

Final Technical Report on

Capacity Building on WHO Package of Essential Non-communicable Disease (PEN) Interventions for Primary Health Care Workers of Cox's Bazar District to Strengthen NCD Service Delivery

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TABLE OF CONTENTS

1. INTRODUCTION	3
1.1 Background.....	3
1.2 Objectives.....	5
2. PROGRAM DESCRIPTION	6
2.1 Training on WHO PEN intervention for PHC providers	6
2.1.1 Arrangement of necessary logistics and supplies.....	6
2.1.2 Training venue and duration	6
2.1.3 Trainers	7
2.1.4 Participants.....	7
2.1.5 Training sessions.....	8
2.2 Supportive Supervision on PEN Implementation and Referral Linkage	9
3. PROGRAM OUTCOME	10
3.1 Training on WHO PEN intervention for PHC providers.....	10
3.1.1 Result of pre/post-test.....	10
3.1.2 Training evaluation by the participants.....	13
3.1.3 Qualitative feedback from the Trainee (Doctors, Nurses and Paramedics)	14
3.2 Supportive Supervision on PEN Implementation and Referral linkage	15
4. CHALLENGES AND LEARNINGS.....	16
4.1 Training on WHO PEN intervention for PHC providers.....	16
5. CONCLUSION.....	18
6. WAY FORWARD	18
ANNEXEs	20
Annex 1.1: Agenda for the 4-days PEN training for Doctors, Nurses and Paramedics .	20
Annex 1.2: Pre and post-test of 4-day PEN training	22
Annex 1.3: Name of the facilitators for PEN trainings.....	26
Annex 1.4: Participants' list for PEN training	29
Annex 1.5: Training evaluation form for PEN training.....	35
Annex 1.6: NCD patient flow-chart in the PHCs	37
Annex 1.7: Sample treatment card that can be used in the PHC.....	38
Annex 1.8: Sample format for NCD register in the PHC	39

1. INTRODUCTION

1.1 Background

Cox’s Bazar district is home of nearly 3 million Bangladeshi population and the burden of NCD and risk factors is on the rise among the Bangladeshi population. In addition, approximately one million Rohingya, the forcibly displaced Myanmar nationals (FDMN), are living in the refugee camps of the Cox’s Bazar district of Bangladesh. The Directorate General of Health Services (DGHS) of Bangladesh has recently declared Cox’s Bazar a model district for the prevention and control of NCD.

Given the burden of NCDs, the WHO and other partners also established a non-communicable disease (NCD) core group to foster responses to NCDs and highlighted the need for providing additional training on NCDs to health care providers. The World Health Organization (WHO) has also identified the need for proactive, long-term, patient-centered, community- based and sustainable NCD care delivered through primary health care (PHC) teams to achieve impact against NCD at the population scale. To facilitate this, the WHO has developed a package of essential NCD interventions (WHO PEN) for PHC teams in low-resource settings. The package includes a prioritized set of cost-effective lifestyle and pharmacological interventions that can be delivered to prevent and control NCD. The package includes sessions on reduction of tobacco and alcohol consumption, weight regulation, improved diet, increased physical activity, and pharmacological measures for prevention and control of NCD. The WHO also recommended a brief counseling model known as 5A’s and 5R’s approach to be used in the health care settings and in the community.

The PHC systems in Bangladesh typically include physicians, allied health professionals (e.g., nurses, midwives, pharmacists, laboratory technicians, medical assistants, or Sub-Assistant Community Medical Officers (SACMO) at the Upazila level, and community health care provider, health assistant at the community level. Health Inspector, Assistant Health Inspectors supervise the HAs (see **Table 1.1** below).

Table 1.1: Health care providers by health facility

Level	Facility	Health care providers
Upazila	Upazila Health Complex	Physicians, Nurses, Midwives, Medical Assistants or Sub-Assistant Community Medical Officers (SACMO), Pharmacists, Laboratory Technicians
Community	Community Clinic	Community Health Care Providers (CHCPs)
	Community	Health Assistant (HAs) Multi-purpose Health Volunteers (MHVs)

In 2019, 407 primary health care workers (102 doctors, nurses, and paramedics and 305 community

level health care workers and their supervisors) were trained in Cox’s Bazar district on the WHO PEN by the BRAC James P Grant School of Public Health (JPGSPH) in collaboration with the non-communicable disease control (NCDC) and WHO Bangladesh. In 2020, BRAC JPGSPH also trained a total of 280 doctors, nurses, paramedics, community health care providers, assistant health inspector, health inspectors, and community health workers’ supervisors working in the Rohingya camps and in the Ukhiya and Teknaf Upazila (157 doctors, nurses and paramedics, 69 government community level health care workers and supervisors and 54 community level health care providers and their supervisors from the camps) on the PEN interventions. In 2021, 150 health care providers (Doctors, Nurses, paramedics) from eight Upazila health complexes and Rohingya camps were trained by the BRAC James P Grant School of Public Health (JPGSPH) in collaboration with the non-communicable disease control (NCDC) and WHO Bangladesh.

Under the current Agreement for Performance, BRAC JPGSPH was contracted by the WHO to coordinate and facilitate the training on the package of essential non-communicable diseases (PEN) interventions to 150 doctors, nurses, and medical assistants/paramedics working in Upazila health complexes (UHC) of Cox’s Bazar district. The training objective was to enhance the knowledge, skills, and practices of primary health care workers in the early detection and appropriate management of hypertension and Type 2 Diabetes using a total comprehensive CVD risk-based approach. The four-day training package was developed by WHO Bangladesh. The manual was adapted from the “Package of Essential Noncommunicable (PEN) disease and healthy lifestyle interventions – Training modules for primary health care workers” developed by WHO Regional Office for South-East Asia for the member states. The training incorporated sessions on Bangladesh’s “National protocol for integrated management of hypertension and diabetes using a total cardiovascular risk approach in primary health care settings.” The training also incorporated sessions to simulate the NCD service delivery and OSPE for hands-on evaluation of the skills learnt during the training.

BRAC James P Grant School of Public Health (JPGSPH) of BRAC University were selected as a contractual partner to provide the following services in collaboration with the Directorate General of Health Services (DGHS) and the World Health Organization (WHO) in alignment with the objectives.

Service 1: Training on WHO PEN intervention for PHC providers

- Train 150 doctors, nurses, and medical assistants/paramedics in 6 batches using the 4-day training package developed by the WHO-Bangladesh
- Arrange facilitators for the training from BRAC JPGSPH and other government and non-government agencies
- Arrange necessary logistics, supplies, and services required for the training including training

venue, banner, multimedia (projector/screen), sound system/cordless, training equipment (flipchart/whiteboard), training materials including copies of relevant national protocols/agenda/participants' workbook, per-diem disbursement, accommodation, refreshment, travel allowances disbursement, relevant resource persons from the government and non-government agencies, essential precautions for COVID-19, implement a digital pre-test/post-test/OSPE.

- Final technical report of the training of the primary health care provider

Service 2: Supportive supervision on PEN implementation and establishment of referral linkages

- Form an NCD coordination committee in Cox's Bazar with Civil Surgeon of Cox's Bazar as the Chairperson
- Develop tools for supportive supervision/implementation and undertake frequent monitoring visits to provide supportive supervision to care, providers
- Make relevant travel arrangements for supportive supervision visits
- Arrange 8 supportive supervision workshops: one in each of the sub-districts of Cox's Bazar to orient the community health care providers (CHCP), health assistants and their supervisors on NCD related record keeping and reporting

1.2 Objectives

The objectives for the project were to

1. Training on WHO PEN intervention for PHC providers
2. Supportive supervision on PEN implementation

2. PROGRAM DESCRIPTION

2.1 Training on WHO PEN intervention for PHC providers

As mentioned earlier, the training's main objective was to enhance the capacity and skills of health care providers (doctors/nurses/paramedics) in Cox's Bazar district on the implementation of PEN intervention in low resource primary health care settings, using a team-based approach. After the completion of the training, participants were expected to acquire the following competencies.

- Detect, manage and appropriately refer patients with cardiovascular diseases and diabetes.
- Calculate and stratify cardiovascular risk using the WHO risk prediction chart.
- Employ the 5A and 5R techniques to motivate positive behavioral change among individuals using tobacco, consuming unhealthy diets, and whose physical activity levels are low.
- Demonstrate the use of basic diagnostics such as a handheld device to perform point of care tests such as blood glucose, and to measure blood pressure.

After the training, all primary health centers (PHC) and UHCs that participated were required to develop a PEN implementation plan to deliver essential NCD services at their hospitals, apply the knowledge gained from the PEN training.

2.1.1 Arrangement of necessary logistics and supplies

The NCDC, DGHS provided 170 copies of National Guidelines for the Management of Hypertension and Diabetes. All other necessary materials (participants' workbook, flip charts, WHO risk charts, selected handouts, pre-test and pre-test questionnaires, and evaluation forms were printed. Questionnaires and other supplies for OSPE were also arranged. Anthropometric equipment's (stadiometer and weighing scale), blood pressure measuring devices and glucometers with strips were also arranged with other relevant logistics. Hotel Sea Palace was contracted for venue, food, accommodation required for the training. They also provided multimedia projector with screen, sound system/cordless, and other training equipment (flipchart/whiteboard). Essential supplies were arranged for COVID-19 prevention. BRAC JPGSPH administration and finance department arrange transports and administrative and financial management of the project.

2.1.2 Training venue and duration

Considering the COVID-19 pandemic, social distancing, mask-wearing, and hand hygiene were promoted during the training. Participants were provided with surgical masks and alcohol-based hand rub at the training venue in addition to the handwashing facilities. Most of the training was conducted in an open space to prevent transmission of COVID-19. When indoor, the doors and windowpanes were kept open to maintain airflow.

The training was conducted from 16th May to 23rd June 2022. The duration of the training for each batch

was four days. All the training sessions were held at the Hotel Sea Palace, Cox's Bazar, and the trainees from BRAC JPHSPH resided in the Hotel Ekushey Nir during the period of the training.

2.1.3 Trainers

WHO Bangladesh has provided five-day long Training of Trainers (ToT) on the WHO PEN intervention in February 2020 and helped in developing a pool of skilled PEN trainers. The ToT was conducted by technical experts from WHO and academia to enhance the knowledge and capacity of the PEN trainers. The pool comprised of experienced trainers from the BRAC JPGSPH, BRAC, BIRDEM, JICA, MOHFW Coordination Cell and the WHO Emergency Sub-Office, Cox's Bazar. A team of trainers from BRAC JPGSPH and WHO Emergency Sub-Office, Cox's Bazar were selected based on availability and expertise for delivering the training sessions for this training programme. Some of the trainers also received online training on patient centered care organized by SEARO. During the current training, facilitators for the training were primarily from BRAC JPGSPH (four facilitators). Four facilitators from the noncommunicable disease control of the government, two facilitators from the WHO, one facilitator from Bangladesh Diabetic Association also imparted training sessions.

During the training, the facilitators adapted the contents based on the participants' response and the trainers supported each other during the sessions to engage the participants appropriately. In addition to delivering the training, the trainers fulfilled the following responsibilities for this training:

- Contributed to the development of the facilitators' manual.
- Contributed to the development of other training materials.
- Shared feedback and recommendations on the session/training after the training.
- Contributed to improvement/finalization of the facilitators' module and training materials.

2.1.4 Participants

Nomination and communication with the expected participants were coordinated by Health Operations and Technical Expertise Unit, WHO Emergency Sub-Office, Cox's Bazar. The goal was to nominate and train a team of physician, nurse, and paramedics from the targeted UHCs/PHCs so that they can implement a team-based approach for implementing the PEN interventions at the Primary Health care settings. However, as similar trainings were imparted in 2019, 2020 and 2021 some facilities sent less trainees as they already had trainees graduated. A total of **151 participants** from the PHCs of the Cox's Bazar district attended the training. Of them, **51 were doctors, 80 were nurses**, including midwives, and **20 were paramedics/SACMO**. A total of 149 participants were government health workers and the remaining 2 were from different NGOs, working in the government facility as part of support from NGOs. The list of the organizations or facilities the participants came from are provided in Table 2.1. Distribution of the training participants from different Upazila are given in Table 2.2 and table 2.3

Table 2.1: List of participating organizations or health facilities

1. All Upazila Health Complex in Cox’s Bazar – Chakaria, Kutubdia, Moheshkhali, Pekua, Ukhiya, Ramu, Teknaf, Sadar
2. Cox’s Bazar District hospital, Cox’s Bazar (government, IOM-international organization for migration, PHD- Partners in health & Development)

Table 2.2: Summary of the government training participants by type and Upazila

S. No	Upazila	Doctors	Nurses/ Midwife	Paramedics/ SACMO	Total
1	Chakaria	6	12	4	22
2	Kutubdia	3	5	0	8
3	Moheshkhali	5	12	4	21
4	Pekua	8	9	0	17
5	Ramu	6	6	2	14
6	Teknaf	6	12	1	19
7	Ukhiya	6	11	6	23
8	Sadar	4	1	0	5
9	Cox’s Bazar District hospt.	5	12	3	20
	Total	49	80	20	149

Table 2.3: Summary of the non-government training participants by type and Organization

S. No	Organization	Doctors	Nurses/ Midwife	Paramedics/SACMO	Total
1	IOM	1	0	0	1
2	PHD	1	0	0	1
	Total	2	0	0	2

*Please, see the acronyms in Table 2.1

2.1.5 Training sessions

The training sessions were developed based on the WHO 5X5 approaches (5 diseases and 5 risk factors), WHO PEN training modules and considering the local context of Cox’s Bazar district. Alcohol consumption was covered briefly within the unhealthy diet session. Moreover, out of the five major NCDs and metabolic risk factors, only overweight and obesity, Hypertension and Diabetes were discussed. The four-day “WHO Bangladesh PEN interventions for primary health care providers” training package consists of PowerPoint presentations for twelve modules, facilitator guides, and participant workbooks. This four-day training package covered both technical and practical aspects of the PEN and incorporate interactive teaching methodology (power-point presentations, reflections of personal experience, individual and group discussions, case studies, role plays, videos, brainstorming, practical demonstrations). The titles of the sessions and respective modules are listed in Table 2.4.

Moreover, the schedule of the training sessions has been provided in the annex.

Table 2.4: List of training modules and sessions

Modules	Sessions
A	An overview of the NCD burden and PEN as a primary health care approach
B	Overview of NCDs: Cardiovascular diseases (CVD) and Diabetes Mellitus
C1	Risk factors for non-communicable diseases: Tobacco use
C2	Risk factors for non-communicable diseases: Unhealthy diet
C3	Risk factors for non-communicable diseases: Physical inactivity
C4	Risk factors for non-communicable diseases: Overweight and obesity
D1	Total cardiovascular risk-based approach
E	Assessment and Management of Hypertension
F	Assessment and Management of Type 2 Diabetes
G1	Healthy lifestyle: Basics of counseling
G2	Brief interventions for non-communicable disease risk factors: Tobacco cessation, healthy diet, physical activity, and treatment adherence
H1	Develop and present a team-based approach to implementing PEN intervention in the existing health facilities
	Additional Session
NA	Simulation of service delivery at PHC
NA	Objective Structured Practical Examination (OSPE)

PowerPoint presentations, and participant workbooks, were provided to the participants in hardcopies or as files in pen-drives for each health facility. Animated and pictorial PowerPoint presentation, group works, video demonstration, recap quiz, games, and open discussions were used to facilitate lively and spontaneous engagement of the participants in each session.

2.2 Supportive Supervision on PEN Implementation and Referral Linkage

- An NCD coordination committee, named NCD prevention and control committee (NCDPCC) has been formed. The committee is chaired by the Civil Surgeon of Cox’s Bazar District. The committee was endorsed by the civil Surgeon on 24 November 2021. The committee is still in action.
- The arrangements for the supportive supervision visits and sub-district level supportive supervision meeting on NCD record-keeping and reporting (transport support, logistic support, human resources deployment) were arranged.
- Eight supportive supervision meeting were arranged in eight sub-districts of Cox’s Bazar (Ukhiya, Teknaf, Cox’s Bazar Sadar, Chakaria, Pekua, and Maheshkhali, Ramu, and Kutubdia). A total of 239 participants attended the workshops, including CHCP, Health Inspector, Assistant Health Inspector, Health Assistants, Upazilla Health and Family Planning Officer,

Resident Medical Officer, Medical Officer-Disease Control, and Statistician.

- During the supportive supervision workshops, the participants were trained on screening on hypertension and diabetes, basics of NCD risk factors, NCD related record keeping and reporting. The participants were asked to compile NCD specific data from January 2021 to May 2022.
- We already received compiled data on 4 indicators (# of people screened for hypertension by gender, # of people screened for diabetes by gender, # of people detected with hypertension by gender, and # of people detected with Diabetes by gender) from the community clinics of all eight sub-districts (Ukhiya, Teknaf, Cox's Bazar Sadar, Chakaria, Pekua, Maheshkhali, Ramu, and Kutubdia). All data have been entered and analyzed.

3. PROGRAM OUTCOME

3.1 Training on WHO PEN intervention for PHC providers

4.1.1 Result of pre/post-test

At the beginning and the end of the training of each batch, participants were offered a test to assess their knowledge on NCDs and PEN interventions. The same set of 22 questions was used for both the assessments. We also conducted an objective structured practical examination (OSPE) at the end of the training to assess the skills and techniques learned throughout the training. See the pre and post-test questionnaire in the annex. Figure 3.1 and 3.2a, 3.2b, 3.3c below illustrate a comparison of the average score and absolute score of different types of participants before and after the training. Improvement has been noticed in all groups of participants at the post-test. Out of the highest possible score of 30, the mean (\pm SD) score of the doctors was 15.27 (\pm 2.69) in the pre-test and 28.04 (\pm 1.24) in the post-test. The nurses and the midwives scored 13.58 (\pm 2.43) in the pre-test and 26.42 (\pm 3.19) in the post-test, and the paramedics scored 13.85 (\pm 2.60) in pre-test and 26.7 (\pm 4.07) in the post-test. Overall, the mean score for all participants 14.19 (\pm 2.64) in pre-test and 27 (\pm 2.93) at the post-test. The difference between the mean score in post-test and the pre-test was 12.81.

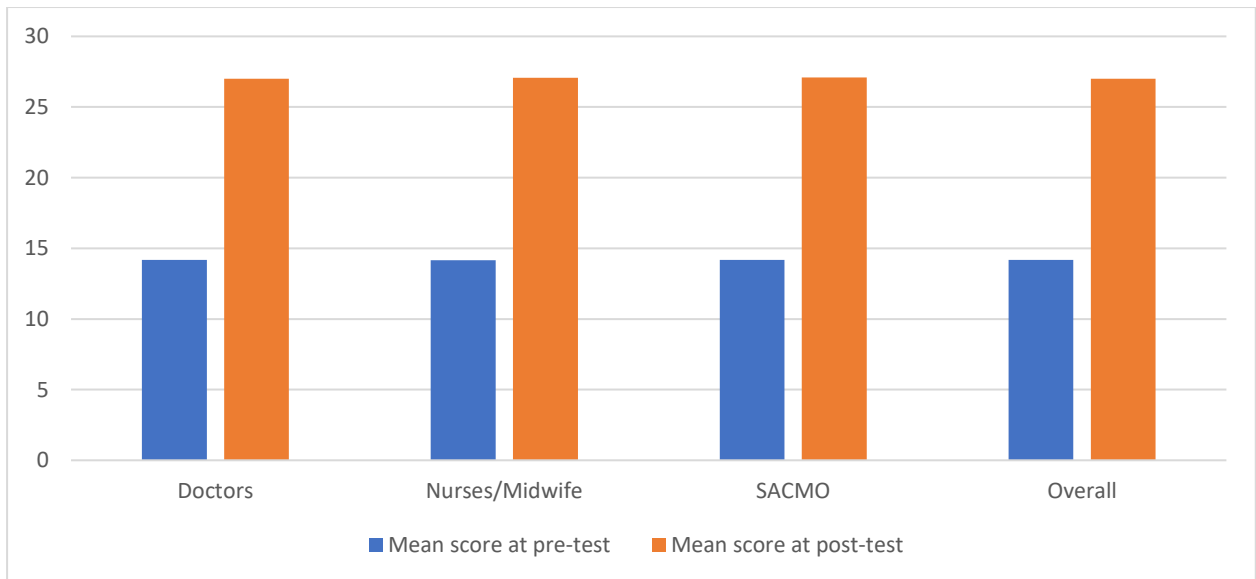


Figure 3.1: Mean score at pre and post-test by type of trainee

Figures 3.2a, 3.2b, and 3.2c below show that all the groups of participants have improved their knowledge through the training as all of them did better in the post-test compared to the pre-test.

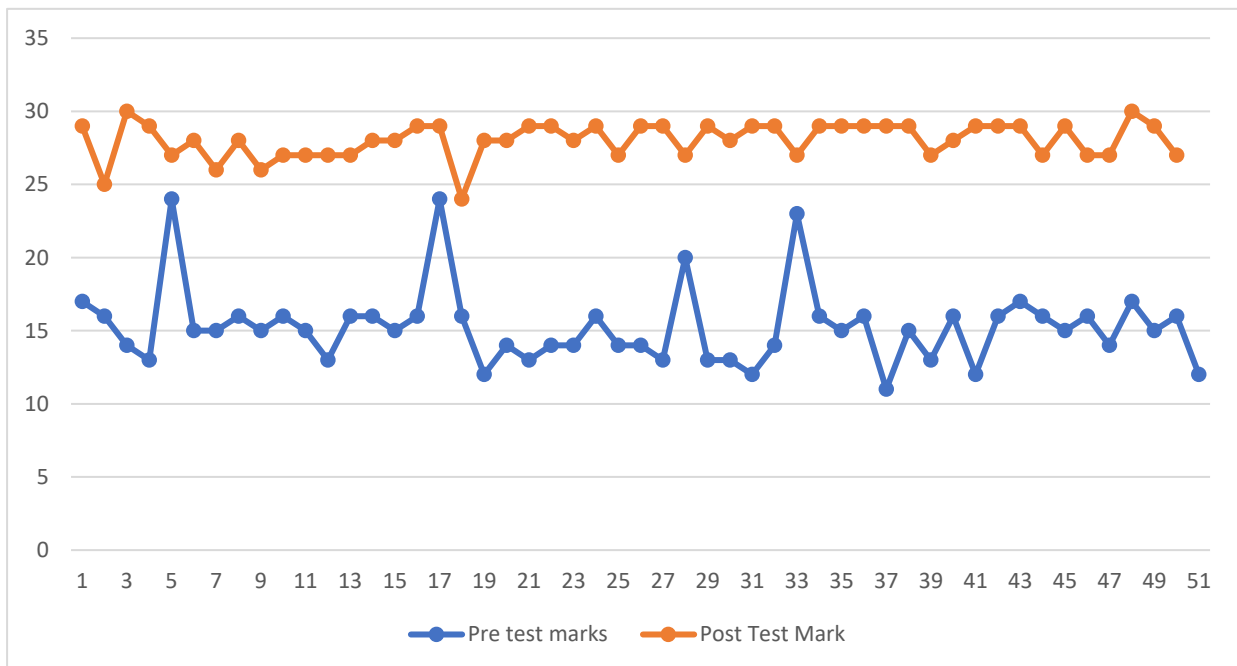


Figure – 3.2a: Change of score of the doctors between pre- and post-test

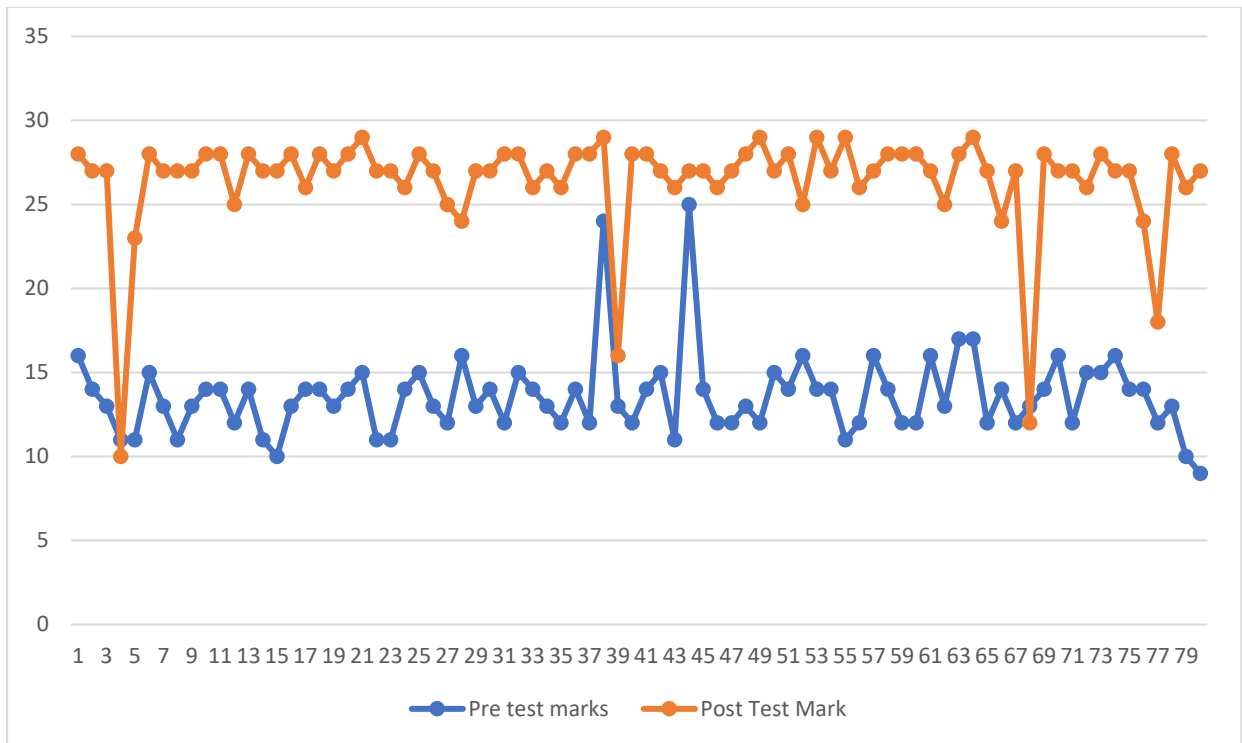


Figure – 3.2b: Change of score of the nurses between pre- and post-test.

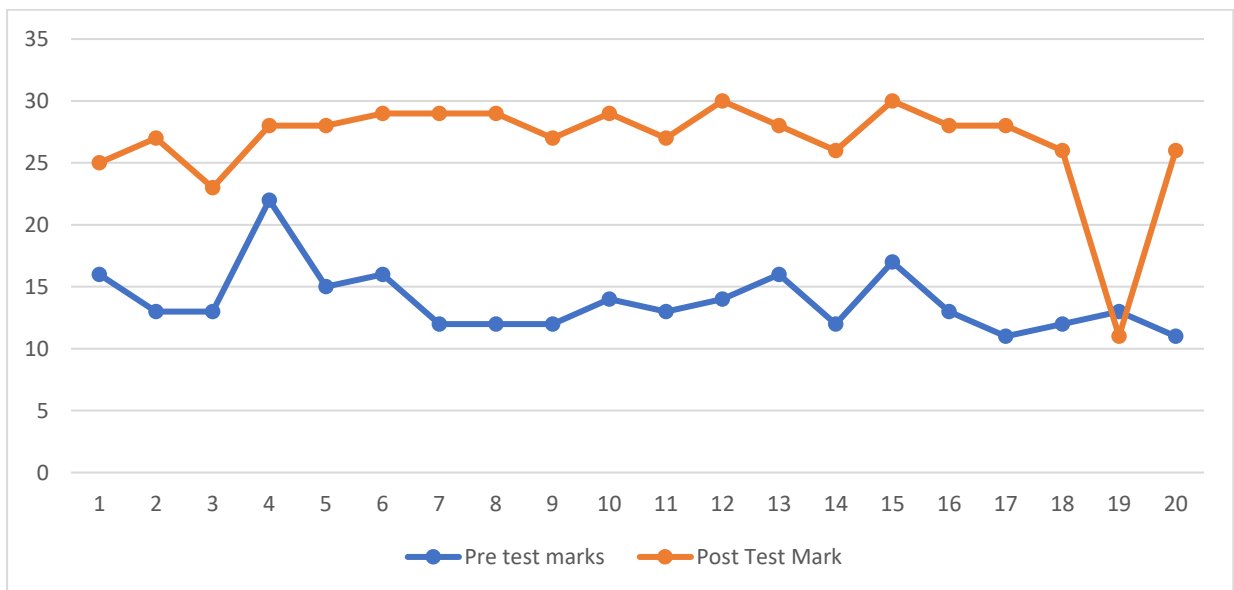


Figure 3.2c: Score changes of the paramedics (Medical Assistants/SACMO) between pre- and post-test

On the last day of the training, we conducted an objective structured practical examination (OSPE) with five stations to evaluate the participants' acquired techniques and skills. We prepared four stations for each group of participants. The stations were – a) the measurement of height and weight, and calculation of BMI, b) Use of WHO CVD risk chart, and risk score estimation for patient management, c) measurement of BP, d) Treatment of hypertension and treatment of diabetes based on two case scenarios. Each participant was given 3 minutes to conduct the activities of a station. There was an

examiner to rate their performance in each of the stations. Table 3.1 below compares the performance of each group of participants in the OSPE examination (mean score).

Table 3.1: Performance of the participants in the OSPE test

Occupation	Height Measurement (Total Score 10)	Weight Measurement (Total Score 10)	BMI Calculation (Total Score 5)	BP Measurement (Total Score 10)	CVD Risk Assessment A (Total Score 5)	CVD Risk Assessment B (Total Score 5)	Management Plan A (Total Score 10)	Management Plan B (Total Score 10)	Total Score (65)
Doctor	9.45	9.43	4.81	8.89	4.26	4.52	6.22	5.74	53.32
Nurse	9.45	9.44	4.81	8.88	4.23	4.49	5.96	5.54	52.63
SACMO	9.44	9.41	4.87	8.88	4.39	4.55	6.12	5.72	53.18
Overall	9.45	9.43	4.83	8.88	4.26	4.53	6.07	5.63	52.90

*2 training participants could not take the OSPE test

3.1.2 Training evaluation by the participants

At the end of each session during and on the last day of each batch, participants were requested to complete the prescribed evaluation form. Training evaluation forms are attached to this report as annex below are some glimpses from the evaluation of the training by the participants (**Table 3.2**).

Table 3.2: Overall Evaluation of Training by the Participants (% of the participants)

Total evaluation (n= 151)				
Question	Very confident	Confident	Somewhat Confident	A little confident
Confidence to apply 5A and 5R method to counsel patients	43.31%	50.39%	2.36%	3.15%
Confidence to use WHO risk prediction chart	60.16%	36.72%	3.13%	0.0%
Confidence to manage hypertensive patients using national guidelines	49.22%	46.09%	3.91%	0.78%
Confidence to manage diabetic patients using national guidelines	49.61%	46.46%	3.94%	0.0%

In the overall training evaluation, which was taken at the end of the training, 41.4% of participants responded that the training was beyond their expectations, and 53.9% of them said that the training met their expectations. Only 3.9% said that the training had somewhat met their expectations. The participants (Table 3.3) were also requested to comment on the overall quality of the training's logistical aspects (Table 3.3). Among those who responded to these questions, 90% of said that the

accommodation was either excellent or good, and 83% said that the provided foods were excellent or good. On the other hand, 95.26% and 92.79% said that communication and training materials were either excellent or good, respectively.

Table 3.3: Evaluation of Foods and Logistics (% of the responses)

Evaluation area	Excellent	Good	Average	Bad	Very Bad
Accommodation	52.22%	37.78%	8.89%	0.0%	1.11%
Foods	30.09%	53.98%	15.04%	0.88%	0.00%
Communication	61.26%	34.23%	4.50%	0.0%	0.0%
Training Materials	53.15%	39.64%	6.31%	0.90%	0.0%

3.1.3 Qualitative feedback from the Trainee (Doctors, Nurses and Paramedics)

As per the participants' comments at the end of the sessions, most of the training sessions were excellent and helpful for the participants, but there was some problem with time management and too much interruption made by the other facilitators while the key facilitator assigned for the session was facilitating. Below are some specific issues expressed by the fellow participants:

Table 3.8: General comments

Time management

- Some participants suggested a 5 to 6 day-long training and shortening the training day. They suggested that training can be from 9 to 4 pm.
- The time for some sessions should be shortened or can be divided into two more sessions. Some suggested to shorten the training to 3 days.
- Some participants want more time for Prayer.

Venue, Food and Accommodation

- Most participants were fine with the venue.
- There was some feedback on the accommodation, some suggested to transfer the accommodation of the participant to main crown plaza building of hotel sea palace. especially on food arrangement for those participants who came with their family members, either spouse or child. The issues were addressed through discussion with the hotel management.
- Some participants were not happy with the food.

Contents

- Many of the participants want bag or carrying pouch to carry the training materials/logistics.
- Most participants found the content relatable, highly effective, useful, and of high standard. Participants expressed their interest to use their learnings for improving the health of themselves, their family members, and their patients.
- Most of the participants said that engagement, clarity, and coverage of the topics were superior and unique.
- Some participant suggested more time should be allocated for counselling sessions.
- Training was very interactive and practical. Some participants expressed that more time should be allocated for practical sessions, such as measurements. Some want more time and content on weight reduction.
- All modules including the videos should be given to the participants in a pen drive.
- Need refresher training and regular follow-up.
- Other NCDs, such as chronic respiratory diseases, mental health and cancer should also be covered.
- More participants from different level should be trained on the package so that health care providers and volunteers from all level can play their role in NCD prevention and control.

3.2 Supportive Supervision on PEN Implementation and Referral linkage

Eight supportive supervision meeting were arranged in eight sub-districts of Cox's Bazar (Ukhiya, Teknaf, Cox's Bazar Sadar, Chakaria, Pekua, and Maheshkhali, Ramu, and Kutubdia). A total of 239 participants attended the workshops, including CHCP, Health Inspector, Assistant Health Inspector, Health Assistants, Upazilla Health and Family Planning Officer, Resident Medical Officer, Medical Officer-Disease Control, and Statistician.

Table 3.9: Supportive supervision meeting dates by health facility

Facility	Meeting Date
Chakaria	29/05/2022
Kutubdia	26/06/2022
Maheshkhali	19/06/2022
Pekua	04/06/2022
Ramu	26/06/2022
Teknaf	02/06/2022
Ukhia	22/05/2022
Sadar	28/05/2022

As per compiled data from the community clinical of all eight sub-districts of Cox’s Bazar, for the period of January 2021 to May 2022, a total of 83926 persons (22207 males and 61719 females) were screened for hypertension and 13108 were detected as hypertensive (4830 males, and 8278 females). A total of 46425 (14816 males and 31609 females) were screened for diabetes and 10846 (3445 males and 7401 females) were detected as diabetic. Table 3.10 gives a summary of data collected after the supportive supervision meetings.

Table 3.10: Performance of community clinics of Cox’s Bazar district between January 2021 to May 2022

Indicator	Total Compilation		
	Male	Female	Total
Number of cases screened for hypertension	22207	61719	83926
Number of cases detected with high blood pressure	4830	8278	13108
Number of cases screened for type 2 diabetes mellitus	14816	31609	46425
Number of cases detected with high blood sugar	3445	7401	10846

4. CHALLENGES AND LEARNINGS

4.1 Training on WHO PEN intervention for PHC providers

Participants' safety was a major concern for this training. Some trainees could not be engaged due to the restrictions during the pandemic. The following is the summary of trainers’ feedback and recommendations for improvement of the training program.

4.1.1 Training module

- The trainers became more efficient in time management over time and could finish the training sessions on time. There were some challenges in starting the session in the morning since some participants could not arrive on time.
- Some sessions could be more customized for different categories of trainees (e.g., more practical exercises on clinical protocol/risk management for Medical Officers and more counseling practice for Nurses).
- Although the trainers explained the issues carefully, the nurses and SACMOs who are not engaged with NCD management had difficulty completing the case management in the OSPE. Most trainees showed an eagerness to learn new protocols and drug therapy. However, OSPE score suggest that

everyone could learn from the training.

- Participants enthusiastically participated in development of team-based approach of implementing PEN interventions. The teams were bold to share their challenges and suggest solutions. The gallery walk was extremely helpful in terms of cross learning and addressing the challenges.
- The simulation session gave an opportunity to clarify the team approach and reiterate the key steps/issues.

4.1.2 Training implementation

- Conducting 6 batches of PEN training in consecutive six weeks was extremely challenging. With support from the Civil Surgeon, UH&FPOs, senior leadership of implementing partner NGOs, the WHO this could be completed as scheduled. Participant's interest and enthusiasm was also clearly helpful.
- All relevant materials/handouts/supporting documents were timely available, and there was no problem with them.
- All trainers paid adequate attention to engage all participants to attend the training actively.
 - ✓ Situations for more active participation of each trainee need to be created.
 - ✓ More exercises/practical exercises in the session could help to make interactive and stimulate motivation to learn.
- Regular supportive supervision with on-the-job support at the facility level after the training both at the UHCs and at the PHCs is required to facilitate quality service delivery. The participants were appreciative of the supportive supervision support that they were receiving at the UHCs.
- An evaluation of training participants and their facilities is also required after a few months.

4.2 Supportive Supervision on PEN Implementation and Referral linkage

- The supportive supervision meetings were helpful to reiterate the need for regular record keeping and reporting.
- It was found that the record keeping is not uniform in all community clinics. All community clinics need to use NCD registers for proper record keeping and reporting. They should also provide regular reports to the DHIS system.
- Arranging the supportive supervision meetings needed a huge coordination effort. Ensuring participation of all CHCPs was a challenge. The data compilation and ensuring that all CHCPs submit compiled data were also challenging.

5. CONCLUSION

WHO's team-based training package of essential NCD interventions provides a high-quality training to build capacity of primary healthcare providers to implement PEN as part of the essential health service package in Bangladesh. Imparting the training within a short duration and during these difficult hours proves the commitment of all the stakeholders, the WHO, implementing partner organizations, Civil Surgeon, UH&FPOs, NCDC of directorate general of health services. This also demonstrated the strength of a productive partnership and commitment.

The PEN training created an understanding among the health care providers that they need to work together and help each other for delivery of essential NCD services from PHC facilities. During the service delivery flow discussion, they could identify the gaps and opportunities in their current system, and each primary health care facility team proposed a feasible NCD service delivery model for the prevention and management of NCDs. The team divided the tasks and responsibilities of each category of staff, considering the existing resource limitations. Sharing of these groups works during the gallery walk also facilitated cross learnings within the teams. The participants were requested to facilitate discussion within their organization and health facilities and devise a feasible service delivery model at their hospitals following the CVD risk-based approach. The participants were also informed on the supportive supervision and were requested to seek support from the supportive supervision team.

Limitations of this training program were expressed already as feedback from trainees and trainers. Despite those limitations, the outcomes of the training looked satisfactory. The DGHS, the WHO need to consider further improvement of the reporting system linking the NCD registers of the DHIS 2, so that NCDs related activities are better reported, and progress is monitored. Regular supportive supervision visits and facilitation of record keeping and reporting will be helpful in this regard.

The unique implementation challenges in their respective health facilities and communities will demand timely support from the government, WHO, and their supervisors. The NCDC and WHO Bangladesh should be committed to providing such supports with regular communication and encouragement. The BRAC James P Grant School of Public Health of BRAC University will also be committed to working with the government and WHO Bangladesh in the future.

6. WAY FORWARD

In future, similar training program will require further adaptation depending on the context and needs. The WHO is promoting a 5X5 approach (5 diseases; CVD, COPD, T2D, Cancer and Mental Health disorders, and 5 risk factors: unhealthy diet, tobacco consumption, alcohol consumption, physical

inactivity and air pollution) and the future training program should integrate the missing components such as chronic respiratory diseases and cancers. Separate training programs for CHCPs and the HAs might be helpful with customized package based on the national NCD implementation plan.

BRAC JPGSPH considers the in-house training as a steppingstone towards the quality NCD service delivery. The PEN's quality implementation will need the **regular supportive supervision** mechanism to continue at different level and periodic evaluation of knowledge, skill, and service quality. The PHCs and UHCs will need committed management of different organizations to for regular availability of supplies and medicines. BRAC JPSPH is eager to work with WHO to support capacity building of implementing partners on supportive supervision and PEN implementation.

Proper **documentation and record keeping** can increase commitment and accountability among the health care providers, improve the interaction between the providers and the patients, and thereby improve adherence to the treatment and follow-up plan. The participants showed their interest in a standardized recording system for the health facilities and a patient record book. The WHO can facilitate discussions among different partners to develop a record-keeping system for NCDs in a consultative process. **Digital care coordination system** can address the challenges in consistent and quality of NCD service delivery at the primary health care settings. BRAC JPG School of Public Health has developed a digital care coordination system to provide decision support to primary care providers for appropriate delivery of NCD care and improve record keeping. The system is developed following the national protocol and is currently going through proof-of-concept study. If WHO is interested, there is a scope to work together to implement the digital system for NCD care.

Expansion of services beyond CVD risk-based approach for hypertension and diabetes should be considered. There is a need for a continued education program to support health care providers with updated knowledge and skills. An **online learning and certification program** can be established so that a large number of PHC providers can be trained. Moreover, in case of online training, the training materials can be shared with the participants at least one week in advance informing them about the training dates so that they can be prepared for the training.

There is a need for proper monitoring and evaluation of the NCD training programs so that the implementation of the skills learnt from the training can be evaluated. Without a proper monitoring and evaluation system in place, there is a chance that the trainees will soon forget their skills. As NCD programs are relatively new, it will take consistent support and resources to make a meaningful change and this training can be regarded only as a start point aimed towards this goal.

ANNEXES

Annex 1.1: Agenda for the 4-days PEN training for Doctors, Nurses and Paramedics



TRAINING AGENDA

Training on package of essential non-communicable diseases (PEN) interventions for primary health service providers

Cox's Bazar
May-June 2022

Day 1		
Time	Activity	
08:15-08:30	Registration	
08:30 -9:15	Inauguration, introduction and ice breaking, training objectives and ground rules	
9:15-9:45		Pre-test
9:45 -10:00	Healthy Break	
10.00- 11.45	Module A	A. An overview of NCD burden and PEN as a primary health care approach to delivering essential NCD services and organizing NCD services through a team-based approach
11:45 -13:00	Module B	B. Overview of Cardiovascular diseases (CVD)
13:00 -14:00	Lunch & prayer break	
14:00- 14:10	Energizer Dance	
14:10 -15.30	Module C	C1. Risk factors for non-communicable diseases: Tobacco use
15.30- 15.45	Healthy Break	
15:45- 17.00	Module C	C2. Risk factors for non-communicable diseases: Unhealthy diet

Day 2		
Time	Activity	
08:30 -09:00		Recap
09.00- 10.15	Module C	C3. Risk factors for non-communicable diseases: Physical inactivity
10.15- 10.30	Healthy Break	
10.30- 12.00	Module C	C4. Risk factors for non-communicable diseases: Overweight and obesity
12.00- 13.00	Module D	D1. Total cardiovascular risk-based approach
13:00 -14:00	Lunch & prayer break	
14:00- 14:10	Energizer Dance	
14:10 -15:10	Module D	D1. Total cardiovascular risk-based approach (continued)
15:10 -15:25	Healthy Break	
15.25- 16.00	Module D	D1. Total cardiovascular risk-based approach (continued)
16.00-17.00	Module D	D2. Total cholesterol and test of urine using urine strips

TRAINING AGENDA

Training on package of essential non-communicable diseases (PEN) interventions for primary health service providers

Cox's Bazar
May-June 2022

Day 3		
Time	Activity	
08:30 -09:00		Recap
09:00 -10:45	Module E	E. Assessment and Management of Hypertension
10.45- 11.00	Healthy Break	
11.00- 13.00	Module F	F. Assessment and Management of Type 2 Diabetes
13:00 - 14:00	Lunch & prayer break	
14:00- 14:10	Energizer Dance	
14:10 -15:15	Module G	G1. Healthy lifestyle: Basics of counseling
15:15 -15:30	Healthy Break	
15:30 -17:00	Module G	G2. Brief interventions for non-communicable disease risk factors: Tobacco cessation, healthy diet and physical activity

Day 4		
Time	Activity	
08:30 -9:00		Recap
9:00 -10:45	Module H	H1. Develop and present team-based approach of implementing PEN intervention in existing health facility
10:45 -11:00	Healthy Break	
11:00 -12:30	Module H	H2. Simulation of service delivery in the PHC
12:30 - 13:30	Lunch & prayer break	
13:30 -15:30	Evaluation	<ul style="list-style-type: none"> Evaluation: Objective Structured Practical Examination (OSPE) Post-test and evaluation
15:30 -15:45	Healthy Break	
15:45 -16:15	Closing	Closing and certificate distribution

Annex 1.2: Pre and post-test of 4-day PEN training



Training on Bangladesh Package of Essential Noncommunicable Disease Interventions (PEN) for Primary Health Care Pre-Training Assessment/Post-training Assessment

Time: 20 minutes

Trainee Name: _____	Designation: _____	Date: ___/___/2022
Name of the healthcare facility: _____		Batch: _____

Read the following Case Scenario and answer the following questions

[নিচের গল্পটি পড়ে প্রশ্নগুলোর উত্তর দিন।]

Mst. Lutfa Begum, 64-year-old women presents again to the Upazila Health Complex. Two weeks ago, she came for a runny nose and her blood pressure was 154/86 mmHg. Today, her blood pressure is measured again, and it is 152/88 mmHg.

Lutfa weights 74kg and she is 5 feet 5 inches tall (1.68 meters). Her waist circumference is 94 cm.

Lutfa was diagnosed with diabetes two years ago but she stopped taking the prescribed medication after 1 year. Her random plasma glucose today is 14 mmol/L. Her cholesterol level is 5.2 mmol/L.

Lutfa tells the health care worker that she chews betel nut, but never smokes, although her husband smokes cigarettes every day in the house around her 2 grandchildren – her grandson ages 16 yrs and her granddaughter ages 10 yrs. Every afternoon, she goes for a brisk walk for 10 minutes around the neighborhood with her grandson.

She is a little concerned about her weight, and her brother died at the age of 43 from a heart attack. She eats one orange a day, and really likes soft drinks, cake and rice with *sutki vorta*.

[মোছাঃ লুতফা বেগম, ৬৪ বছর বয়স উপজেলা স্বাস্থ্য কমপ্লেক্সে এসেছেন। ২ সপ্তাহ আগেও তিনি সর্দি নিয়ে এসেছিলেন তখন তার রক্তচাপ ছিল ১৫৪/৮৬ মিলি মিটার মার্কারি। আজ তার রক্তচাপ পাওয়া গেছে ১৫২/৮৮ মিলি মিটার মার্কারি।

লুতফার ওজন ৭৪ কেজি এবং তার উচ্চতা ৫ ফিট ৫ ইঞ্চি (১.৬৮ মিটার)। তার কোমরের পরিধি (waist circumference) ৯৪ সে.মি.।

লুতফার ২ বছর আগে ডায়াবেটিস রোগ নির্ণয় হয়েছিল, কিন্তু ১ বছর পর তিনি ডায়াবেটিসের ঔষধ খাওয়া ছেড়ে দিয়েছেন। আজ তার রক্তের

র্যানডোম গ্লুকোজের (random plasma glucose) পরিমাণ ১৪ মিলিমোল/লিটার। তার কোলেস্টেরল এর পরিমাণ ৫.২ মিলিমোল/লিটার।

লুতফা স্বাস্থ্যকর্মীকে জানিয়েছেন যে, তিনি সুপারি খান কিন্তু কখনও ধূমপান করেননি। বাড়িতে তার স্বামী প্রতিদিন তাদের দুই নাতিনাতির সামনে ধূমপান করেন। তাদের নাতির বয়স ১৬ বছর এবং নাতির বয়স ১০ বছর। প্রতিদিন বিকালে লুতফা তার নাতির সাথে বাড়ির আশেপাশে ১০ মিনিট হেঁটে বেড়ান।

তিনি তার ওজন নিয়ে কিছুটা চিন্তিত এবং তার ভাই ৪৩ বছর বয়সে হার্ট অ্যাটাকে মারা গেছেন। তিনি প্রতিদিন একটা কমলা খান এবং কোমল পানীয়, কেক, ভাত ও গুটিকি ভর্তা তার অনেক পছন্দ।]

Answer the following questions: [নিচের প্রশ্নগুলোর উত্তর দিন]

1. Lutfa's risk of having a fatal heart attack or stroke in the next 10 years is: [আগামী ১০ বছরে লুতফার হার্ট

অ্যাটাক অথবা স্ট্রোকের ঝুঁকি কত?] (circle)

- <10% [$<10\%$]
- 10-<20% [$10\% - <20\%$]
- 20-<30% [$20\% - <30\%$]
- 30-<40% [$30\% - <40\%$]
- >40% [$>40\%$]

2. Considering Lufta's weight and height, she is: [লুতফার উচ্চতা এবং ওজন অনুযায়ী তার পুষ্টির অবস্থা] (circle)
- Underweight [কম ওজন]
 - Normal weight [স্বাভাবিক ওজন]
 - Overweight [অতিরিক্ত ওজন]
 - Obese [স্থূলতা]
3. If Lufta's diabetes remains uncontrolled, she is at risk of foot ulcers and amputation. [যদি লুতফার ডায়াবেটিস অনিয়ন্ত্রিত থাকে, তবে, তার পায়ে ঘা এবং অঙ্গহানির ঝুঁকি আছে।] (circle)
- True [সত্য]
 - False [মিথ্যা]
4. Lufta should be diagnosed with hypertension [লুতফার উচ্চ রক্তচাপ রোগ সনাক্ত হওয়া উচিত] (circle)
- True [সত্য]
 - False [মিথ্যা]
5. Lufta's target for blood pressure control will be $\leq 140/90$ mmHg: [লুতফার রক্ত চাপ নিয়ন্ত্রনের লক্ষ্যমাত্রা $\leq 140/90$ মিলি মিটার মার্কারি] (circle)
- True [সত্য]
 - False [মিথ্যা]
6. Lufta and her grandchildren are being exposed to secondhand smoke [লুতফা এবং তার নাতি নাতনি পরোক্ষ ধূমপানের শিকার] (circle)
- True [সত্য]
 - False [মিথ্যা]
7. Lufta's family history of a heart attack is also a risk factor for her having a heart attack of stroke. [লুতফার হার্ট অ্যাটাকের পারিবারিক ইতিহাস তার জন্যও হার্ট অ্যাটাকের ঝুঁকি হিসাবে কাজ করছে।] (circle)
- True [সত্য]
 - False [মিথ্যা]
8. Currently Lufta is meeting the recommended physical activity guidelines for adults [লুতফার বর্তমানে হাঁটার অভ্যাস প্রাপ্তবয়স্কদের শারীরিক পরিশ্রমের গাইডলাইন অনুযায়ী পর্যাপ্ত] (circle)
- True [সত্য]
 - False [মিথ্যা]
9. Which of following foods that Lufta likes are high in salt? [লুতফার পছন্দের নিচের কোন খাবারটি অতিরিক্ত লবনযুক্ত?] (circle)
- Orange [কমলা]
 - Sodas [কোমল পানীয়]
 - Cake [কেক]
 - Sutki vorta [শুটকি ভর্তা]

10. The maximum recommended intake of salt is 2 teaspoons per day. [প্রতিদিন সর্বোচ্চ ২ চা চামচ লবন খাওয়ার সুপারিশ করা হয়েছে] (circle)
- True [সত্য]
 - False [মিথ্যা]
11. Women of childbearing age having possibility of becoming pregnant should not be prescribed Losartan to control hypertension [সন্তান জন্মানের বয়স সীমার মধ্যে যেসব মহিলার গর্ভবতী হবার সম্ভাবনা আছে তাদের উচ্চ রক্তচাপের ঔষধ হিসেবে লোসারটান দেয়া উচিত নয়] (circle)
- True [সত্য]
 - False [মিথ্যা]
12. Hydrochlorothiazide is the first line choice of drug to treat hypertension in primary health care in Bangladesh [বাংলাদেশের প্রাথমিক স্বাস্থ্যসেবা কেন্দ্রগুলোতে উচ্চ রক্তচাপের চিকিৎসায় হাইড্রোক্লোরোথায়াজাইড প্রথম পছন্দের ঔষধ হিসেবে নির্ধারিত] (circle)
- True [সত্য]
 - False [মিথ্যা]
13. Metformin is the first line drug of choice for managing Type II diabetes in primary health care setting [বাংলাদেশের প্রাথমিক স্বাস্থ্যসেবা কেন্দ্রগুলোতে টাইপ ২ ডায়াবেটিসের চিকিৎসায় মেটফরমিন, ডায়াবেটিসের প্রথম পছন্দের ঔষধ হিসেবে নির্ধারিত] (circle)
- True [সত্য]
 - False [মিথ্যা]
14. Patients with diabetes should have an eye exam every 3 years [ডায়াবেটিসের রোগীদের প্রতি তিন বছর পর পর চোখ পরীক্ষা করা উচিত] (circle)
- True [সত্য]
 - False [মিথ্যা]
15. Patients presenting with blood pressure >200/120 mmHg should be urgently referred to a higher facility [কোন রোগীর রক্তচাপ > ২০০/১২০ মিমি মার্কারি পাওয়া গেলে তৎক্ষণাৎ তাকে উচ্চতর স্বাস্থ্য সেবা কেন্দ্রে রেফার করা উচিত] (circle)
- True [সত্য]
 - False [মিথ্যা]
16. Tobacco kills approximately one third of its users: [তামাক ব্যবহারকারীদের এক তৃতীয়াংশই এটি সেবনের কারণে মারা যায়] (circle)
- True [সত্য]
 - False [মিথ্যা]
17. How much fruits and vegetables should be eaten every day? [প্রতিদিন কি পরিমাণে ফল ও শাকসবজি খাওয়া উচিত?]
- 100gm [১০০ গ্রাম]
 - 200gm [২০০ গ্রাম]
 - 400gm [৪০০ গ্রাম]
 - 800gm [৮০০ গ্রাম]

18. Jorda, Sada pata are not as harmful as *bidi*, cigarettes. [জর্দা, সাদা পাতা বিড়ি সিগারেটের মতো অতটা ক্ষতিকর নয় ।]

- a) True [সত্য]
- b) False [মিথ্যা]

19. Diabetes can be preventable in 80% cases. [৮০ ভাগ ডায়াবেটিস প্রতিরোধ করা সম্ভব ।]

- a) True [সত্য]
- b) False [মিথ্যা]

20. Brief interventions are expensive and not effective ways to support persons to change behaviors, like stopping smoking [সংক্ষিপ্ত কাউন্সেলিং বা ব্রিফ ইন্টারভেনশন ব্যক্তির আচরণ পরিবর্তন করতে সহায়তা করার জন্য, যেমন ধূমপান ছেড়ে দেয়ার জন্য কার্যকরী নয়] (circle)

- a) True [সত্য]
- b) False [মিথ্যা]

21. In brief Intervention Model, the 5 As are: [সংক্ষিপ্ত কাউন্সেলিং মডেলে ফাইভ এ কাউন্সেলিং এর ধাপগুলো লিখুন] (5 marks)

1. _____
2. _____
3. _____
4. _____
5. _____

22. In Brief Intervention Model, the 5Rs are: [সংক্ষিপ্ত কাউন্সেলিং মডেলে ফাইভ আর কাউন্সেলিং এর ধাপগুলো লিখুন] (5 marks)

1. _____
2. _____
3. _____
4. _____
5. _____

Annex 1.3: Name of the facilitators for PEN trainings

Name of the session	Name of the facilitators, Organization
A. Overview of NCD burden and PEN as a primary health care approach to organizing and deliver essential NCD services through a team-based approach at a primary health care setting	Batch 1: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 2: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 3: Dr. Rina Rani Paul, BRAC JPGSPH Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 4: Dr. Raisul Islam, WHO Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 5: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 6: Dr. Rina Rani Paul, BRAC JPGSPH
B. Overview of NCDs: Cardiovascular diseases (CVD) and Diabetes Mellitus	Batch 1: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 2: Dr. Priscilla Khyang , BRAC JPGSPH
	Batch 3: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 4: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 5: Dr. Uhaishing Marma, BRAC JPGSPH
	Batch 6: Dr. Uhaishing Marma, BRAC JPGSPH
C1. Risk factors for non-communicable diseases: Tobacco use	Batch 1: Dr. Ali Ahsan Hemel , BRAC JPGSPH
	Batch 2: Dr. Ali Ahsan Hemel , BRAC JPGSPH
	Batch 3: Dr. Watin Alom, WHO
	Batch 4: Dr. Ali Ahsan Hemel , BRAC JPGSPH
	Batch 5: Dr. Ali Ahsan Hemel , BRAC JPGSPH
	Batch 6: Dr. Ali Ahsan Hemel , BRAC JPGSPH
C2. Risk factors for non-communicable diseases: Unhealthy diet	Batch 1: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 2: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 3: Dr. Watin Alom, WHO
	Batch 4: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 5: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 6: Dr. Rina Rani Paul, BRAC JPGSPH
C3. Risk factors for non-communicable diseases: Physical inactivity	Batch 1: Dr. Priscilla Khyang , BRAC JPGSPH
	Batch 2: Dr. Priscilla Khyang , BRAC JPGSPH
	Batch 3: Dr. Ali Ahsan Hemel , BRAC JPGSPH
	Batch 4: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 5: Dr. Priscilla Khyang , BRAC JPGSPH

Name of the session	Name of the facilitators, Organization
	Batch 6: Dr. Priscilla Khyang, BRAC JPGSPH
C4. Risk factors for non-communicable diseases: Overweight and obesity	Batch 1: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 2: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 3: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 4: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 5: Dr. Ali Ahsan Hemel , BRAC JPGSPH
	Batch 6: Dr. Ali Ahsan Hemel , BRAC JPGSPH
D1. Total cardiovascular risk-based approach	Batch 1: Dr. Rina Rani Paul, BRAC JPGSPH Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 2: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 3: Dr. Rina Rani Paul, BRAC JPGSPH Dr. Raisul Islam, WHO
	Batch 4: Dr. Rina Rani Paul, BRAC JPGSPH Dr. Raisul Islam, WHO
	Batch 5: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 6: Dr. Rina Rani Paul, BRAC JPGSPH
D2. Measurement of total cholesterol and test of urine using urine strips	All Batches: Dr. Rina Rani Paul, BRAC JPGSPH
E. Assessment and Management of Hypertension	Batch 1: Dr. Rina Rani Paul, BRAC JPGSPH Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 2: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 3: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 4: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 5: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 6: Dr. Rina Rani Paul, BRAC JPGSPH
F. Assessment and Management of Type 2 Diabetes	Batch 1: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 2: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 3: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 4: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 5: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 6: Dr. Bishwajit Bhowmik, Bangladesh Diabetic

Name of the session	Name of the facilitators, Organization
	Association
G1. Healthy lifestyle: Basics of counseling	Batch 1: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 2: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 3: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 4: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 5: Dr. Priscilla Khyang, BRAC JPGSPH
	Batch 6: Ali Ahsan Hemel, BRAC JPGSPH
G2. Brief interventions for non-communicable disease risk factors: Tobacco cessation, healthy diet and physical activity	Batch 1: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 2: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 3: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 4: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 5: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 5: Dr. Rina Rani Paul, BRAC JPGSPH
H1. Develop and present team-based approach of implementing PEN intervention in existing health facility	Batch 1: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 2: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 3: Dr. Ali Ahsan Hemel, BRAC JPGSPH
	Batch 4: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 5: Dr. Rina Rani Paul, BRAC JPGSPH
	Batch 6: Dr. Rina Rani Paul, BRAC JPGSPH
Simulation of service delivery at PHC	Facilitators from BRAC JPGSPH, and WHO
OSPE	Facilitators from BRAC JPGSPH, and WHO

Annex 1.4: Participants' list for PEN training

Annex 1.4.1: Participants' list for PEN training-Batch 1

Sl#	Name	Designation	Organization
1	Dr. Aурpita Barua	Assistant Surgeon	UHC Ukhiya
2	Sarmin Sultana-Eti	Senior Staff Nurse	UHC Ukhiya
3	Sadia Sultana	Senior Staff Nurse	UHC Ukhiya
4	Md. Solaiman Hossain	SACMO	UHC Ukhiya
5	Mst. Rabhya Khatun	Senior Staff Nurse	UHC Teknaf
6	Farzana Afrin Sharna	Senior Staff Nurse	UHC Teknaf
7	Sultana Razia Sumi	SACMO	UHC Teknaf
8	Dr. Md Nurul Huda Mazumder	Assistant Surgeon	UHC Ramu
9	Dolly Biswas	Senior Staff Nurse	UHC Ramu
10	Mamata Moyee Das	Senior Staff Nurse	UHC Ramu
11	Ahsan Uddin	SACMO	UHC Ramu
12	Dr. Md. Athikur Rahman	Assistant Surgeon	UHC Chakaria
13	Lucky Ghosh	Senior Staff Nurse	UHC Chakaria
14	Shawkat Ara Zannat	Senior Staff Nurse	UHC Chakaria
15	Nazim Uddin	SACMO	UHC Chakaria
16	Dr. Md. Rezaul Karim	Assistant Surgeon	UHC Moheshkhali
17	John Mardy	Senior Staff Nurse	UHC Moheshkhali
18	Md. Ashas Ali	Senior Staff Nurse	UHC Moheshkhali
19	Zainal Abedin	SACMO	UHC Moheshkhali
20	Dr. Abdullah Al Noman	Assistant Surgeon	UHC Pekua
21	Mst. Mowsumi Khatun	Senior Staff Nurse	UHC Pekua
22	Mst. Minara Khatun	Senior Staff Nurse	UHC Pekua
23	Dr. Md. Nazmul Huda	Assistant Surgeon	UHC Kutubdia
24	Jeasmin Akter	Senior Staff Nurse	UHC Kutubdia
25	Jannatul Mawa	Senior Staff Nurse	UHC Kutubdia
26	Dr. Md. Abu Shoab	Medical Officer	UHC Sadar
27	Niva Barua	Senior Staff Nurse	UHC Sadar
28	Anamika Paul Rany	Senior Staff Nurse	UHC Sadar
29	Dr Habibur Rahman	Medical Officer	UHC Sadar
30	Abul Bashar	SACMO	UHC Sadar

Annex 1.4.2: Participants' list for PEN training-Batch 2

SI #	Name	Designation	Organization Name
1	Dr. Jannat Jahan Mitu	Assistant Surgeon	UHC Ukhiya
2	Ripon Biswas	SACMO	UHC Ukhiya
3	Mst. Jakya Khatun	Senior Staff Nurse	UHC Ukhiya
4	Khadizatul kobra	Senior Staff Nurse	UHC Ukhiya
5	Dr. Riad Mohammad Sayed Chowdhury	Assistant Surgeon	UHC Teknaf
6	Israt Jahan Bithy	Senior Staff Nurse	UHC Teknaf
7	Mithila Aktar	Senior Staff Nurse	UHC Teknaf
8	Md. Tahmid Ashraf	Assistant Surgeon	UHC Ramu
9	Seuli Rani Dey	Senior Staff Nurse	UHC Ramu
10	Fazilatunnesa Shefa	Senior Staff Nurse	UHC Ramu
11	Begum Efteara Roma	SACMO	UHC Ramu
12	Dr Mainul Hossain	Assistant Surgeon	UHC Chakaria
13	Morzina Akter	Senior Staff Nurse	UHC Chakaria
14	Asia Islam	Senior Staff Nurse	UHC Chakaria
15	Md. Tamimul Hasan	SACMO	UHC Chakaria
16	Dr. Md. Shafiqul Islam	Assistant Surgeon	UHC Moheshkhali
17	Rahima Jannat	Senior Staff Nurse	UHC Moheshkhali
18	Kamrun Nesa	Senior Staff Nurse	UHC Moheshkhali
19	Md. Mirasul Alam Quaderi	SACMO	UHC Moheshkhali
20	Dr. Md. Mahbubul Alam	Assistant Surgeon	UHC Pekua
21	Dr. Apu Mazumder	Assistant Surgeon	UHC Pekua
22	Prianka Barua	Senior Staff Nurse	UHC Pekua
23	Nur Ayesha Alam	Senior Staff Nurse	UHC Kutubdia
24	Parveen Akter	Senior Staff Nurse	UHC Kutubdia
25	Dr. Naurin Akther	Assistant Surgeon	UHC Sadar
26	Md. Abu Sadak	SACMO	UHC Sadar
27	Priangka Paul	Midwife	UHC Sadar
28	Dr. Uttam Kumar Barua	Assistant Surgeon	Cox's Bazar District Hospital
29	Syed Ahmed Tanshir Uddin	Senior Staff Nurse	Cox's Bazar District Hospital
30	Rehana Akther	Senior Staff Nurse	Cox's Bazar District Hospital

Annex 1.4.3: Participants' list for PEN training-Batch 3

SI #	Name	Designation	Organization Name
1	Dr. Sharmin Jahan Sweety	Assistant Surgeon	UHC Ukhiya
2	Mst. Aeysha Khatun	Senior Staff Nurse	UHC Ukhiya
3	Most. Rehena Khatun	Senior Staff Nurse	UHC Ukhiya
4	Saifuddin	SACMO	UHC Ukhiya
5	Dr. Md. Al-Amin	Assistant Surgeon	UHC Teknaf
6	Md. Sohel Pramanik	Senior Staff Nurse	UHC Teknaf
7	Md. Mehedi Hasan Roki	Senior Staff Nurse	UHC Teknaf
8	Dr. Uttam Barua	Assistant Surgeon	UHC Ramu
9	Sristy Moni Chowdhury	Senior Staff Nurse	UHC Ramu
10	Alisha Gonsalves	Senior Staff Nurse	UHC Ramu
11	Dr. Md Sirazom Monir	Assistant Surgeon	UHC Chakaria
12	Sumi Talukder	Senior Staff Nurse	UHC Chakaria
13	Morsheda Yeasmin	Senior Staff Nurse	UHC Chakaria
14	Dr. Sourav Sharma Jony	Assistant Surgeon	Moheshkhali
15	Mst. Mahbuba Khatun	Senior Staff Nurse	UHC Moheshkhali
16	Sadia Islam Bonna	Senior Staff Nurse	UHC Moheshkhali
17	Md. Raihanul Alam	SACMO	UHC Moheshkhali
18	Dr. Rokeya Arefin	Assistant Surgeon	UHC Pekua
19	Arifa Khanom	Senior Staff Nurse	UHC Pekua
20	Dr. Hossain Mohammad Zonaid Ansary	Assistant Surgeon	UHC Kutubdia
21	Dr. Ayesha Zerine	Medical Officer	UHC Sadar
22	Monira Akter	Senior Staff Nurse	UHC Sadar
23	Margina Akter	Senior Staff Nurse	Coxbazar Sadar Hospital
24	Abu Taher	Senior Staff Nurse	Coxbazar Sadar Hospital
25	Md. Yeasin Anwar	Medical Officer	IOM (CoxBazar District Hospital)

Annex 1.4.4: Participants' list for PEN training-Batch 4

SI #	Name	Designation	Organization Name
1	Dr. Mohammad Shafayat Hossen	Assistant Surgeon	Ukhiya,UHC
2	Madhuri Halder	Senior Staff Nurse	Ukhiya,UHC
3	Farhana Siddika	Senior Staff Nurse	Ukhiya,UHC
4	Md. Rahamat Ullah	SACMO	Ukhiya,UHC
5	Dr. Inzamamul Islam	Assistant Surgeon	Teknaf,UHC
6	Ruma Akter	Senior Staff Nurse	Teknaf,UHC
7	Khadiza Khatun	Senior Staff Nurse	Teknaf,UHC
8	Dr. Saimuna Akter	Assistant Surgeon	Ramu,UHC
9	Dr. Saqib Al Rashid	Assistant Surgeon	Chakaria,UHC
10	Asmaul Hosna	Senior Staff Nurse	Chakaria,UHC
11	Bristy Das	Senior Staff Nurse	Chakaria,UHC
12	Dr. Abdullah Al Roman	Assistant Surgeon	PHD (Moheshkhali,UHC)
13	AKM Azad Sarker	Senior Staff Nurse	Moheshkhali,UHC
14	Kohinur Akter	Senior Staff Nurse	Moheshkhali,UHC
15	Dr. Mahmuda Akter Mone	Assistant Surgeon	Pekua,UHC
16	Dr. S. M. Touhidul Islam	Assistant Surgeon	Pekua,UHC
17	Monika Akter	Senior Staff Nurse	Pekua,UHC
18	Dr. A. H. M. Mustafa Kamal	Assistant Surgeon	Kutubdia,UHC
19	Morium Begum	Senior Staff Nurse	Kutubdia,UHC
20	Dr. Ahasun Ullah Sikder	Assistant Surgeon	UHC Sadar
21	Dr Dalia Kunkun Kar	Assistant Surgeon	Cox's bazar Sadar Hospital
22	Mosa. Rahima Khatun	Senior Staff Nurse	Cox's bazar Sadar Hospital
23	Tawhida Zannat	Senior Staff Nurse	Cox's bazar Sadar Hospital

Annex 1.4.5: Participants' list for PEN training-Batch 5

SI #	Name	Designation	Organization Name
1	Dr. Palash Kumar Dhar	Assistant Surgeon	Ukhiya,UHC
2	Amena Khaton	Senior Staff Nurse	Ukhiya,UHC
3	Pompi Das	Senior Staff Nurse	Ukhiya,UHC
4	Mahmudul Hasan	SACMO	Ukhiya,UHC
5	Dr. Tafsirul Habib	Assistant Surgeon	Teknaf,UHC
6	Omer Faruk Sarker	Senior Staff Nurse	Teknaf,UHC
7	Md. Abu Helal	Senior Staff Nurse	Teknaf,UHC
8	Dr. S. M. Shible Sadik	Assistant Surgeon	Ramu,UHC
9	Dr Abu Zafar Mohammad Sadek	Assistant Surgeon	Chakaria,UHC
10	Shuma Roy	Senior Staff Nurse	Chakaria,UHC
11	Roma Akter	Senior Staff Nurse	Chakaria,UHC
12	Md. Rezaul Hoque	SACMO	Chakaria,UHC
13	Dr. Atiqul Bashar Roni	Assistant Surgeon	Moheshkhali,UHC
14	Rome Rani Rudra	Senior Staff Nurse	Moheshkhali,UHC
15	Towarekatun Nesa	Senior Staff Nurse	Moheshkhali,UHC
16	Dr. Mohammed Abul Monsur	Assistant Surgeon	Pekua,UHC
17	Mst. Chamak Ara	Senior Staff Nurse	Pekua,UHC
18	Fenci Khatun	Senior Staff Nurse	Pekua,UHC
19	Dr. Yeassir Arafat	Assistant Surgeon	Sadar UHC
20	Dr. Saheda Sultana	Assistant Surgeon	Cox's Bazar District Hospital
21	Shahena Akter	Senior Staff Nurse	Cox's Bazar District Hospital
22	Mst. Rojina Khatun	Senior Staff Nurse	Cox's Bazar District Hospital

Annex 1.4.6: Participants' list for PEN training-Batch 6

SI #	Name	Designation	Organization Name
1	Dr. Tushit Paul	Assistant Surgeon	Ukhiya,UHC
2	Nusrat Jahan	Senior Staff Nurse	Ukhiya,UHC
3	Absus Salam	SACMO	Ukhiya,UHC
4	Dr. Md. Nasim Iqbal	Assistant Surgeon	Teknaf,UHC
5	Nur Mahal Akter	Senior Staff Nurse	Teknaf,UHC
6	Kamrunnaher	Senior Staff Nurse	Teknaf,UHC
7	Dr. Sharmin Jahan	Assistant Surgeon	Ramu,UHC
8	Dr. Sayada Razia Sayed	Assistant Surgeon	Chakaria,UHC
9	Anjali Rani Das	Nursing Supervisor	Chakaria,UHC
10	Rita Rudra	Senior Staff Nurse	Chakaria,UHC
11	Enamul Hoque	SACMO	Chakaria,UHC
12	Dr. Mohammad Arman Kader	Assistant Surgeon	Moheshkhali,UHC
13	Hamida Akther	Senior Staff Nurse	Moheshkhali,UHC
14	Esrat Sharmin	Senior Staff Nurse	Moheshkhali,UHC
15	Sumati Sen	SACMO	Moheshkhali,UHC
16	Dr. Pial Paul	Assistant Surgeon	Pekua,UHC
17	Mahbub Alam	Senior Staff Nurse	Pekua,UHC
18	Mst. Ayesha Khatun	Senior Staff Nurse	Pekua,UHC
19	Md. Hafizur Rahman	Senior Staff Nurse	Cox's Bazar District Hospital
20	Halima Khatun	Senior Staff Nurse	Cox's Bazar District Hospital

Annex 1.5: Training evaluation form for PEN training



Training on package of essential non-communicable diseases (PEN) interventions for primary health care providers Training Evaluation Form Overall

Name: _____ Batch: _____ Date: ____/____/2022
(you might skip the name here if you want to give anonymous feedback)

1. রোগীদের অস্বাস্থ্যকর আচরণ পরিবর্তনে সহায়তা করতে ফাইভ এ এবং ফাইভ আর পদ্ধতি ব্যবহারে আপনি কতটা আত্মবিশ্বাসী? সঠিক উত্তর গোল করুন [How confident you are to apply the 5A's and 5R's technique to support patients to change their unhealthy behavior? Circle]

Not Much	A little	Somewhat confident	Confident	Very Confident
1	2	3	4	5

2. WHO risk prediction chart ব্যবহার করতে আপনি কতটা আত্মবিশ্বাসী? সঠিক উত্তর গোল করুন [How confident you are to use the WHO risk prediction chart?] [Circle]

Not Much	A little	Somewhat confident	Confident	Very Confident
1	2	3	4	5

3. জাতীয় নির্দেশিকা ব্যবহার করে উচ্চরক্তচাপের ব্যবস্থাপনা করতে আপনি কতটা আত্মবিশ্বাসী? সঠিক উত্তর গোল করুন [How confident you are to manage hypertensive patient based on the national guideline? Circle]

Not Much	A little	Somewhat confident	Confident	Very Confident
1	2	3	4	5

4. জাতীয় নির্দেশিকা ব্যবহার করে ডায়াবেটিসের ব্যবস্থাপনা করতে আপনি কতটা আত্মবিশ্বাসী? সঠিক উত্তর গোল করুন [How confident you are to manage Diabetic patients based on the national guideline? Circle]

Not Much	A little	Somewhat confident	Confident	Very Confident
1	2	3	4	5

5. এই প্রশিক্ষণ আপনার প্রত্যাশা কতটা পূরণ করেছে? সঠিক উত্তর গোল করুন [How much the training met your expectations? Circle]

Not Much	A little	Somewhat	Met expectations	Exceeded expectations
1	2	3	4	5

6. কোন সেশনগুলো আপনার সবচেয়ে ভাল লেগেছে? ভালোর ক্রম অনুসারে লিখুন [Please mention below the session(s) you enjoyed most]

- a) _____
- b) _____
- c) _____
- d) _____

7. কোন সেশনগুলো আপনার তেমন ভাল লাগেনি? খারাপ লাগার ক্রম অনুসারে লিখুন [Please mention below the session(s) you did not enjoy that much]

- a) _____
- b) _____
- c) _____
- d) _____

8. কোন বিষয়গুলো আরো ভালো হতে পারতো? [List of things that could have been better]

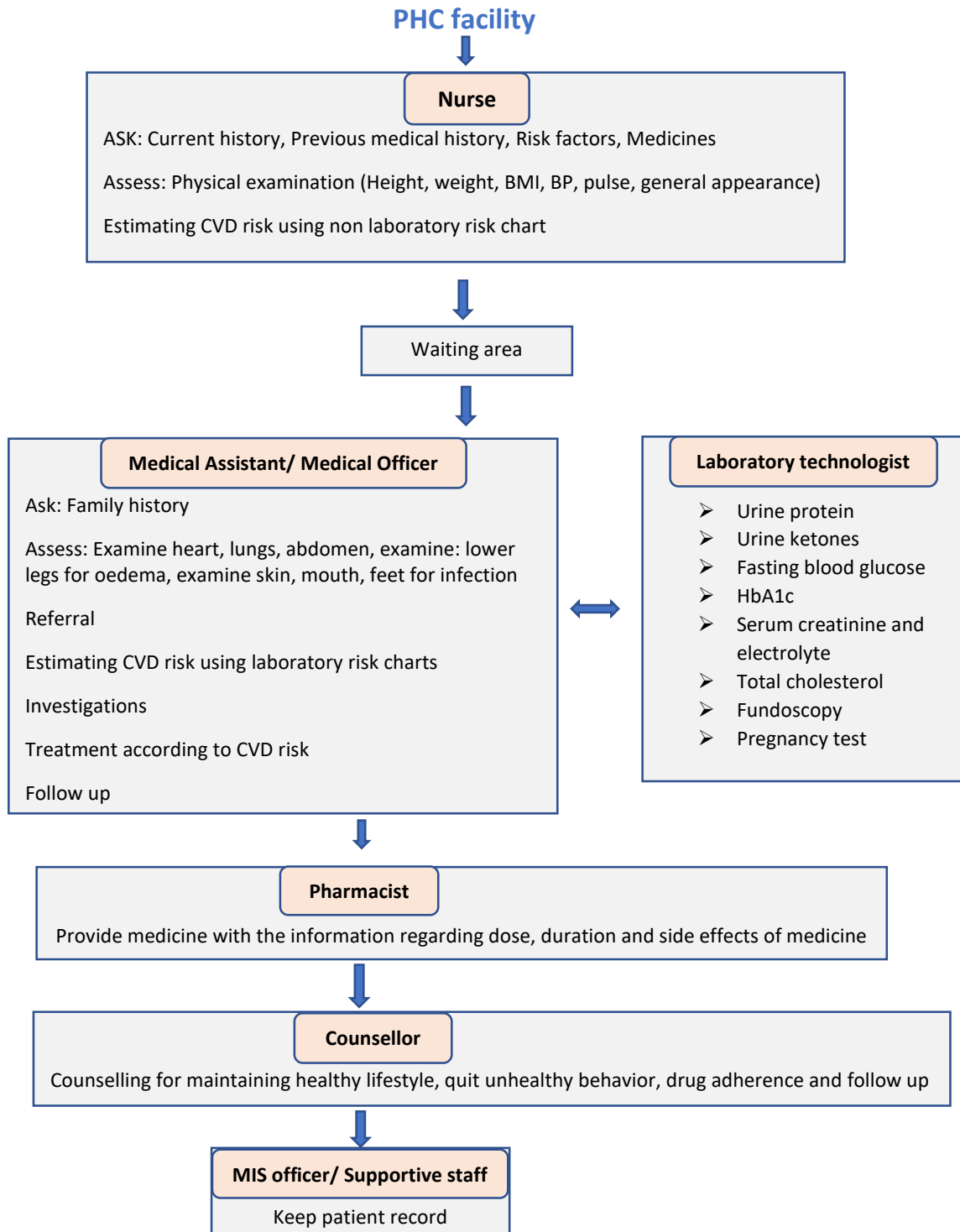
9. ট্রেনিং এর মান ও বিষয় নিয়ে সাধারণভাবে আপনার মন্তব্য লিখুন [Any general comment or suggestion on training quality and content]

10. Foods and logistics [Please comment on the overall quality of training logistics (tick in the appropriate column for each area)]

Area	Excellent	Good	Average	Bad	Very bad
Accommodation					
Foods					
Communication					
Training materials					

11. Please give your suggestions for improvement in the area of training accommodation, foods, materials, and other logistics arrangements for future training.

Annex 1.6: NCD patient flow-chart in the PHCs



Annex 1.8: Sample format for NCD register in the PHC

SN	Date	FDMN ID or NID/ Patient ID	Name	Smoker? Y/N	Sex/ Age(Y) M/F/O	New/ FU N/FU	Weight (kg)/ Height (Cm)	BMI	BP Sys/Dias	FBS/RBS ___/F/R	CVD Risk (%)	Diagnosis (circle)	Counseling on (circle)	Comments
1	___/___/202_				M/F/O					F/R		HTN / DM/ Others	S / ST Salt / Fat PA / MA	
2	___/___/202_				M/F/O					F/R		HTN / DM/ Others	S / ST Salt / Fat PA / MA	
3	___/___/202_				M/F/O					F/R		HTN / DM/ Others	S / ST Salt / Fat PA / MA	
4	___/___/202_				M/F/O					F/R		HTN / DM/ Others	S / ST Salt / Fat PA / MA	
5	___/___/202_				M/F/O					F/R		HTN / DM/ Others	S / ST Salt / Fat PA / MA	
6	___/___/202_				M/F/O					F/R		HTN / DM/ Others	S / ST Salt / Fat PA / MA	
7	___/___/202_				M/F/O					F/R		HTN / DM/ Others	S / ST Salt / Fat PA / MA	
8	___/___/202_				M/F/O					F/R		HTN / DM/ Others	S / ST Salt / Fat PA / MA	
9	___/___/202_				M/F/O					F/R		HTN / DM/ Others	S / ST Salt / Fat PA / MA	
10	___/___/202_				M/F/O					F/R		HTN / DM/ Others	S / ST Salt / Fat PA / MA	

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