	80%	80%																							
Bwondo	30%	80%																							
<p>Q19</p>	<p>Investigating contacts of bacteriologically confirmed pulmonary TB patients is a key strategy to find missing TB cases. The government’s National Strategic Plan set a goal to investigate contacts of all newly diagnosed bacteriologically confirmed pulmonary TB patients. To meet this goal, the National TB Program initiated an effort to visit households of every newly diagnosed bacteriologically confirmed pulmonary TB patient using the village health support group (VHSG). The target is to achieve at least 80% coverage of investigating the contacts of newly diagnosed bacteriologically confirmed pulmonary TB patients.</p> <p>Figure 1. Percent of bacteriologically confirmed pulmonary TB patients whose contacts were investigated in the period of January to December 2020 by a local government agency, as compared to the national target</p>																								



Which of the statements below apply to this chart:

- A. The national target is to have 80% of the contacts investigated.
- B. Kwali has achieved less than 50% of the national target.
- C. Bwondo needs particular attention since they are over 50% points below the national target.
- D. The national target for contact investigation is that contacts of 80% or more of bacteriologically diagnosed pulmonary TB patients should be investigated for TB disease and TB infection.
- E. Bwari and Kwali have lower performance because the prevalence of TB is lower in those districts.

Answer: A and B

Q20 **A survey in a health center catchment area found 500 children under five years of age who were malnourished. The total population of children less than five years of age in that catchment area was 5,000. What is the malnutrition rate? (2 points)**

- A. 10.1%
- B. 10%
- C. 9.9%

Answer: B

Q21 **If the malnutrition rate in children under two years of age was 20% and the total number of children less than two years of age was 10,000, calculate the number of children who are malnourished.**

- A. 2,000 children
- B. 2,200 children
- C. 2,220 children

Answer: A

Total score: \_\_\_\_\_ / 10 points



## Section 4: Data quality

Please select the correct answers																																																													
Q22	<p><b>To ensure quality of data, which of the following aspects of data are assessed routinely?</b></p> <p>A. Data accuracy, report timeliness, report completeness, internal consistency of data, and reliability of the reported indicators</p> <p>B. Data accuracy, report timeliness, report completeness, and reliability of the reported indicators</p> <p>C. Data accuracy, report timeliness, report completeness, and internal consistency of data</p> <p>D. Data accuracy, report timeliness, report completeness, internal consistency, and external consistency</p> <p>Answer: D</p>																																																												
Q23	<p><b>How is the availability of quarterly TB reports at a district health office monitored?</b></p> <p>A. Checking whether the district office maintains a list of health facilities who have submitted their reports</p> <p>B. Calculating the percent of reports available by dividing the total number of reports available by the total number of expected reports for that quarter</p> <p>C. Reviewing the names of which health facilities have submitted the quarterly reports</p> <p>D. All of the above</p> <p>Answer: D</p>																																																												
Q24	<p><b>Which statements below are correct?</b></p> <p>A. Verification factor (VF) calculates the accuracy of reported data of selected indicators by comparing with data in the source document.</p> <p>B. VF is calculated by dividing recounted data by reported data.</p> <p>C. If VF is &lt;100%, it means there is over-reporting.</p> <p>D. The acceptable range of VF could be 90%–110%.</p> <p>E. All of the above</p> <p>Answer: E</p>																																																												
Q25	<p>Table 2. provides data reported by five districts from 2018–2021.</p> <table border="1"> <thead> <tr> <th rowspan="2">District</th> <th colspan="4">Year</th> <th rowspan="2">Mean of Preceding 3 Years (2018-2021)</th> <th rowspan="2">Ratio of 2021 to Mean of 2018-2021</th> <th rowspan="2">% Difference between National and District Ratios</th> </tr> <tr> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>30242</td> <td>29543</td> <td>26848</td> <td>32377</td> <td>28878</td> <td>1.12</td> <td>0.03</td> </tr> <tr> <td>B</td> <td>19343</td> <td>17322</td> <td>16232</td> <td>18819</td> <td>17632</td> <td>1.07</td> <td>0.08</td> </tr> <tr> <td>C</td> <td>7512</td> <td>7701</td> <td>7403</td> <td>7881</td> <td>7539</td> <td>1.05</td> <td>0.09</td> </tr> <tr> <td>D</td> <td>15355</td> <td>15047</td> <td>14788</td> <td>25123</td> <td>15063</td> <td>1.67</td> <td>0.44</td> </tr> <tr> <td>E</td> <td>25998</td> <td>23965</td> <td>24023</td> <td>24259</td> <td>24662</td> <td>0.98</td> <td>0.16</td> </tr> <tr> <td><b>National</b></td> <td><b>98450</b></td> <td><b>93578</b></td> <td><b>89294</b></td> <td><b>108459</b></td> <td><b>93774</b></td> <td><b>1.16</b></td> <td></td> </tr> </tbody> </table> <p>Considering the trend from 2018–2020, which district’s data for 2021 is not internally consistent, and why?</p>	District	Year				Mean of Preceding 3 Years (2018-2021)	Ratio of 2021 to Mean of 2018-2021	% Difference between National and District Ratios	2018	2019	2020	2021	A	30242	29543	26848	32377	28878	1.12	0.03	B	19343	17322	16232	18819	17632	1.07	0.08	C	7512	7701	7403	7881	7539	1.05	0.09	D	15355	15047	14788	25123	15063	1.67	0.44	E	25998	23965	24023	24259	24662	0.98	0.16	<b>National</b>	<b>98450</b>	<b>93578</b>	<b>89294</b>	<b>108459</b>	<b>93774</b>	<b>1.16</b>	
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	<p>A. District “C,” because the number reported by this district is very low compared to other districts</p> <p>B. District “E,” because the number shows a drop in 2022 compared with the past three-years trend</p> <p>C. District “D,” because any difference between the district and national ratio that is <math>\geq 33\%</math> is considered as inconsistent, unless there is something dramatic happening</p> <p>D. All districts, because every district is showing upward and downward fluctuations in reported figures over the years 2018–2021.</p>
	Answer: C
Total score:	_____ / 4 points

### Section 5: Data processing and reporting

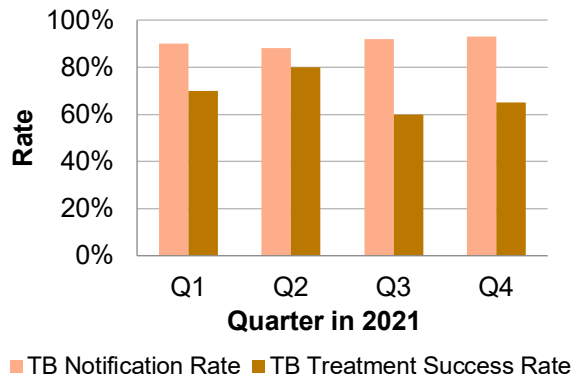
Please select the correct chart.

Q26 Please select the graph that shows TB notification rate and TB treatment success rate for the past four quarters for your district.

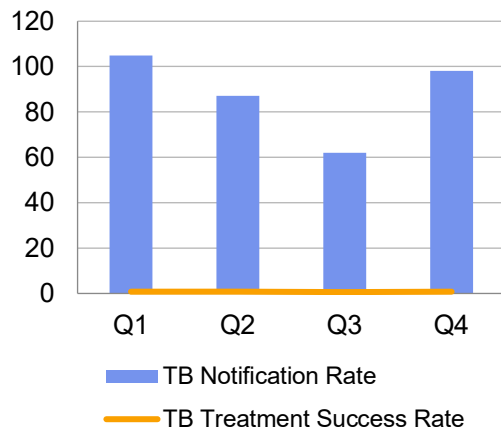
**A. TB notification rate and TB treatment success rate by quarter**

Quarter	Notification Rate (%)	Treatment Success Rate (%)
Q1	~90	~70
Q2	~90	~80
Q3	~95	~60
Q4	~95	~65

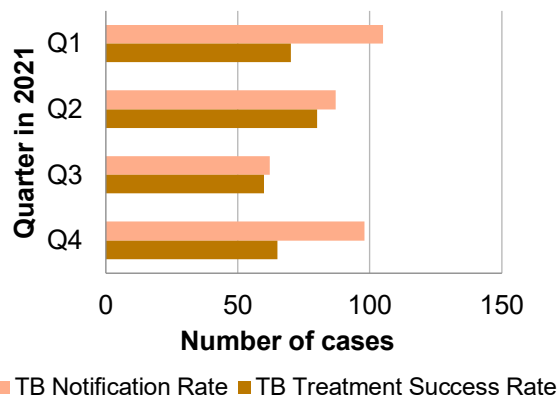
**B. TB notification rate and TB treatment success rate by quarter**



**C. TB notification rate and TB treatment success rate by quarter**



**C. TB notification rate and TB treatment success rate by quarter**

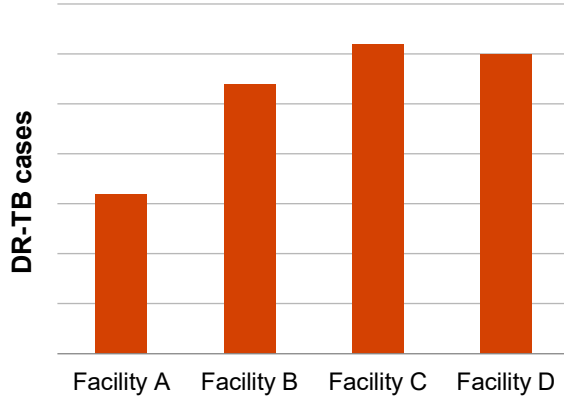


Answer: B

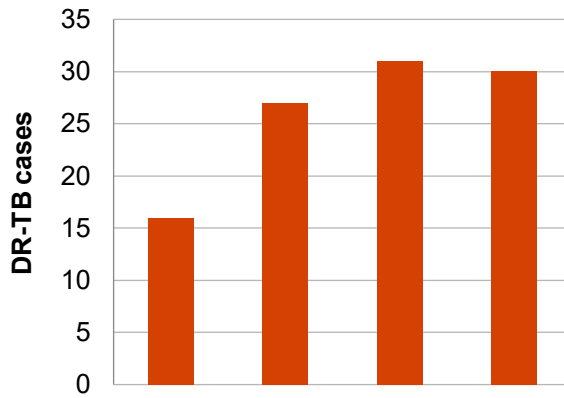
Q27

Please select the chart that shows the comparison of the number of DR-TB cases notified among facilities in the district.

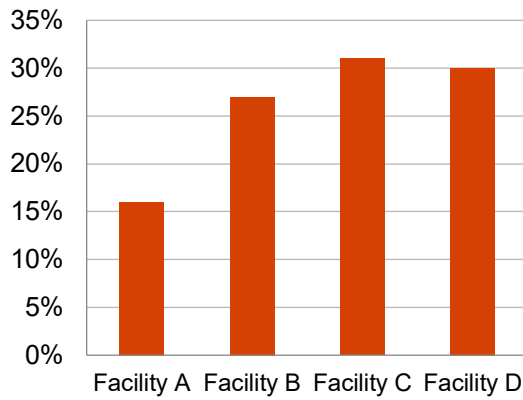
**A. DR-TB cases notified by facility in District 1, 2021**



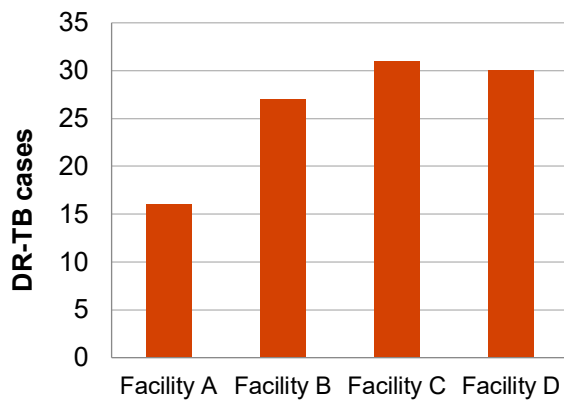
**B. DR-TB cases notified by facility in District 1, 2021**



**C. DR-TB cases notified by facility in District 1, 2021**



**D. DR-TB cases notified by facility in District 1, 2021**

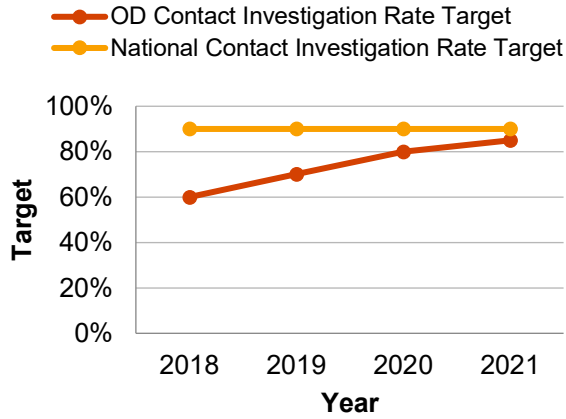


Answer: D

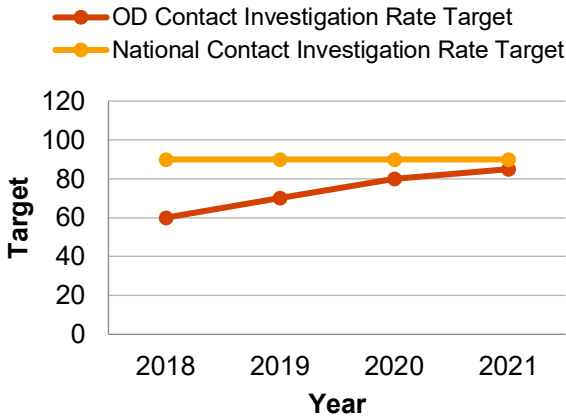
Q28

Please select the graph that shows the comparison of the contact investigation target of your district versus the national contact investigation target.

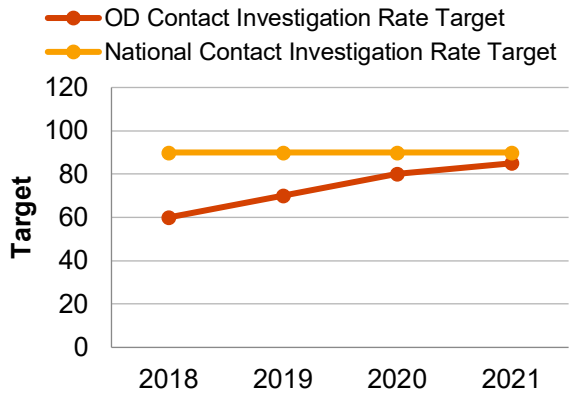
**A. OD vs. national level contact investigation rate target, 2018 - 2021**



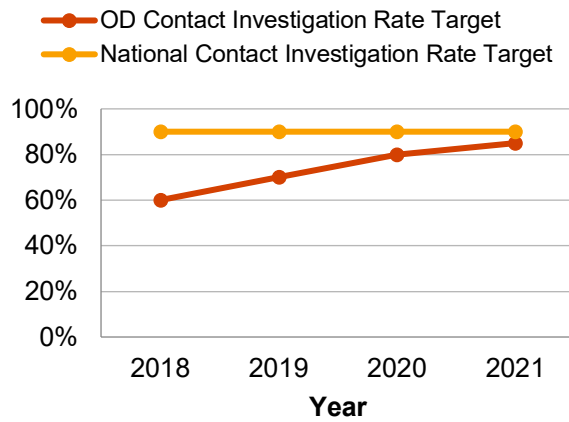
**B. OD vs. national level contact investigation rate target, 2018 - 2021**



**C. OD vs. national level contact investigation rate target, 2018 - 2021**



**D. OD vs. national level contact investigation rate target, 2018 - 2021**

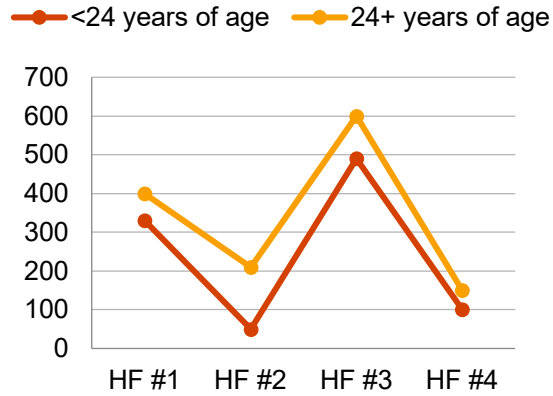


Answer: A

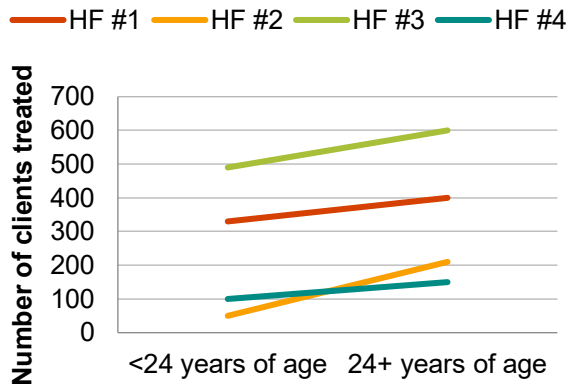
Q29

Using data from the national TB MIS, develop a chart showing the number of TB patients treated successfully by each health facility, disaggregated by age in 2021.

**A. Age distribution of clients completed TB treatment by health facility in District 1, 2021**

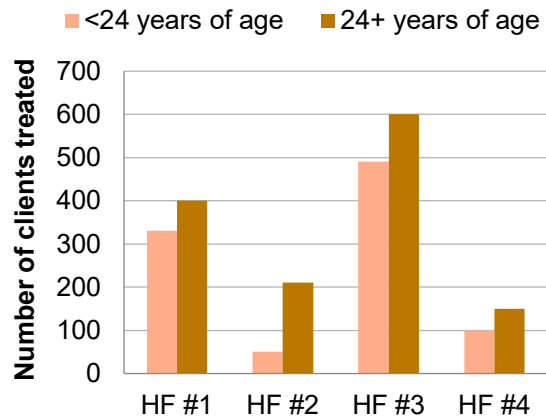


**B. Age distribution of clients completed TB treatment by health facility, 2021**

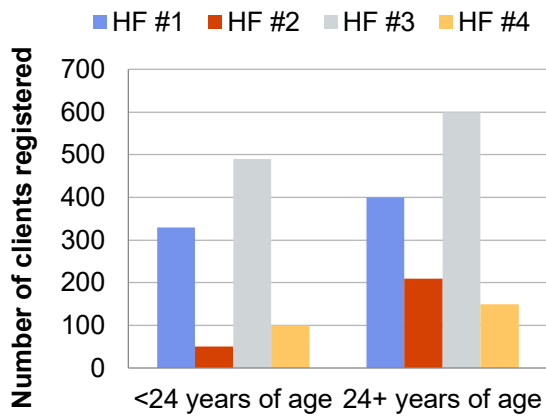




**C. Age distribution of clients completed TB treatment by health facility in District 1, 2021**



**D. Age distribution of clients completed TB treatment by health facility in District 1, 2021**



Answer: C

**Total Score**

\_\_\_\_\_ / 4 points

**Overall Score** \_\_\_\_\_ / 37 points

## Annex III: Post-training assessment participant list

N	Name	Role and responsibility	Work location
1	Dr. Nou Chanly	CENAT	CENAT
2	Dr. Long Ngeth	CENAT	CENAT
3	Mr Huot Sany	Provincial TB Lab Sup	Kampong Speu Province
4	Mr Keo Eangly	Provincial TB Med Sup	Pursat Province
5	Ms Ong Sinorn	Provincial TB Med Sup	Kratie Province
6	Ms Pho Vettey	Provincial TB Lab Sup	Kratie Province
7	Mr Keo Samnang	Provincial TB Med Sup	Banteay Meanchey
8	Mr Seng Chhunly	Provincial TB Med Sup	Batamborng
9	Mr Sok Mony	Provincial TB Med Sup	Koh Kong
10	Mr Koeum Bunna	Provincial TB Med Sup	kg Thom
11	Ms Keo Sereyvatana	Provincial TB Lab Sup	Odormenchey
12	Mr Orm Rithy	CENAT	CENAT
13	Mr Chhan Sopheap	Provincial TB Med Sup	kg Cham
14	Mr Nuon Leng	Provincial TB Med Sup	Kampot Province
15	Mr Siv Sam Ol	Provincial TB Med Sup	Takeo
16	Mr Aun Peou	Provincial TB Med Sup	Kep
17	Mr Sor Sina	Provincial TB Med Sup	Kandal
18	Mr Yun VisalSathapana	Provincial TB Med Sup	Phnom Penh
19	Mr Morm Thy	Provincial TB Med Sup	Ratanakiri
20	Mr Sokhom Boramey	Provincial TB Med Sup	Siem Reap
21	Meng Lundy, lab	Provincial TB Lab Supervisor	Pailin Province
22	Orm Mala	Provincial TB Lab Supervisor	Preah Sihanouk
23	Eng Pheara	Provincial TB Lab Supervisor	Pursat Province
24	Lin Koemsreavy, lab	Provincial TB Lab Supervisor	Mondulkiri Province
25	Bin Bonvath, lab	Provincial TB Lab Supervisor	B. Meanchey
26	Heng Keat, lab	Provincial TB Lab Supervisor	Kep Province

<b>N</b>	<b>Name</b>	<b>Role and responsibility</b>	<b>Work location</b>
27	Sun Chanmakara, ph	Provincial TB Lab Supervisor	Pailin Province
28	Som Sophany, nurse	Provincial TB Med Supervisor	Siem Reap
29	Lim Sopheak	Provincial TB Medical Supervisor	Thbong Khmom
30	Chea Sokchenda, MD	Provincial TB Medical Supervisor	Ratanakiri
31	Tan Vutha, MD	Provincial TB Medical Supervisor	Battambang
32	Kong Dara, nurse	Provincial TB Lab Supervisor	Battambang
33	Phann Vuth	Provincial TB Lab Supervisor	Kandal
34	Rin Phirom, MD	Provincial TB Medical Supervisor	Odormeanchey Province
35	Oeun Kesa, lab	Provincial TB Lab Supervisor	Phnom Penh
36	Phleng Soueng, MA	Provincial TB Lab Supervisor	Prey Veng Province
37	Sak Rina	Provincial TB Medical Supervisor	Koh Kong Province
38	Moun Phearum	CENAT_IT	CENAT
39	Chum Sovann	TB provincial sup	Kg Som
40	Mr Chea Pou	Provincial TB Med Sup	Preah Vihear Province

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