CADRE TRAINING MODULE

USING ALGORITHM FOR EARLY DETECTION OF NON-COMMUNICABLE DISEASES AT POSBINDU





FACULTY OF MEDICINE UNIVERSITAS SEBELAS MARET SURAKARTA 2021



PREFACE

Praise be to Allah Almighty for the compilation of the module "Cadre Training: Using Algorithms for Early Detection of Non-Communicable Diseases at Posbindu". This module is part of a research project on increasing non-communicable disease interventions in South-east Asia or the Scaling-up NCD Interventions in South-East Asia (SUNI-SEA).

Countries in Europe are struggling with increasing costs of chronic disease treatment, meanwhile Indonesia, Myanmar, and Vietnam have developed innovative strategies to hold the epidemics of cardiovascular disease and diabetes mellitus (DM) at the early stage. In short, these countries are trying to create innovative synergies within and between sectors. During the drafting of this proposal, Ministry of Health has expressed their need for research support. South-east Asian stakeholders hope that by evidence-based policy, they could optimize new initiatives to reach their full potential in reducing morbidity and mortality caused by non-communicable diseases.

The SUNI-SEA research project will take advantage of this momentum. SUNI-SEA will use this extraordinary opportunity to strengthen this innovative process in Indonesia, Myanmar, and Vietnam through participatory action research and learning, while at the same time identify the improvement processes taking place at the micro, meso, and macro levels. Based on experiences in these leading countries, as a member of the consortium, Faculty of Medicine, Universitas Sebelas Maret tries to offer guidelines for the prevention and management of hypertension and diabetes mellitus for the global community, one of which through this cadre training module with innovations in development of algorithms and an application program for early detection of non-communicable diseases in NCDs Posbindu.





We hope this module could help cadres to provide better NCDs Posbindu services. Hopefully this module will also be able to enhance knowledge and insights in the field of prevention of non-communicable diseases for readers wherever.

Finally, we would like to thank those who have helped to compile this module. We would like to express our gratitude to Rohmaningtyas Hidayah Setyaningrum, MD., Psychiatrist; Antonius Andi Kurniawan, MD., Sports Medicine Physician; Amelya Augusthina Ayusari, MD., Clinical Nutritionist; and Laelatus Syifa Sari Agustina, B.Sc., M.Sc. for helping SUNI-SEA Indonesia team to review the content of this module. We also would like to ask for your suggestions to improve this module in the future.

Surakarta, March 2021 Prof. Ari Natalia Probandari, MD., MPH., Ph.D. Eti Poncorini Pamungkasari, MD., M.Med.Ed., Ph.D. Balgis, MD., M.Sc., CM-FM., Accupunture Specialist Vitri Widyaningsih, MD., MS., Ph.D. Ratih Puspita Febrinasari, MD., M.Sc., Ph.D. Sumardiyono, B.Sc., M.Sc., Ph.D. Yusuf Ari Mashuri, MD., M.Sc. Stefanus Erdana Putra, MD. Muhammad Hafizhan, MD.







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TRAINING SCHEDULE

No	Tonio	Duration	Strategy				
INU	горіс	(minute)	Strategy				
Firs	t Day						
1.	Pre-test	30	Offline				
2.	Overview on Training and Non-Communicable Diseases (NCDs)	60	Offline				
3.	Algorithm and Application for NCDs Early Detection	120	Offline				
4.	Simple examination simulation (BMI, waist circumference,	120	Offline				
	blood pressure, and blood glucose level)						
5.	Practice on Using Algorithm and Application	75	Offline				
Seco	Second Day						
6.	NCDs Information, Education, Communication (IEC), and	60	Offline				
	Counseling						
7.	Persuasive Communication in NCDs Prevention and	60	Offline				
	Management						
8.	Nutritional Aspects in NCDs Prevention and Management	45	Offline				
9.	Exercise Guidance in NCDs Prevention and Management	45	Offline				
10.	Complementary Medicine in NCDs Prevention and45						
	Management						
11.	Practice in Counseling and Persuasive Communication	90	Offline				
12.	Post-test	30	Offline				
	Total	780					



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Scaling-Up NCD Interventions in South-East Asia (SUNI-SEA) is a research consortium project delivered through a collaboration of nine consortium members. This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 825026. 4



TRAINING RUNDOWN

Day	Time	Activities
Ι	Training for He	ealth Officers
II	07.30 - 08.00	Opening + Photo Session
	08.00 - 08.30	Pre-test (Cadres)
	08.30 - 09.30	1 st session: Overview on Training and NCDs
	09.30 - 09.50	Coffee Break and Ice Breaking
	09.50 - 11.50	2 nd session: Algorithm and Application for NCDs Early Detection
	11.50 - 12.50	Breaks
	12 50 12 50	3 rd session: BMI, Waist Circumference, Blood Pressure, and Blood
	12.30 - 13.30	Glucose Level Examination
	1350 - 1450	Practice on BMI, Waist Circumference, Blood Pressure, and Blood
	15.50 11.50	Glucose Level Examination
	14.50 - 15.00	Coffee Break and Ice Breaking
	15.00 - 16.15	Practice on Using Algorithm and Application
	16.15 - 16.30	Reflection and Closing
III	08.00 - 08.10	Opening
	08.10 - 09.10	4 th session: NCDs IEC and Counseling
	09.10 10.10	5 th session: Persuasive Communication in NCDs Prevention and
	09.10 - 10.10	Management
	10.10 - 10.30	Coffee Break and Ice Breaking
	10.30 - 11.15	6 th session: Nutritional Aspects in NCDs Prevention and
	10.50 - 11.15	Management
	11.15 - 12.00	7 th session: Exercise Guidance in NCDs Prevention and Management
	12.00 - 13.00	Breaks
	13.00 - 13.45	8 th session: Complementary Medicine in NCDs Prevention and
	15.00 15.15	Management
	13.45 - 14.30	Practice in Counseling and Persuasive Communication (Part 1)
	14.30 - 14.45	Coffee Break and Ice Breaking
	14.45 - 15.30	Practice in Counseling and Persuasive Communication (Part 2)
	15.30 - 16.00	Post-test (Cadres)
	16.00 - 16.30	Reflection, Closing, and Photo Session







Herriber of the HelpAge global network

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MANAGEMENT OF TRAINING IMPLEMENTATION

A. Planning on Training Implementation

- The planning mechanism for training implementation on the use of algorithms for early detection of non-communicable diseases in NCDs Posbindu is regulated as follows:
 - a. The SUNI-SEA Team of the Faculty of Medicine, Universitas Sebelas Maret University compiled a training organizing team and a teaching team with responsibilities i.e. training participants monitoring and mentoring, preparation of training schedules, and preparation of required training facilities.
 - b. The training organizing team submits a training permit application to the local City / Regency Health Office.
- 2. Training Participants

NCDs Posbindu cadres (coming from 4 Puskesmas in one city / district, where each Puskemas chooses 2 NCDs Posbindu, and each NCDs Posbindu sends 2 cadres) that makes 16 participants

3. Trainers/facilitators

Criteria for trainers / facilitators in training on using algorithms for early detection of non-communicable diseases in NCDs Posbindu are:

- a. Doctors or paramedics focusing in public health, especially promotive and preventive management of non-communicable diseases
- b. Mastering training subjects, both in theory and practical skills
- 4. Training Facilities

Training facilities and infrastructure are provided by the organizing team in collaboration with the local District / City Health Office





B. Training Implementation

1. Implementation

The organizer of training on using algorithms for early detection of noncommunicable diseases in NCDs Posbindu is the SUNI-SEA Team, Faculty of Medicine, Universitas Sebelas Maret in collaboration with the District / City Health Office and the local Puskesmas.

- 2. Place and Time
 - a. Training is carried out offline
 - b. Training is carried out in a room with good air ventilation
 - c. The training was carried out for 780 minutes
- 3. The procedures for training participants are:
 - a. Arrive on time
 - b. Dress modestly during training activities.
 - c. Undergo a screening examination for COVID-19 with Genose C19
 - d. Implement health protocols
 - wear the mask properly (according to the example provided in the picture. A new medical mask will be provided periodically every 4 hours),
 - take body temperature measurements before entering the training room,
 - wash hands with soap before entering and after leaving the training room,
 - maintain physical distance between individuals for at least 1 meter during training,
 - maintain cleanliness and comfort of the training environment.





- 4. How to deliver the materials:
 - a. The facilitator presents material in videos, leaflets, or PowerPoints formats
 - b. The facilitator leads the discussion/question and answer session
 - c. The facilitator guides simulation and exercises on using algorithms sessions

C. Training Evaluation

The training evaluation consists of:

- 1. Evaluation of trainers/facilitators
- 2. Evaluation of training organizer





ALGORITHM AND APPLICATION SIMULATION GUIDELINE

Objective:

After participating in this simulation, participants are expected to be able to use the algorithm in NCDs Posbindu

Direction:

- The facilitator divides the participants into groups and each group consists of 4-5 participants. Each group is assisted by 1 facilitator.
- **2.** The facilitator distributes simulation guides and algorithms to be used in simulation to each group.
- **3.** Each participant in the group is given the opportunity to simulate the use of the algorithm for about 20-30 minutes per participant.
- **4.** The facilitator observes each participant in the group who is doing the simulation, using the cadre's skill in using the algorithm observation checklist that has been prepared.
- **5.** The facilitator conducts an evaluation and provides the opportunity for participants to re-simulate participants who are considered less competent based on the checklist.
- **6.** After all the participants have finished the simulation in the group, the facilitator provides suggestion or clarification on things that are improper for about 30 minutes





GUIDELINES ON BMI, WAIST CIRCUMFERENCE, BLOOD PRESSURE, AND BLOOD SUGAR LEVEL MEASUREMENT

Objective:

After participating in this practice, participants are expected to be able to measure BMI, waist circumference, blood pressure, and blood sugar level in NCDs Posbindu.

Direction:

- The facilitator divides the participants into groups and each group consists of 4-5 participants. Each group is assisted by 1 facilitator.
- **2.** The facilitator distributes practical guidelines for simple anthropometric and blood sugar measurement to be used in the simulation activities to each group.
- **3.** Each participant in the group is given the opportunity to simulate a simple anthropometric examination and blood sugar for about 20-30 minutes per participant.
- **4.** The facilitator observes each participant in the group who is doing the simulation using the checklist that has been prepared.
- **5.** The facilitator conducts an evaluation and provides the opportunity for participants to re-simulate participants who are considered less competent based on the checklist.
- **6.** After all the participants have finished the simulation in the group, the facilitator provides suggestion or clarification on things that are improper for about 30 minutes





INTRODUCTION

Indonesia is facing an increasing burden of non-communicable diseases (NCDs). The NCDs Pos Binaan Terpadu (Posbindu) is a community-based program for early detection and monitoring of major NCDs risk factors (smoking, alcohol consumption, unbalanced diet, lack of physical activity, obesity, stress, hypertension, hyperglycemia, and hypercholesterolemia). The main objective of NCDs Posbindu activities is to increase community participation in preventing and early diagnosis of NCDs risk factors, targeting all individuals aged 15 years or over. The main NCDs covered by NCDs Posbindu are diabetes, cancer, cardiovascular disease, chronic obstructive pulmonary disease, injury, and violence.

The retrospective phase of research, which consists of qualitative and quantitative studies, had been carried out in three provinces in Indonesia, North Sumatra, Central Java, and East Java. Focused group discussions (FGD) involving Ministry of Health, Health Office, and cadres had been conducted 22 times. Secondary data were obtained from 54,559 NCDs Posbindu participants during 2019. Primary data was obtained from 1189 respondents through the KAP (Knowledge, Attitude, and Practices) questionnaire. Our findings indicated that NCDs Posbindu was a cost-effective program, but its implementation was still sub-optimal. The sources of funds used to carry out activities still vary (starting from the Puskesmas, government, community, donations). Some NCDs Posbindu had difficulty allocating funds, some were using private funds. From secondary data in NCDs Posbindu, we found that there was a lot of surveillance data related to NCDs that was incomplete. The most common data available on the NCDs Posbindu Register were: name, gender, age, weight, height, waist circumference, systolic/ diastolic blood pressure.



This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 825026.



Our other finding was that the majority of NCDs Posbindu visitors were women (88% in Semarang City, 78% in Batang District, and 82% in Solo). Most of the NCDs Posbindu visitors in this city were adults aged>55 years (78% in Semarang city), while for the district were adults aged 15-54 years (77% in Batang Regency and 53% in Solo). NCDs Posbindu visitors experiencing hypertension were 33% in Semarang City, 26% in Batang Regency, and 42% in Solo. NCDs Posbindu visitors who are overweight or obese are 51% in Semarang City, 37% in Batang Regency, and 55% in Solo. The problem in the field related to guidelines was the lack of understanding and implementation of the available guidelines because the guidelines were too complex for cadres. On the other hand, there were limited resources, including medical equipment, access to medicines, and lack of competent cadres.

Therefore, in the next research phase (prospective phase), we plan to implement the interventions we have designed and piloted first. One of them is through this cadre training module.



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1st Topic: Overview of Non-Communicable Diseases (NCDs)

Learning Objectives

After this training, NCDs Posbindu cadres can:

- 1. Explain the situation and background of diabetes mellitus (DM) and hypertension in their area correctly
- 2. Explain the signs and symptoms of diabetes mellitus and hypertension correctly
- 3. Explain immediate and long-term complications of DM and hypertension
- 4. Explain the importance of proper DM and hypertension screening
- 5. Explain the management of diabetes mellitus and hypertension, including general treatment principles, the referral system, and lifestyle modification.

Learning Materials

1. What are non-communicable diseases (NCDs)?

Non-communicable diseases (NCDs) are diseases that cannot be transmitted from person to person. The disease progresses slowly over a long period of time (chronic). This disease is degenerative and can be caused by unhealthy behavior and environment. Examples of non-communicable diseases are diabetes mellitus and hypertension.¹

2. How is the distribution of Diabetes Mellitus (DM) in Indonesia?

According to the Basic Health Research conducted by the Ministry of Health of the Republic of Indonesia in 2018, around 8.5% of the population over the age of 15 had diabetes mellitus. This figure increased significantly compared to the estimate of 6.9% in Basic Health Research conducted in 2015.^{2,3}





3. What are factors that increase the likelihood of a person suffering from DM?

There are several factors that can increase a person's chances of suffering from DM, i.e.⁴:

- Families history of DM
- Obesity or overweight
- Increasing age
- Lack of physical activity or sports
- Smoking
- High cholesterol diets
- Patients with hypertension or high blood pressure
- Pregnancy
- Certain race
- Stress over a long period of time

4. What are the signs and symptoms of DM?

- There are three typical symptoms of diabetes mellitus, i.e., lots of eating, lots of drinking, and lots of urination. In addition to these typical symptoms, there are also less typical symptoms, such as weight loss, blurred vision, frequent tingling, fatigue, wounds difficult to heal, etc.⁴
- The blood sugar levels of patients with diabetes during fasting were more than 126 mg / dL, while the blood sugar levels two hours after meals were more than 200 mg / dL.⁵









Figure 1.1 Diabetes Mellitus Symptoms (Source: Ministry of Health)⁶

5. What are the short-term and long-term complications of DM?

- Diabetes mellitus can cause various complications, both short and long term. A • short-term complication of DM is diabetic ketoacidosis. In this condition, the patient may become unconscious due to blood sugar levels that are too high.⁷
- In addition to short-term complications, DM can also cause long-term complications, such as kidney damage, heart disease, stroke, impotence, and difficulties in wounds healing which may require amputation.^{4,7}





6. What is the general management principle of DM?

Lifestyle changes are part of DM management which is very important to do. Patients with DM should maintain a low sugar diet and exercise regularly. Patients also have to take anti diabetes mellitus drugs regularly. In patients whose blood sugar cannot be controlled with medication, insulin injections may be given.⁷



Figure 1.2 General Management of Diabetes Mellitus (Source: Ministry of Health)⁶





7. How is the distribution of hypertension in Indonesia?

Based on the results of Basic Health Research 2018, 34.11% of the population aged over 18 years experienced hypertension or high blood pressure. The increase in the incidence of hypertension occurred in almost all provinces in Indonesia.³

8. What are factors that increase a person's chances of suffering from hypertension?

There are several factors that can increase a person's chances of suffering from hypertension, i.e.⁸:

- Stress
- Heredity
- Smoking
- Overweight
- Lack of physical activity / exercise
- Alcohol consumption
- Kidney damage

9. What are the signs and symptoms of hypertension?

Patients with hypertension are characterized by a long-term increase in blood pressure, which is more than 120/80 mmHg. Patients with hypertension may experience headaches, neck pain, difficulty sleeping, fatigue, nausea, vomiting, shortness of breath, restlessness, and blurred vision.⁹







Figure 1.3 Symptoms of Hypertension (Source: Ministry of Health)⁶

10. What are the short-term and long-term complications of hypertension?

Hypertension can cause various complications, such as heart attack, kidney failure, stroke, and blindness.⁹

11. What is the general management principle of hypertension?

To avoid these complications, hypertension patients are obliged to maintain blood pressure. Maintaining blood pressure can be done by adjusting a low salt diet,





consuming lots of fruit, low cholesterol, not drinking alcohol, exercising at least 30 minutes a day, losing weight, and taking anti-hypertensive drugs regularly.¹⁰



Figure 1.4 General Management of Hypertension (Source: Ministry of Health)⁶

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1st Topic Evaluation Form

Put a check mark ($\sqrt{}$) on your choice based on the delivery of material on this topic

	1	2		3		4	5
Content of the Training							
How do you rate quality of							
the training content in this							
chapter? *							
This chapter is clearly							
structured^							
The assignment (e.g., role							
plays, quiz, etc.) during this							
chapter matched the theory ^							
The learning material in this							
chapter is interesting^							
Length of the Training							
The length of training in this	Too long Just spough Too		o short				
topic	100 long		Just enough		100 SHOR		

Notes:

* A 5-point scale in the following order: 1 = very bad, 2 = bad, 3 = fair, 4 = good, 5 = very good

^ A 5-point scale in the following order: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree





2nd Topic: Algorithm for Screening or Early Detection of NCDs

Learning Objectives

After this training, NCDs Posbindu cadres can:

- 1. Using the manual NCDs algorithm correctly
- 2. Using the NCDs algorithm application correctly
- 3. Fill the NCDs recording and reporting forms correctly
- 4. Refer patients with DM and hypertension found in NCDs Posbindu correctly

Learning Materials

1. What are the goals and benefits of NCDs Posbindu?

NCDs Posbindu's goal is to increase community participation in prevention and early detection of NCDs risk factors.¹

NCDs Posbindu benefits¹ :

- Promoting healthy lifestyle
- Introspect and modify behavior for participants with risk factors for NCDs, so the onset of NCDs can be delayed.
- NCDs Posbindu is an easy and inexpensive preventive and promotional effort

2. What are the activities carried out at NCDs Posbindu?

NCDs Posbindu activities include¹ :

- Early detection and counseling through integrated monitoring of NCDs risk factor which are carried out regularly and periodically
- Monitoring obesity, hypertension, hyperglycemia, hypercholesterolemia, breast examination, and other risk factors
- IEC (Information, Education, and Counseling)





- Physical activity
- Counseling: diet, smoking cessation, stress management methods, self-care

3. What is the definition of the NCDs early detection algorithm?

The NCDs early detection algorithm is a step-by-step guide to help early detection of NCDs in NCDs Posbindu.

4. How the NCDs early detection algorithm can be applied during the implementation of NCDs Posbindu?



Figure 2.1 Early Detection Algorithm at NCDs Posbindu

• Step I

Step I is registration. At this step NCDs Posbindu participants will be asked about the basic data, including name, ID card number, sex, marital status, address, age, monthly income, and last education. After filling in all details, NCDs Posbindu participants directed for the second step.





• Step II

In step II, the participants will be interviewed about the history of noncommunicable diseases. Participants will be asked about history of diabetes, hypertension, stroke, and other cardiovascular diseases. If one have had the disease, participants will then be asked of how long they have been diagnosed with the disease? Whether the participants routinely control to the doctor or not? How many month they usually control? What medicines have they been taking? And after that, Posbindu participants will be directed to the next step.

• Step III

In step III, Posbindu participants will be asked about the risk factors related to lifestyle, such as:

1. Diet

Posbindu participants will be asked about how much fruit and vegetables consumption in a day and how much salt and oil consumption in a day. Posbindu participants then are categorized based on the results of the measurement into three groups: healthy, risk of NCD, and suffering from NCD. They are categorized as have risk of NCD if they consuming vegetables and fruit less than 5 servings per day, consume high-protein side dishes, such as fish, at least 3 times a week, not limiting salt (1 teaspoon per day), sweet and fat (2 tablespoons per day) consumption.

2. Tobacco use

The participants will be asked whether they chew tobacco or smoking? If they consuming tobacco, then they will be asked how much pack of cigarettes or chewed tobacco per day.





3. Physical activity

They will be asked about what physical activities they usually do, for how long/minutes per day or week? Posbindu participants are said to have a healthy lifestyle if they have physical activity for at least 150 minutes in a week, but if they lack of it then classified as risky to NCD.

4. Alcohol consumption

Did the participants consume alcohol? If yes, how much alcohol consumption in one month? Posbindu participants are said to be at risk of NCD if they consumed alcohol.

• Step IV

In step IV, Posbindu participants will be measured. The measurements include:

- 1. Body mass index/BMI (body weight and height)
- 2. Waist circumferences (WC)
- 3. Blood pressure (BP)
- 4. Blood glucose level

From the results of these measurements, Posbindu participants can be categorized into three groups related to information, education and communication (IEC) as a follow-up in step V.

• Step V

In step V, after Posyandu participant had been classified as **green** (healthy), **yellow** (at risk of NCD), or **red** (suffering from NCD), they will be given IEC based on their categories.



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5. How do we classify NCDs Posbindu participants from the results of the examination?

The classification of participants will be based on the results of the health measurements carried out in step IV. Participants will be classified based on body mass index (BMI), abdominal circumference, blood pressure, and blood sugar levels. NCDs Posbindu participants are classified into:

Criteria	Healthy	At Risk of NCDs	Suffering from NCDs
Body Mass Index (BMI)	18.5–22.9	23 – 24	> 25
Waist	Man: ≤ 90 cm		Man: > 90 cm
Circumference	Woman: ≤ 80 cm		Woman: > 80 cm
Blood Pressure	< 130/80	130-139/ 80-90	≥ 140 / 90
Blood glucose level	80-144	145 – 199	≥200

Table 2.1 NCDs Posbindu Participants Classification

6. What steps can be recommended to NCDs Posbindu participants based on the classification of the examination result?

In step V, after NCDs Posbindu participant had been classified as **green** (healthy), **yellow** (at risk of NCDs), or **red** (suffering from NCDs), they will be given IEC based on their categories as follows:









Figure 2.2 IEC Based on the Classification of NCDs Posbindu Participants

7. How is the scoring system that can be used for education based on the NCDs risk factors found during NCDs Posbindu?

At the end of the activity, a prediction about the possibility of suffering from NCDs based on the risk factors that are found is made according to the Indonesian version of the Finnish Diabetes Risk Score (FINDRISC) scoring table.

Risk	0	1	2	3	4	5
Age	< 45		45-54	55-64	> 64	
BMI	18.5-22.9	23-24		>25		
Waist Cinquestorongo	M≤90				M>90	
waist Circumerence	W≤80				W>80	
Physical activity at	Vac		No			
least 30 minutes	165					
Frequency of fruits			Not			
and vegetables	Everyday		averyday			
consumption			everyday			

Table 2.2 FINDRISC Scoring System for the Education of NCDs Posbindu Participants²





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Consumption of routine blood pressure medication	No	Yes		
History of blood pressure (when sick, pregnant)	No			Yes
Familial history diabetes mellitus (type 1 or 2)	No		Yes (grandparents, uncle, aunt, cousin)	Yes (parent, brother/ sister, son/ daughter)

Interpretation:

Less than 7	: Risk are low, 1 in 100 patients will suffered from NCDs
7-11	: Risk are slightly increased, 1 in 25 patients will suffered from NCDs
12-14	: Possible intermediate risk, 1 in 6 patients are likely suffered from NCDs
15-20	: High risk, 1 in 3 patients are likely suffered from NCDs
More than 20	: Very high risk, 1 in 2 patients are likely suffered from NCDs

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2nd Topic Evaluation Form

Put a check mark ($\sqrt{}$) on your choice based on the delivery of material on this topic

	1	2		3		4	5
Content of the Training							
How do you rate quality of							
the training content in this							
chapter? *							
This chapter is clearly							
structured^							
The assignment (e.g., role							
plays, quiz, etc.) during this							
chapter matched the theory ^							
The study material in this							
chapter is interesting^							
Length of the Training							
The length of training in this	Toolong		Just anough		То	o short	
topic	100 long		Just enough			100 SHOIT	

Notes:

*A 5-point scale in the following order: 1 = very bad, 2 = bad, 3 = fair, 4 = good, 5 = very good

^A 5-point scale in the following order: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree





3rd Topic: Anthropometric, Blood Pressure, and Blood Glucose Level Measurement

Learning Objectives

After training, NCDs Posbindu cadres can:

- 1. Explain how to do anthropometry measurement (body weight, height, abdominal circumference, body mass index) correctly
- 2. Explain how to measure blood glucose level correctly
- 3. Explain how to measure blood pressure correctly
- 4. Do anthropometric measurements (body weight, height, abdominal circumference, body mass index) to every NCDs Posbindu visitor in new normal period.
- 5. Measure blood glucose level to every NCDs Posbindu visitor in new normal period.
- 6. Measure blood pressure to every NCDs Posbindu visitor in new normal period.

Learning Materials

1. What are things NCDs Posbindu cadres should prepare for NCDs Posbindu implementation during new normal period?

Procedures to be carried out by NCDs Posbindu cadres during the new normal period

- a. Preparation for the implementation of the NCDs Posbindu activities
 - The timing of the NCDs Posbindu activity can be informed in advance to the participant by telephone, invitation, announcement, etc.
 - Inform participants who will come to NCDs Posbindu are in good health (no history of fever, no history of contact with positive COVID-19 patients for the last 14 days)
 - If possible, NCDs Posbindu cadre could use of information technology (Handphone, Walkie Talky, SMS, WhatsApp, Email, etc.) to contact NCDs Posbindu officers and participants so participants could take turns attending NCDs Posbindu to minimize crowds





- NCDs Posbindu announcement should be followed with instructions to wear a mask and comply with health protocols
- NCDs Posbindu screening locations are arranged to follow health protocols by providing standing / sitting signs for people inside the NCDs Posbindu with distance at least 2 meters per person
- Provide hand washing station with soap.
- b. On the day of the NCDs Posbindu activity
 - Spray the NCDs Posbindu location using standard disinfectants according to the instructions from the local Health Office
 - Officers use Personal Protective Equipment (PPE) which consists of gloves, masks, and face shields
 - NCDs Posbindu activities is done according to health protocols including physical distancing, participant's flow, use of masks, and washing hands
 - Participants are asked to wash their hands before measurement
 - Equipment that has touched participants such as stethoscopes and sphygmomanometer cuffs should be cleaned regularly with alcohol spray or standard disinfectants after used on each participant (before used for the next participant)
 - After the screening and IEC process, participants are asked to leave the location immediately to minimize crowding.
- c. After the NCDs Posbindu activities ended
 - Officers clean the location and tools used using standard disinfectants according to the instructions from the local Health Office
 - o Taking off PPE and hand washing according to standards
 - Clean and take a shower as soon as you get home





- 2. What are things NCDs Posbindu participants should comply for NCDs Posbindu implementation during new normal period?
 - a. Before going to NCDs Posbindu
 - Make sure that you are in good health before coming to NCDs Posbindu (no history of fever, no history of contact with positive COVID-19 patients for the last 14 days)
 - o Always use a mask
 - Come to NCDs Posbindu according to the schedule arranged by the NCDs
 Posbindu officer to avoid crowds and always keep your distance
 - b. In NCDs Posbindu
 - Comply with NCDs Posbindu health protocols
 - Sit / stand in the provided place
 - If you have to queue, keep your distance, pay attention to the signs that have been provided.
 - o Move to the next table according to the direction of cadres / officers
 - c. After the NCDs Posbindu activities
 - Immediately leave the location, avoiding chatting with other visitors without maintaining physical distance.
 - Clean and take a shower as soon as you get home

3. How to measure weight of NCDs Posbindu participants correctly??

Tools and Materials

- Stampede scales
- Anthropometric form
- Stationery

Procedure:

 \circ Place the scales in a flat, with the needle on zero (0) position





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- Ask participants to remove their shoes and outerwear
- Ask participants stands on the scale and stands still
- Read the result when the needle starts to stop moving
- Record the measurement results, repeat the measurement three times for accuracy.¹

4. How to measure height of NCDs Posbindu participants correctly?

Tools and Materials

- Microtoise
- Anthropometric form
- Stationery

Procedure:

- Place the microtoise on a flat floor and stick it to the perpendicular wall
- Pull the tape measure perpendicularly up until the number in the reading window shows zero (0).
- Stick the end of the tape measure on the wall with nail
- Pull the head of the microtoise up to the nail







Figure 3.1 How to Install Microtoise²

Measurement procedure

- Make sure participant's shoes, socks and hair ornaments have been removed.
- Position participants stand under the microtoise perpendicularly against the wall.
- Position the participant's head under the microtoise shear tool, looking straight to the front.
- Position the participant upright, the back of the head, shoulder, buttocks, and heels stick to the wall.
- Position the participant knees and heels together.
- Pull the head of the microtoise to the top of the participant head.





- Read the numbers in the reading window when participant take breath (inspiration), and the reader's eyes should be aligned with the red line. The numbers that are read are those in the red line.
- Record height measurements.
- Perform measurements three times to improve accuracy.¹



Figure 3.2 How to Measure Height²

5. How to calculate body mass index correctly?

Body mass index (BMI) is formulated as follows ¹:

BMI $(kg/m^2) = \frac{Body \ weight \ (in \ kg)}{Body \ height(in \ meter)^2}$




6. How to measure the NCDs Posbindu participants' abdominal circumference?

Tools and Materials

- Measuring tape
- Anthropometric form
- Stationery

Preparation

- Prepare a measuring tape, make it sure not wrinkled or folded.
- Make sure the numbers in the measurement tape is legible so it does not produce ambiguous interpretation.
- Prepare the participants by freeing the measurement field from various component such as clothing or other accessories.
 Participants can wear minimal clothes with thin material.

Procedure

- Prepare a measuring tape which strong but flexible.
- Measurements are taken in the anthropometric position.
- For waist circumference, measurements are made on the part between the ribs and the waist through the belly button.
- Read the measurement results with the eyes parallel to the measurement window on the measuring tape. Read the results at the accuracy of 0.1 cm.
- \circ Take measurements three times and calculate the average.¹









Figure 3.3 How to Measure Abdominal Circumference ³

7. How to measure blood glucose levels during NCDs Posbindu?

Tools and Materials

- o Blood glucose level stick
- o Blood glucose level kit (lancet, alcohol swab alcohol, hands Coen, glucometer)
- o Examination Form
- o Stationery

Procedure:

• Explain the procedure which will be done to the participants





- Adjust participants' position as comfortable as possible
- Make sure the tool could work, put the stick on the glucometer
- Prepare the lancet and alcohol swabs
- Washing hands
- o Use a hands Coen
- Clean the finger of the participant's to take capillary blood.
- Puncture participants finger, then direct the blood to the glucometer stick
- Cover the puncture marks with an alcohol swab
- Wait for the glucometer to show the result
- Clean the tools and wash hands.⁴

8. How to measure blood pressure during NCDs Posbindu?

Tools and Materials

- o Digital sphygmomanometer
- o Examination Form
- o Stationery
- Preparation
 - o Insert the end of the cuff pipe to the machine
 - o Pay attention to the direction of entry of the cuff adhesive
 - Roll up the sleeves on the participants' right arm. If participants is wearing a long-sleeved shirt, roll up their sleeve but make sure the folds are not too tight so that they do not block blood flow in the arm.
 - o Wear the cuff, pay attention to the direction of the hose
 - o Make sure the position of the hose is parallel to the middle finger, and the position of the hand is open facing upward. The distance of the cuff with





the elbow line the arm is about 1-2 cm. If the cuff had been worn correctly, tape the cuff.



Figure 3.4 Applying Arm Cuff⁵

Procedure:

- After the cuff is properly worn, make sure the participants sit with the legs not crossed and flat on the floor. Place the participants right arm on the table so that the cuff is mounted parallel to the participant's heart.
- Press the "START / STOP" button to activate the digital sphygmomanometer





- Ask the participants to remain seated, hold still, and do not speak at the time of measurement
- Leave the arm in a non-tense position with palms open. Make sure there are no grooves on the maneuver pipe.
- When the measurement is complete, the cuff will deflate again and the measurement result will appear. The tool will save the measurement results automatically. Press "START/STOP" to turn off the appliance.
- Measurements are made 3 times, the distance between measurements should be between 10-15 minutes. Arm cuff should be remove between each measurement.^{1,6,7}



Figure 3.5 Activating Digital Sphygmomanometer⁵





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3rd Topic Evaluation Form

Put a check mark ($\sqrt{}$) on your choice based on the delivery of material on this topic

	1	2		3		4	5	
Content of the Training								
How do you rate quality of								
the training content in this								
chapter? *								
This chapter is clearly								
structured^								
The assignment (e.g., role								
plays, quiz, etc.) during this								
chapter matched the theory ^								
The study material in this								
chapter is interesting^								
Length of the Training								
The length of training in this	Tas long lust mough Tas short			o short				
topic	100 long		Just enough		100 Short			

Notes:

*A 5-point scale in the following order: 1 = very bad, 2 = bad, 3 = fair, 4 = good, 5 = very good

^A 5-point scale in the following order: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree





4th Topic: NCDs Information, Education, Communication (IEC), and Counseling

Learning Objectives:

After training, NCDs Posbindu cadres can:

- 1. Explain health education techniques, including avoiding stigmatization related to DM and hypertension risk factors correctly
- 2. Use health education materials related to DM and hypertension correctly
- 3. Conduct health counseling regarding prevention and management of diabetes mellitus and hypertension (psychological conditions, exercise, and nutrition) correctly

Learning Materials

1. How to do proper health education in NCDs Posbindu?

When carrying out health education, there are several things that need to be considered, i.e., ¹:

- Treat participants with courtesy, kindness, and hospitality.
- Understand, appreciate, and accept the participants condition (educational, socio-economic, and emotional status) as it is.
- Provide explanations in simple and easy to understand language.
- Using appealing props and taking examples from everyday life.
- Adjusting the content with the circumstances and risks that the participants have.





2. What are important things to deliver in health education related to the prevention and management of DM to NCDs Posbindu participants?



Figure 4.1 Diabetes Mellitus Symptoms (Source: Ministry of Health)²







Figure 4.2 Irreversible Risk Factors for Diabetes Mellitus (Source: Ministry of Health)²









Figure 4.3 Reversible Risk Factors for Diabetes Mellitus (Source: Ministry of Health)²







Figure 4.4 Diabetes Mellitus Prevention (Source: Ministry of Health)²







Figure 4.5 Diabetes Mellitus Management (Source: Ministry of Health)²









Figure 4.6 Diet for Diabetes Mellitus (Source: Ministry of Health)²





3. What are important things to deliver in health education related to the prevention and management of hypertension to NCDs Posbindu participants?



Figure 4.7 Symptoms of Hypertension (Source: Ministry of Health)²





	N. S. C.
• Umur, • Jenis kelamin • Riwayat keluarga • Omur,	
Faktor risiko yang dapat diubah: • Merokok, • Kurang makan buah dan sayur, • Konsumsi garam berlebih, • Berat badan berlebih/kegemukan.	

Figure 4.8 Hypertension Risk Factors (Source: Ministry of Health)²







Figure 4.9 Hypertension Prevention and Management (Source: Ministry of Health)²





INDONESIA	DIET PAD HIDERTER	
Rahan Makan	an yang diperbole	:hkan :
BAI	IAN MAKANAN SEGA	R SEPERTI :
Beras, ubi, mie, maizena, hunkwee, terigu, gula pasir.	Kacang-kacangan dan hasil olahnya, seperti kacang hijau, kacang merah, kacang kolo, tempe, tahu tawar, oncom	Minyak goreng. margarine tanpa garam. sayuran dan buah-buahan segar
Bumbu seperti : bawa laos, salam, sereh, dll	ng merah, bawang putih, ji	ahe, kemiri, kunyit, kencur,
Cara Memasa	k yang dianjurkai	
• Dalam menumis atau yang tidak mengand	memasak sebaiknya mengo ung natrium (garam).	gunakan mentega atau margarin
• Untuk memperbaiki	rasa masakan yang tawar, ah. bawang putih. gula, cu	dapat digunakan bumbu-bumbu ka, kunyit, daun salam, dan asam
seperti bawang mer		

Figure 4.10 Diet for Hypertension (Source: Ministry of Health)²

4. How to deliver counseling properly in NCDs Posbindu?

- a. Initiating the counseling
 - Greet and introduce yourself first
 - Ask the participants identity
 - Provide a comfortable situation for participants
 - Shows empathy and trustworthiness.





- b. Active listening
 - Concentrate on the conversation
 - Make eye contact
 - Show interest in the conversation
 - Show posture according to the conversation
 - Encourage participants to express their thoughts
 - Ask for clarity
 - Ask for details
 - Take control of your emotions
 - Takes time and pause when needed
 - Does not stigmatize to participant's disease
- c. Conducting interviews to gather information with both open and closed questions
- d. Closing the counseling
 - Summarize the counseling
 - Ask if there are things that have been missed that have not been told.²

5. What are things needs to be delivered in counseling regarding the prevention and management of DM to NCDs Posbindu participants?

- During counseling with NCDs Posbindu participants with DM, cadres need to conduct interviews to gather information related to the participants' illnesses. Cadres can gather information about family history of illness, diet, exercise habits, and other risk factors.³
- In counseling, cadres can also inform about risk factors, diagnosis, prevention, and management of participants with diabetes mellitus. Cadres should inform the prevention of diabetes mellitus with a healthy lifestyle, such as eating regularly, avoiding foods containing sugar, and exercising regularly. In





addition, cadres can also inform the management of diabetes mellitus, such as changing lifestyle, and taking anti diabetes mellitus drugs regularly..³

- 6. What are things needs to be delivered in counseling regarding the prevention and management of hypertension to NCDs Posbindu participants?
 - During counseling with NCDs Posbindu participants with hypertension, cadres need to conduct interviews to gather information related to the participants' illnesses. Cadres can gather information about family history of illness, diet, exercise habits, and other risk factors.⁴
 - In counseling, cadres can also inform about risk factors, diagnosis, prevention and management of participants with hypertension. Cadres should inform the prevention of hypertension with a healthy lifestyle, such as eating regularly, avoiding foods containing salt, and exercising regularly. In addition, cadres can also inform the management of hypertension, such as changing lifestyle, and taking anti-hypertensive drugs regularly.⁵

7. Is there any effective counseling strategy to produce behavior change in individuals?

Counseling is a professional relationship that involves individuals, families, and groups from various backgrounds to solve health (physical and mental), education, career, and welfare problem. The 5A framework is strategy that can be applied in counseling so it will result in changes in individual behavior.







Figure 4.11 5A Framework in Counseling Strategy

The 5A Framework consists of:

- *Ask*: ask or assess the risk of a behavior to health and the factors that influence the choice of goals / methods to achieve behavior change.
- *Advise*: provide clear, specific, and individualized (personal and unique) behavior change advice, including information about dangers and benefits of behavior change for personal health.
- *Agree*: collaboratively select an appropriate behavior change goals and methods based on the interests and willingness of the NCDs Posbindu participants to change their behavior.
- *Assist*: assist NCDs Posbindu participants in achieving agreed goals by gaining skills, confidence, and social / environmental support for behavior change, complemented by additional medical care if needed.
- *Arrange*: schedule to contact NCDs Posbindu participants (in person or by telephone) for follow-up to provide ongoing support and to tailor further action



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plans as needed, including referral to more intensive or specialized care if needed.

This is an example of implementing the 5A strategy in smoking cessation counseling, which is one of the risk factors for NCDs

5A	Implementation Example						
	 "Do you smoke?" or "Has your smoking frequency changed (increased / decreased) since your last visit to NCDs Posbindu?" 						
Ask	 If participants are a smoker: "Would you willing to talk for a moment about smoking?" If so: "How do you feel shout switting smoking?" 						
	• If so: How do you leef about quitting smoking?						
Advise	your health, with health benefits that will begin to appear and be felt within 24 hours."						
	Gradually, ask the following questions according to NCDs Posbindu						
	participant's the developmental stages of the behaviour change						
	• "Are you planning to quit smoking in the next 6 months?"						
Agree	• "Have you successfully quit smoking in the last six months?"						
	• "Have you remained smoking free for six months or more (up to 5 years)?"						
	• "Do you really not experience any temptation, and are you 100% sure that the						
	previous situation is a high risk for health?"						
	Based on NCDs Posbindu participant's stages of behaviour change:						
	• Ask if there are demands to quit smoking at home / office, offer help, and						
	schedule a follow-up appointment.						
	• Help patients to solve problems encountered and become obstacles in their						
	efforts to quit smoking, such as weight gain, withdrawal, changes in social						
Assist	habits / behavior, or a history of failure smoking cessation effort.						
	• Ask if NCDs Posbindu participants already set when to start smoking cessation,						
	determine wheter gum or substituent used is sufficient, helps to identify self-						
	rewards for each smoke-free day.						
	• Appriciate NCDs Positindu participants on any progress made; offer continuing support, and identify triggers and strategies (alternatives to prevent NCDs						
	support, and identify triggers and strategies / alternatives to prevent NCDS						
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Scaling-Up NCD Interventions in South-East Asia (SUNI-SEA) is a research consortium project delivered through a collaboration of nine consortium members. This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 825026.

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	 Posbindu participants from smoking again. Identify unexpected triggers that may tempts NCDs Posbindu participants to smoke again and potential coping strategies.
	 The assist stage ends when NCDs Posbindu participant does not experience any temptation to smoke again and is 100% sure in all situations that the previous smoking habit is bad for their health.
Arrange	Set up your next follow-up appointment and explore more: "How do you deal with the urge or temptation to smoke, for example in a stressful situation?" or "Have you been tempted or started smoking again?"

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4th Topic Evaluation Form

Put a check mark ($\sqrt{}$) on your choice based on the delivery of material on this topic

	1	2		3		4	5	
Content of the Training								
How do you rate quality of								
the training content in this								
chapter? *								
This chapter is clearly								
structured^								
The assignment (e.g., role								
plays, quiz, etc.) during this								
chapter matched the theory ^								
The study material in this								
chapter is interesting^								
Length of the Training								
The length of training in this	Too long Just enough Too		o short					
topic	100 long		Just enough					

Notes:

*A 5-point scale in the following order: 1 = very bad, 2 = bad, 3 = fair, 4 = good, 5 = very good

^A 5-point scale in the following order: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree





5th Topic: Persuasive Communication in NCDs Prevention and Management

Learning Objectives

After training, NCDs Posbindu cadres can:

- 1. Carry out persuasive communication to screen and refer diabetes mellitus and hypertension
- 2. Conduct persuasive communication to community leaders and other stakeholders to increase active community participation correctly
- 3. Perform persuasive communication with community leaders and other stakeholders in the correct manner in order to increase participation in the NCDs Posbindu implementation

Learning Materials

1. What is meant by persuasive communication?

Persuasive communication is the process of conveying messages by someone to others so the person's attitudes, opinions, and behavior change with their own awareness. Persuasive communication must be carried out in a subtle, flexible, and humane manner so it creates awareness and willingness to change accompanied by feelings of pleasure.



Figure 5.1 Carl Hovland's Persuassive Comunication Model¹



2. What are the elements of a healthy community that are expected to be improved through persuasive communication?



Figure 5.2 Elements of a Healthy Community¹

A healthy community is a community where members have the opportunity to make healthy choices, in an environment that is safe, free from violence, and designed to promote health. Factors affecting health range from early childhood education to quality housing and employment, and cover many other areas of community development such







as financial stability, access to health services and healthy food, availability of sustainable energy, and transportation.¹

Persuasive messages: information shared with the aim of changing attitudes and behavior

3. What are the components of persuasive communication?

Figure 5.3 Persuasive Communication Components^{1,2}

4. What skills does a cadre need to master persuasive communication?

According to Effendy, in his book *Dinamika Komunikasi*³ there are 5 main skills that cadres need to master in persuasive communication, including:

- a. **Association**: communication is carried out simultaneously with objects or events that attract the attention of the audience.
 - Example: counseling about DM is held by inviting diabetes patients who have their disease controlled to NCDs Posbindu





- b. Integration: the ability to unite themselves communicatively with persuadee.
 - Example: using the word "we" instead of the word "I" → "... we are trying to lower your blood pressure in the next NCDs Posbindu visit..."
- c. **Rewards**: lure things that are profitable or that promise hope.
 - Example: "...I am very happy to see that you have been more active in walking after the previous NCDs Posbindu visit, it looks like your BMI will quickly become ideal if you are more active and routinely walking..."
- d. **Setting** or icing technique: the art of structuring messages with an emotional appeal to attract persuadee's attention.
 - Example: use humor in providing information (socialization)
- e. *Red-herring*: achieve victory in debate by shifting the topic of the conversation little by little to the aspects that are mastered by the cadre.
 - Example: cadres who have not read the details of the vaccination policy for DM patients can use this technique so they can still make convincing persuasive communication
 - NCDs Posbindu participant: "The COVID-19 vaccine seems dangerous for a DM patient like me ..."
 - Cadre: "Indeed, there are several prohibitions for prospective recipients of the COVID-19 vaccine. As DM sufferer, you also have to adjust your diet so the DM disease can be under control. In addition, you also have to be diligent in physical exercising. Sports recommended for DM patients include..."(cadres shift issues slowly but still convince NCDs Posbindu participants with the correct knowledge)





5. What are the obstacles that might be encountered in persuasive communication?

- a. Semantic barrier: barriers due to language
- b. Psychological barrier: barrier due to lack of emotional maturity or stability of one or both parties
- c. Organizational barrier: barriers due to existing regulations, social status and / or employment, or complexity in society
- d. Personal barrier: barriers in persuadee and / or persuader due to unwillingness (reluctance) to communicate, lack of appropriate incentives, and lack of basic knowledge on related topic
- e. Cultural barrier: barriers due to local culture, for example men are reluctant to visit NCDs Posbindu because of local culture
- f. Physical barrier: barrier due to physical problems (hearing or speech impairment).²
- 6. How is the correct way of practicing persuasive communication in the context of early detection and referral of DM and hypertension cases?
 - a. Have the correct knowledge about early detection and referral of DM and hypertension
 - Example: early detection and scoring methods, referral requirements, referral criteria. Pay attention to first and second topics of this training module
 - b. Touches listeners' feelings and emotions
 - Example: choice of language, tone of voice (not patronizing), repetition of information, involving testimony from other people (DM or hypertension patients who have participated in early detection or have been referred and have been controlled) or it is much better if the testimony comes from the cadres themselves





- c. Provide concrete examples according to related topics (types of food chosen, sports that can be done, etc.)
- d. Positive and negative motivation. Provide information related to benefits or consequences if participants agree or refuse to carry out early detection or referral process (pay attention to the "rewards" technique in material number 3)
- e. Provide proper understanding of myths or unscientific values that are still adhered in the community.
 - Example: participants refuse to take routine diabetes medication because of fear of the kidney disease → cadres give the understanding that uncontrolled diabetes mellitus which actually causes kidney damage
- f. Gives a two-sided message
 - Example: NCDs Posbindu participants who are given information about the benefits of taking anti-hypertensive drugs regularly, they must be also explained about the side effects of the drugs they are taking, for example: there are hypertension drugs causing coughing symptoms in certain patients, so patients must report the symptoms to the doctor for drug replacement and do not stop taking medicine without confirmation.
- g. Humor. Persuasive messages are conveyed in a funny way but still in accordance with the scientific and cultural context of the society.
- h. Listen actively to what NCDs Posbindu participants say (do not dominate the conversation)
 - Example: cadres give NCDs Posbindu participants the opportunity to tell stories and not interrupt the conversation



7. How do you build a network with key community stakeholders to attract people's attention to participate actively in NCDs Posbindu?



Figure 5.4 Steps to Build Networks with Community Stakeholders⁴

- a. Defining partnership ideas (network building)
 - Example: cadres equate their perceptions about problems related to diabetes mellitus and hypertension in their region, then prepare a design for NCDs Posbindu activities and community empowerment that will be implemented
- b. Identify potential partners (community leaders or stakeholders)
 - Example: cadres conduct surveys to the community regarding public figures who are respected by the public and meet the criteria (flexible, open-minded and systematic, can work together as solid partners, can contribute sustainably, are easy to contact, etc.)
- c. Formulate the goals and roles of community leaders
 - Example: cadres formulate the general goals of the network and the expected contributions from the figures





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- d. Preparation or internal coordination of cadres
- e. Build a cooperation agreement
 - Example: cadres took the initiative to hold regular meetings to prepare support from community stakeholders; if necessary, an MoU (Memorandum of Understanding) can also be made
- f. Formulate a cooperation plan
 - Example: cadres and community leaders jointly prepare working programs and action plans (objectives, types of activities of each party, both cadres and community leaders, time, role of community leaders in activities, network cooperation mechanisms)
- g. Carry out cooperation
 - Example: ask for support from community leaders so the activities can run smoothly, for example appeals or promotion from stakeholders for community participation, presence of public figures, community empowerment, campaigns, exhibitions, etc.
- h. Monitoring and assessment of network activities
 - Example: cadres reassess the contribution of community leaders, frequency of meetings, number of network activities, products of network activities, achievement of health program targets

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5th Topic Evaluation Form

Put a check mark ($\sqrt{}$) on your choice based on the delivery of material on this topic

	1	2		3		4	5	
Content of the Training								
How do you rate quality of								
the training content in this								
chapter? *								
This chapter is clearly								
structured^								
The assignment (e.g., role								
plays, quiz, etc.) during this								
chapter matched the theory ^								
The study material in this								
chapter is interesting^								
Length of the Training								
The length of training in this	Technologie Instance Technol			o short				
topic	100 long		Just enough		100 short			

Notes:

- *A 5-point scale in the following order: 1 = very bad, 2 = bad, 3 = fair, 4 = good, 5 = very good
- ^A 5-point scale in the following order: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree





6th Topic: Nutritional Aspects in NCDs Prevention and Management

Learning Objectives

After training, NCDs Posbindu cadres can:

- 1. Explain nutritional educations which are relevant for the prevention and management of DM and hypertension correctly
- 2. Carry out nutritional educations which are relevant for the prevention and management of diabetes mellitus and hypertension correctly
- 3. Apply the principle of balanced nutrition for the prevention and management of diabetes mellitus and hypertension in NCDs Posbindu activities correctly

Learning Materials

- 1. How does a balanced nutrition paradigm change today?
 - In the past, we were familiar with the slogan *empat sehat-lima sempurna* to educate a healthy diet. Currently, Indonesia uses the Guidelines for Balanced Nutrition (GBN), an improvement that is more in line with current developments in science and nutrition issues.
 - According to the Regulation of Minister of Health Republic of Indonesia Number 41/2014, balanced nutrition is the composition of daily foods containing nutrients in the type and amount (portion) according to the needs of the body, taking into account the 4 pillars of principles which include: food diversity, physical activity, clean living habits, and monitor body weight regularly in order to maintain a normal body weight to prevent nutritional problems.¹
 - The four pillars of GBN are basically a series of efforts to balance the input and the output nutrients by monitoring body weight regularly.¹







Figure 6.1 Differences between GBN and Empat Sehat-Lima Sempurna (Source: Ministry of Health)²



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2. What are the health benefits of consuming vegetables and fruits?

Based on Basic Health Research 2018 data, 93% of Indonesians consume less vegetables and fruits. Even though, vegetables and fruits are generally rich in vitamins, minerals, and fiber. The benefits of eating vegetables and fruits are also presented in the following illustration²



Figure 6.3 Health Benefits of Consuming Vegetables and Fruits (Source: Ministry of Health)²




3. What are the tips for safe consumption of sugar, salt, and fat?

Foods that contain sugar, salt, and fat can increase the risk of suffering from several non-communicable diseases, so its consumption is recommended to be reduced. Some of the guidelines that can be used include



Figure 6.4 Tips for Safe Consumption of Sugar, Salt, and Fat (Source: Ministry of Health)²

4. What is obesity?

According to the International Association for the Study of Obesity, obesity is

 a medical condition that is described as being overweight in the form of fat.
 The condition of fat that accumulates in the body can cause serious health
 problems.

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 Definition of obesity according to World Health Organization (WHO) based on indicators of body mass index (BMI). Individuals who have a BMI>25 kg/m² are categorized as overweight and BMI>30 kg/m² are categorized as obese.³

5. What is the impact and dangers of obesity on DM and hypertension?

Obesity or overweight is currently a global public health problem around the world, including in Indonesia. There is a tendency for an increasing number of obesity cases in the community that requires proper nutritional care to prevent health problems or non-communicable diseases. Some non-communicable diseases and health conditions that can arise related to obesity, namely heart disease, hypertension, stroke, type 2 diabetes mellitus, cancer, increased cholesterol and triglyceride levels, and obstructive sleep apnea.



Figure 6.5 Interaction and Effect of Obesity on DM and Hypertension³







6. What are the sources of macro and micro nutrients?

Figure 6.6 Sources of Macro and Micro Nutrients²

Macronutrients are substances that are needed by the body in large quantities to provide energy directly, which consists of carbohydrates, proteins and fats. Meanwhile, micronutrients are substances that play a role in maintaining a healthy body, but are only needed in small amounts, which consist of vitamins and minerals.² The following are nutrients that humans need for intake as shown in Figure 6.2.

- a. Carbohydrates are the main energy source that is digested in the body for about
 1-3 hours. Examples: cereals, bread, pasta, rice, fruit
- b. Protein is needed for growth, development, muscle building, the formation of red blood cells, enzymes, hormones, and other body tissues, as well as the immunology function (body's defense against disease). Examples: chicken, beef, fish, eggs, dairy products, nuts, and seeds
- c. Fat is needed as a source of energy for a long period of time
- d. Vitamins and minerals play an important role in regulating and assisting the chemical reactions of energy-producing nutrients.





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7. What kind of food ingredients can be given to people with DM?

The types of food ingredients recommended for DM patients can be a concern of cadres in menu planning for NCDs Posbindu participants. Recommended food ingredients include

- a. sources of complex carbohydrates (such as rice, bread, noodles, potatoes, cassava, and sweet potatoes),
- b. low-fat protein sources (such as fish, skinless chicken, skim milk, tempe, tofu, and nuts),
- c. sources of fat in limited quantities such as food processed by roasting, steaming, and boiling.²

8. What kind of food ingredients should not be given to people with DM?

Food ingredients that are not recommended so that consumption should be limited or even avoided by people with diabetes, namely

- a. simple sugar (such as granulated sugar, brown sugar) which is often found in syrups, factory-made jams, jellies, fruit preserved with sugar, sweetened condensed milk, soft drinks, ice cream, sweet pastries, lunkhead, cakes
- b. foods that contain a lot of fat such as cakes, fast food, fried foods, and
- c. foods that are high in sodium such as salted fish, salted eggs, and preserved foods.²

9. What kind of food ingredients can be given to people with hypertension?

- a. Sources of carbohydrates: rice, potatoes, cassava, flour, tapioca, *hunkwee*, sugar, foods processed from the aforementioned food ingredients without table salt and baking soda such as: macaroni, noodles, *bihun*, bread, biscuits, pastries
- b. Sources of animal protein: maximum 1 egg a day, meat and fish (maximum of 100 grams a day)









Figure 6.7 Five Fried Nuggets are Equivalent to 100 Grams of Meat⁴

- c. Sources of vegetable protein: all nuts and their products which are processed and cooked without table salt
- d. Vegetables and fruits: all fresh vegetables and fruits, preserved vegetables and fruits without table salt and sodium benzoate
- e. Fat: cooking oil, margarine, and unsalted butter
- f. Seasonings: all dry seasonings that do not contain table salt and other sodium bonds. Table salt according to the severity of hypertension can be given $\frac{1}{4}$ - $\frac{1}{2}$ teaspoon.²

10. What kind of food ingredients should not be given to people with hypertension?

The main principle of dietary management for people with hypertension is to limit the consumption of foods or food ingredients that contain sodium bonds (soy sauce, seasonings, baking soda, tomato sauce or packaged chili sauce). Food ingredients naturally contain sodium but only in small amounts. Sources of sodium are not only obtained from table salt, but are also widely added during the cooking process, especially in packaged, canned, or preserved foods.²





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- Food ingredients that are not recommended for people with hypertension include:
 - a. Sources of carbohydrates: bread, biscuits, and cakes cooked with table salt and/or baking powder and soda
 - b. Sources of animal protein: brain, kidneys, tongue, sardine, meat, fish, milk and eggs preserved with table salt such as roasted beef, ham, bacon, beef jerky, floss, cheese, salted fish, canned fish, corned beef, dried shrimp, salted eggs, pindang eggs
 - c. Vegetable protein sources: cheese, peanuts, and all nuts and products cooked with table salt and other sodium bonds
 - d. Vegetables: cooked and preserved vegetables with table salt and other sodium bonds, such as canned vegetables, mustard greens, salted vegetables, and pickles
 - e. Fruits: fruits that are preserved with table salt and other sodium bonds, such as canned fruits, salted fruits
 - f. Fat: margarine and plain butter
 - g. Soft drinks
 - h. Seasonings: baking powder, baking soda, MSG, and spices that contain table salt such as soy sauce, shrimp paste, flavorings, tomato sauce, chili sauce, petis, and taoco.²





11. How is the application of balanced nutrition in NCDs Posbindu participants with low risk factors for suffering from diabetes and hypertension?



Figure 6.8 Model of "Isi Piringku" in Application of GBN for Healthy People (Source: Ministry of Health)⁵

Ministry of Health Republic of Indonesia recommended "Isi Piringku" as an example of the application of GBN for healthy people. This recommendation provides an intake of about 700 calories at one meal, for example at lunch, which includes⁵:

- a. The staple food is rice and the exchange food is 150 grams
 - 150 grams of rice is equivalent to 3 spoons of rice = 3 medium potatoes
 (300 grams) = 1¹/₂ cup dry noodles (75 grams)







Figure 6.9 Three Medium Potatoes are Equivalent to 3 Scoops of Rice⁴

- b. Side dishes that include:
 - Animal side dishes, namely 75 grams of mackerel which is equivalent to 2 medium pieces of skinless chicken (80 grams) = 1 large chicken egg (55 grams) = 2 medium pieces of beef (70 grams)
 - Vegetable side dishes, 100 grams of tofu which are equivalent to 2 medium pieces of tempe (50 grams)







Figure 6.11 Size Comparison of Fried Tofu and Tempe⁴

c. Vegetables in the amount of 150 grams (1 medium cup)



Figure 6.12 Vegetable Size Comparison⁴

d. 150 grams of fruit, for example 2 medium pieces of papaya (150 grams) which is equivalent to 2 medium oranges (110 grams) = 1 small banana (50 grams)





Figure 6.13 Fruit Size Comparison⁴

12. How is the application of balanced nutrition in NCDs Posbindu participants with risk factors for obesity?



Figure 6.14 Model of "Isi Piring T" in Application of GBN for Obese People (Source: Ministry of Health)⁵





Ministry of Health Republic of Indonesia also recommended "Piring T" as an example of the application of GBN for obese people. These recommendations include:

- a. $\frac{1}{2}$ of the plate consists of vegetables and fruits
- b. ¼ of the plate is filled with protein (can choose fish, chicken, or beans) and limit the consumption of red meat or processed meat such as sausage, roasted beef, ham, bacon, etc.
- c. ¹/₄ of the plate is filled with whole grains of rice, wheat, or pasta. The sugar content of white bread or rice is classified as high, so it is better to limit those consumptions for obese people with impaired blood sugar levels.⁵

13. What are the easy tips for losing weight in obese NCDs Posbindu participants?

- Management of obesity is based on a comprehensive weight management program including: nutrition or diet therapy, increasing physical activity, and modifying behavior related to food and nutrition.²
- This comprehensive combination therapy will be more successful than a single therapy intervention, e.g., diet alone or physical activity alone.
- The recommended weight loss is gradual of 0.5–1 kg/week and is expected to continue after 4 to 5 years to about 3% to 5% of initial body weight.²
- Four recommendations for lifestyle pattern change in obese participants include:⁶
 - a. Dietary changes, including:
 - reduce the consumption of complex carbohydrates such as rice, bread, corn, potatoes,
 - avoid the consumption of simple carbohydrates such as sugar, brown sugar, syrup, sweet and savory cakes, chocolate, candy, jam, *dodol*, soft drinks, etc.,
 - eat using the pattern or model of "Isi Piring T",





- reduce the consumption of foods containing fat (fried foods, coconut milk, butter, and margarine),
- prioritize the consumption of low-fat protein,
- increase consumption of vegetables processed by boiling or sauteing,
- consumption of whole fruit as a snack,
- avoid high-energy fruits such as durian, mango, *sarikaya*, banana, sugar apple, and avocado,
- drink a lot of water.
- b. Changes in emotional pattern of eating
 - To reduce obesity, we must recognize the emotional pattern of eating. Avoid food when we feel angry, stressed, bored, etc. In addition, we can also eat only when we are hungry, not because our eyes are hungry.
- c. Changes in physical activity patterns, will be explained further in the next topic.
- d. Changes in sleep/rest patterns according to age (6-8 hours for the age range of NCDs Posbindu participants).

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6th Topic Evaluation Form

Put a check mark ($\sqrt{}$) on your choice based on the delivery of material on this topic

	1	2		3		4	5
Content of the Training							
How do you rate quality of							
the training content in this							
chapter? *							
This chapter is clearly							
structured^							
The assignment (e.g., role							
plays, quiz, etc.) during this							
chapter matched the theory ^							
The study material in this							
chapter is interesting^							
Length of the Training							
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topic	I oo long Just enough I o		o short				

Notes:

*A 5-point scale in the following order: 1 = very bad, 2 = bad, 3 = fair, 4 = good, 5 = very good ^A 5-point scale in the following order: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree





7th Topic: Exercise Guidance in NCDs Prevention and Management

Learning Objectives

After training, NCDs Posbindu cadres can:

- 1. Explain general principles of physical activity and their benefits related to DM and hypertension correctly
- 2. Describe the various types of sports that are relevant to fitness
- 3. Describe the various types of exercise that are relevant to the prevention and management of DM and hypertension, for example weight loss

Learning Materials

1. What is sedentary behavior?

Sedentary behavior is all types of activities that are performed outside of bedtime, with the number of calories expended very little, namely <1.5 METs. Sedentary behavior needs to be limited because various studies have shown that this behavior is a risk of obesity.





2. How to stay physically active in the middle of a busy daily routine?

- a. Actively moving at home can be done by doing household chores, gardening or cleaning the yard, playing with children, and looking after children
- b. Actively moving at workplace can be done by using stairs instead of the elevator and participating in routine joint physical exercise activities at the workplace
- Actively moving in public places can be done by continuing to walk even on escalators, using city parks for physical activity, playing more in open spaces (basketball, badminton, cycling)
- Actively moving on the trip can be done by cycling to school or office, stopping 1-2 bus stops before the intended place, and parking car at a place with some distance from the intended location.²
- 3. What is the principle of physical exercise that must be done to get maximum results and prevent injury?



Figure 7.2 Principles of Physical Exercise (Source: Ministry of Health)³





4. What is the general principle of developing the correct physical exercise based on someone's functional ability to achieve and improve fitness?

- Physical activity is a general term for any movement of the body. There are 3 components of physical activity, namely
 - a. activities carried out during work or related to work
 - b. activities carried out at home (part of daily activities)
 - c. activities carried out during leisure time, outside of workplace and daily activities, which include physical exercise (structured activities to improve body fitness) and competitive sports (competitions conducted as a profession or job).⁴
- Each NCDs Posbindu participant, assisted by the cadre, needs to recognize the level of functional ability of his or her body and health condition before undertaking a physical exercise program. For beginners, it can be started with a brisk walk for 10 minutes, after which the duration starts to gradually increase. After reaching a duration of 30 minutes, physical exercise can be replaced with activities other than walking, such as cycling, swimming, and aerobic exercise. Gradually, NCDs Posbindu participants are expected to increase their level of physical exercise from time to time. as illustrated in this figure:









Figure 7.3 Illustration of Physical Exercise Program Development⁴

5. What is the correct principle of physical exercise for obese NCDs Posbindu participants?

- a. To get optimal weight loss, they need physical exercise or sport with a frequency of 5-6 times per week with a duration of 20-60 minutes each time they do exercise.
- b. Low-intensity types of exercise such as walking for 30-60 minutes that are done regularly can increase energy expenditure or the number of expended calories.
- c. Obese participants should choose the type of physical exercise that suits their condition or ability, or choose the type of physical exercise they like.⁴

The following is an example of developing a physical exercise program according to someone's functional abilities based on Figure 7.3





Overview of the body's	Aerobic exercise	Muscle strength	Flexibility
functional abilities		exercise	exercise
	 Do aerobic exercise while sitting, for example walking in place or toe taps Speed and intensity are increased gradually Perform 3-5 times per week 	 Do muscle strength exercise while sitting, for example lifting a barbell Do 2-3 sets of 10 repetitions for each set Perform 2-3 times per week 	 Perform muscle stretches while sitting Perform each movement with 10-15 seconds of resistance Perform every day
	 Do aerobic exercise while sitting, for example walking in place or toe taps Gradually start walking activities at home or around the house Perform 3-5 times per week 	 Do muscle strength exercise while sitting, for example lifting a barbell Do 2-3 sets of 10 repetitions for each set Perform 2-3 times per week 	 Perform muscle stretches while sitting Perform each movement with 10-15 seconds of resistance Perform every day

Table 7.1 Example of Guidelines for Physical Exercise Development⁴



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 Do aerobic exercise as a daily physical activity (e.g., walking 30-60 minutes to the market) Can also choose exercises that make them enjoy it such as swimming Perform for 30 minutes at moderate intensity (50-70% of maximum heart rate) The goal is 5 times in a week 	 Do 8-10 muscle strength exercises (bicep curl, lateral arm raises, shoulder press, triceps curl, chair sit to stand, squat, sideways leg lift, leg extension, seated knee raises, seated knee extension) Do 2-3 sets of 10 repetitions for each set Perform 2-3 times per week 	 Perform all muscles stretching movement Perform each movement with 10-15 seconds of resistance Perform every day
 Do aerobic exercise as a daily physical activity (e.g., cycling to workplace) Can also choose exercises that make them enjoy it such as swimming Perform for 30 minutes at moderate intensity (50-70% of maximum heart rate) The goal is 5 times in a week 	 Do 8-10 muscle strength exercises (bicep curl, lateral arm raises, shoulder press, triceps curl, chair sit to stand, squat, sideways leg lift, leg extension, seated knee raises, seated knee extension) Do 2-3 sets of 10 repetitions for each set Perform 2-3 times per week 	 Perform all muscles stretching movement Perform each movement with 10-15 seconds of resistance Perform every day











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Table 7.2 Examples of Physical Exercises for Muscle Strength Exercise⁴

Number	Name of Movement	Movement Illustration
1	bicep curl	
2	lateral arm	
	raises	
3	shoulder	
	press	
4	triceps curl	
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5	chair sit to stand	
6	squat	
7	sideways leg lift	
8	leg extension	







9	seated knee raises	
10	seated knee extension	

 Table 7.3 Examples of Physical Exercises for Flexibility Exercise⁴

Number	Name of	Movement Illustration				
	Movement					
1	neck					
	rotation					





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2	upper back stretch	
3	upper body twist	





4	calf stretch	
5	hamstring stretch	







6. What are the correct physical exercises for NCDs Posbindu participants who have risk factors for having NCDs?

Based on the recommendation from WHO and Ministry of Health Republic Indonesia, the type of physical exercise that should be done by people with a risk of developing NCDs is moderate intensity exercise, which is a type of exercise that makes the heart rate and breathing faster but does not cause gasping and they can still speak during exercise. Simple physical exercises that can be done at home by people with risk factors for NCDs are:





a. Aerobic exercise

Aerobic exercise makes the heart beats faster. This exercise can nourish the heart, dilate blood vessels, lower blood pressure and keep it stable, and burn fat. Because of these benefits, aerobic exercise is highly recommended for people with obesity, hypertension, and cardiovascular (heart and blood vessels) disease. There are many aerobic exercises that can be done indoors, among others

- skipping rope,
- brisk walking on the treadmill, or
- going up and down stairs for 10-15 minutes, 2-3 times a day.

Aerobic exercise is recommended to be done for at least 30 minutes per day, 3-5 times in a week.⁴

b. Exercises for muscle strength

This exercise is generally done with a short duration and aims to increase the strength of the muscles of the body. Exercising muscles does not have to use sports equipment. Participants can use their own body weights or make use of household furniture, such as chairs, tables, beds, or even walls, to do this exercise. It is recommended that muscle strength exercise can be done 2-3 times in a week according to the participant's ability and physical condition. If you want to increase the intensity and duration of exercise, participants should do it gradually and according to the doctor's advice.

- Examples of muscle strength exercises are push ups, squats, lunges, pull ups, crunches, and yoga.⁴
- 7. What are the types of physical exercise that can be done for NCDs Posbindu participants who have risk factors to have DM?

The Ministry of Health Republic Indonesia recommended several types of physical exercises that can be done for those who have DM risk factors, among others:⁵





- a. Hiking. Hiking is an excellent way to improve health and lose weight. When hiking 3 km/hour, a person weighing 68 kg will burn 240 calories per hour. Hiking also helps lower cholesterol levels, which are often a trigger for heart disease. Researcher says that hiking regularly can help lower diastolic and systolic blood pressure by an average of 10 mmHg.
- b. Swimming. Swimming can help a person become more active and healthier. When swimming, 350-420 calories are burned every hour. Swimming can help a person lower their blood pressure and cholesterol so the body becomes healthier and fitter.
- c. Yoga. The practice of yoga has very good benefits for diabetics who are very attached to unhealthy and stressful lifestyles. Yoga that is done regularly can improve the digestive system, improve hormone and nerve function, maintain blood circulation and immunity, and make the body much more energized.
- d. Diabetic foot gymnastics







8. What is the correct physical exercise guidance for NCDs Posbindu participants who have risk factors to have hypertension?



Figure 7.5 Guidance to Physical Exercise for Participants with Hypertension⁷





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7th Topic Evaluation Form

Put a check mark ($\sqrt{}$) on your choice based on the delivery of material on this topic

	1	2		3		4	5
Content of the Training							
How do you rate quality of							
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This chapter is clearly							
structured^							
The assignment (e.g., role							
plays, quiz, etc.) during this							
chapter matched the theory ^							
The study material in this							
chapter is interesting^							
Length of the Training							
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topic	Too long Just enough Too		o short				

Notes:

*A 5-point scale in the following order: 1 = very bad, 2 = bad, 3 = fair, 4 = good, 5 = very good

^A 5-point scale in the following order: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree





8th Topic: Complementary Medicine in NCDs Prevention and Management

Learning Objectives

After training, NCDs Posbindu cadres can:

- 1. Explain the local wisdom of medicinal plants (herbals) in Indonesia for the prevention of DM and hypertension risk factors
- 2. Explain the general benefits of medicinal plants (herbals) for health, especially for DM and hypertension
- 3. Describe simple herbal remedy which is beneficial for DM and hypertension

Learning Materials

1. How to use Indonesian herbs safely?

• According to Basic Health Research 2013, the percentage of the population with age over than 15 years old and consuming jamu (herbs) can be seen in the following figure:



Figure 8.1 Percentage of Jamu Consumption¹





- Herbal medicine certification is scientific evidence of herbal or medicinal herbs through health service-based research. Jamu or hereinafter referred to as herbal is a traditional (original) Indonesian medicine that has been used from generation to generation, for more than three generations, its benefits are widely accepted by the community, relatively cheap, and without any adverse effects.²
- The terms of herbs that can be used are
 - a. Safe (according to specific requirements for safety)
 The safety of herbs is influenced by: the size of the dose, the safety limit, the function of the patient's organs (liver, kidney, etc.), the patient's age, genetic factors, the combination with other drugs that are taken.
 - b. Efficacious (it has been proven based on available empirical data)
 Herbal efficacy is influenced by: dosage, type of plants mixed, plant
 parts used, planting location, herbal dosage form.
 - Keep in mind that herbal properties do not always follow the principle of dose-effect relationship
 - This means that an increased dose does not always have a good medicinal effect
 - c. Meet special quality requirements (contain no contaminants or pollutants, made to certain production standards).²
- Herbs that have been banned for use without a special medical doctor's prescription in Indonesia are presented in the following table





Table 8.1 Herbs Prohibited for Use in Indonesia without A Special Prescription^{2,3}

Number	Plant Name	Figure	Content of	Side Effects
			Hazardous	
			Active	
			Substances	
1	Saga leaf seeds		abrin	kidney damage
2	Amethyst		alkaloid	nerve paralysis
3	Oleander		glycoside	heart failure
4	Komfrei		pyrrolizidine alkaloid	liver damage
5	Dlingo		asaron	cancer-causing (carsinogenic)







6	Jungrahab	caryophyllene	teratogenic
7	Kava-kava	kavapyrone alkaloid	liver damage
8	Tapak dara	vincristine alkaloid	immunosuppressant
9	Artemisia annua	artemisinin	malaria drug resistance

- Herbs that are safe must pay attention to several aspects include^{2,3}:
 - a. Accuracy of the ingredients

Herbalists must be careful because one plant has many names depending on the region. Misidentification (recognition) will be fatal to production errors.

b. Dose accuracy

A large herbal dose is not always related to the amount of benefit obtained, for example

➤ Celery > 400 grams → blood pressure will drop, the patient faints





- ➤ Gambir > 1 thumb → diarrhea stops, but results in constipation or difficulty defecating
- → *Kejibeling* > 8 sheets → the kidneys are irritated
- > Meniran> 1 handheld \rightarrow the kidneys are irritated
- > Excessive consumption of egg-honey-milk \rightarrow diabetes
- c. Accuracy of usage time
 - In the 1980s, a hospital found a pregnant woman drinking *cabe puyang* (chili peppers) herbs who experienced labor difficulties
 - > After research: this herb actually inhibits uterine contractions
 - if this herb is taken early in pregnancy it is good because the muscles of the uterine wall become stronger and the risk of miscarriage is small,
 - if taken until the end of pregnancy the uterine wall muscles are difficult to contract → labor difficulties
 - Thick *kunir asem* herbs (have the opposite effect of *cabe puyang* herbs), should not be drunk in early pregnancy because it will be easier to cause a miscarriage.
- d. Accuracy of usage method
 - Amethyst leaves have anti-asthma properties or relax breathing when dried and made into a powder to be smoked. Fresh amethyst leaves can also be crushed and placed on the cheek to reduce toothache
 - > If brewed and drunk \rightarrow poisoning, eyes widened (mydriasis).
 - \succ When used for drunkenness \rightarrow can cause death
- e. The accuracy of the ingredients for the purpose of treatment
 - The leaves of *tapak dara* can reduce immunity because they reduce white blood cells (leukocytes)





- The leaves of *tapak dara* should only be used for anti-cancer ingredients, not appropriate for anti-diabetes or anti-hepatitis, etc.
- The ways to make safe and good herbs are as follows ⁴:
 - a. All materials must be washed thoroughly
 - b. If making the juice, we must use boiled water
 - c. If making a stew: use clean water, avoid using aluminum or iron pans (preferably stainless steel or clay or enamel pots), cook the herbs again before 24 hours, keep the pot closed even if the aroma of the oil evaporates.
 - The use of iron/ aluminum can form chelate (a substance that cannot be absorbed by the body and reduces the benefits of herbs).
 - Earthen/ stainless/ enamel pot does not damage the active ingredients/ compounds in herbs that are sensitive to temperature changes.



Figure 8.2 Tools, Preparation Method, and Herbal Drinking Rules⁴




2. What are some herbs that can be used to help NCDs Posbindu participants who have factors that increase the likelihood of experiencing hypertension?



Figure 8.3 Anti-hypertension Herbs⁴

Herbs that can be used as anti-hypertension include ⁴:

- a. Celery leaves, as a vasodilator agent (widens blood vessels)
 - Little known safety data
 - Not recommended for pregnant women, nursing mothers, and children
 - Other properties: lowering cholesterol and uric acid, diuretic agents that facilitate urination
- b. Kumis kucing leaves, as a diuretic agent (facilitate urination)
 - Little known safety data
 - Not recommended for pregnant women, nursing mothers, and children





- Other properties: solvent calcium in kidney stones
- c. Pegagan leaves, efficacious in lowering blood pressure
 - Not recommended for pregnant women, nursing mothers, and children
 - Other properties: for the treatment of wounds, curing gastric pain (dyspepsia or ulcer)
- d. Meniran leaves, efficacious in increasing immunity
 - Little known safety data
 - Excessive and long-term doses can cause kidney damage and impotence in men
 - Other properties: solvent kidney stones, reduce uric acid and blood sugar, maintain the health of the liver (hepatoprotection)
- e. Curcuma rhizome, efficacious in refreshing body
 - Not recommended for pregnant women and nursing mothers
 - Excessive dose can cause stomach irritation
 - Other properties: lowering cholesterol and triglycerides, stimulating the release of bile acids, maintaining a healthy liver (hepatoprotection)
- f. Turmeric rhizome, efficacious as digestion facilitator and pain reliever
 - Long-term administration of mice found changes in the liver and lungs and decreased white blood cell counts
 - Other properties: lowering cholesterol, curing gastric pain (dyspepsia or ulcer), and maintaining the health of the liver (hepatoprotection)
- **3.** How to make simple herbal remedy (jamu) as a supporting therapy for NCDs Posbindu participants who have factors that increase the likelihood of experiencing hypertension?
 - The composition of anti-hypertensive herbal ingredients for one day use, consisting of dry ingredients:
 - a. 15 grams of celery herb





- b. 9 grams of pegagan herb
- c. 9 grams of *kumis kucing* leave
- d. 9 grams of curcuma rhizome
- e. 9 grams of turmeric rhizome
- f. 9 grams of *meniran* herb⁴
- Things that must be considered by the herbal users, among others:
 - a. Anti-hypertensive herbal ingredients can cause frequent urination.
 - b. Be careful when taking herbs together with diuretics drugs (increase urination).
 - c. Use in pregnant and lactating women is not recommended.
 - d. Be careful about consuming herbs if you have severe kidney function problems.⁴
- Conditions that can be managed alone with this anti-hypertensive herb are prehypertension (systolic 120 - 139 mmHg and/or diastolic 80 - 89 mmHg) and grade 1 hypertension (systolic 140 - 159 mmHg and/or diastolic 90 - 99 mmHg). Along with the use of these herbs, it is necessary to modify the lifestyle as described in the previous topics.⁴





4. What are some herbs that can be used to help NCDs Posbindu participants who have factors that increase the likelihood of experiencing DM?



Figure 8.4 Anti DM Herbs⁴

Herbs that can be used as anti-DM include ⁴:

- a. Curcuma rhizome, a complete explanation is already in the anti-hypertensive herbal section
- b. Sambiloto leaves, as a blood sugar-lowering agent
 - Not recommended for pregnant women, nursing mothers, and children
 - Other properties: overcome the symptoms of infectious diseases without complications
- c. Salam leaves, as a blood sugar-lowering agent
 - Little known safety data
 - Not recommended for pregnant women, nursing mothers, and children





- Excessive dose can cause damage to the kidneys, liver, and central nervous system
- Other properties: maintain eye health, help overcome upper respiratory diseases, make digestion healthier
- d. Cinnamon, as a body freshener
 - Contains potential antioxidants as free radical scavengers
 - Other properties: reduce uric acid, increase immunity, relieve pain symptoms during menstruation
- 5. How to make simple herbal remedy (jamu) as a supporting therapy for NCDs Posbindu participants who have factors that increase the likelihood of experiencing DM?
 - The composition of herbal ingredients to treat diabetes or DM for one day use, consisting of dry ingredients:
 - a. 5 grams of *salam* leaves
 - b. 5 grams of sambiloto herbs
 - c. 7 grams of cinnamon barks
 - d. 10 grams of curcuma rhizome⁴
 - Use of this herb generally takes at least 3-6 weeks to get the desired blood sugar lowering effect. Preparation of potions should be done for 3-6 weeks.⁴
 - Things that must be considered by the herbal users, among others:
 - a. Herbal ingredients work by inhibiting the formation of glucose (simple sugar) in the liver, inhibiting sugar absorption in the intestine, increasing the secretion of the insulin hormone in the pancreas, and increasing the use of sugar by cell membranes so it is more appropriate for people with hyperglycemia/type 2 diabetes.
 - b. Excessive/inappropriate use of this herb can cause nausea, heartburn, fatigue, weakness, and an excessive decrease of blood sugar levels.





- c. If symptoms and blood sugar levels persist or increase after 1 week of drinking this herbal remedy, immediately consult a doctor.
- d. If there is an ulcer disease, a history of allergies, or other blood-sugarlowering drugs that are taken, consult your doctor before starting to take this herbal remedy.⁴
- Conditions that can be managed by yourself with this anti-DM herb are
 - a. Blood sugar levels at 140-300 mg/dL or fasting blood sugar 110-200 mg/dL which were first known after a doctor's examination and had not taken blood-sugar-lowering drugs.
 - b. Patients with prolonged diabetes and blood sugar levels at 200-300 mg/dL or fasting blood sugar levels 110-200 mg/dL who do not take chemical drugs.⁴
- Along with the use of these herbs, it is necessary to make lifestyle modifications as described in the previous topics.⁴
- 6. What are some herbs that can be used to help increase the immunity of NCDs Posbindu participants?



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7. How to make simple herbal remedy (jamu) to help increase the immunity of NCDs Posbindu participants?

- The composition of herbal ingredients to increase immunity for one day use, consisting of dry ingredients:
 - a. 5 grams of curcuma rhizome
 - b. 4 grams of turmeric rhizome
 - c. 3 grams of *meniran* herbs
- Use of this herb generally takes at least 6 weeks to achieve the desired fitness effects. Preparation of potions should be done for 6 weeks.⁴
- Things that must be considered by the herbal users, among others:
 - a. This herbal formula only helps in improving fitness, physical activity such as routine exercise is still necessary.
 - b. This herb works by increasing cardiovascular fitness (heart and blood vessels) and has no effect on body composition, muscle strength, or muscle flexibility.
 - c. The use of this herb can increase appetite.
 - d. Herbal ingredients are taken half an hour after eating.
 - e. If nausea, vomiting, or discomfort occurs after taking this herbal medicine, consult a doctor immediately.⁴
- To get the desired fitness, physical activity such as exercising, adjusting diet, and healthy living habits must still be done in addition to taking herbs.⁴
- This herbal remedy is only to help improve fitness and endurance, not as a multipotential drug.⁴

8. What are the things that must be considered in the processing, storage, and use of herbs?

a. The correct process of herb's storage





- Store unprocessed dry herbs in a dry place and not exposed to direct sunlight (they should not be dried or left in the yard to be exposed to direct sunlight).⁴
- Do not store dry herbal preparations (simplicial) on the floor directly, in damp places, or near water sources. Both the humidity and the extreme temperature have the potential to cause aflatoxin contamination due to fungi which has the potential to cause cancer and death.⁵
- b. Herbs that have been boiled can only be drunk for maximum 12 hours after boiling to avoid the possibility of poisoning due to bacterial contamination.⁴
- c. Modern and herbal medicines should not be taken together, they should be given a time interval of at least 1 hour to avoid interactions between compounds (active substances) in modern medicine and herbs. Take modern medicine first, then take herbs.^{4,5}
- d. Side effects that may arise after taking herbs can include dizziness, nausea, vomiting, diarrhea, or itching. Write down the time, type of incident, or complaint that occurred. To ascertain whether the effect is dangerous or not, if the effect is disturbing, immediately consult a health facility or the nearest doctor.^{4,5}

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8th Topic Evaluation Form

Put a check mark ($\sqrt{}$) on your choice based on the delivery of material on this topic

	1	2		3	4	5
Content of the Training						
How do you rate quality of						
the training content in this						
chapter? *						
This chapter is clearly						
structured^						
The assignment (e.g., role						
plays, quiz, etc.) during this						
chapter matched the theory ^						
The study material in this						
chapter is interesting^						
Length of the Training						
The length of training in this	Teo lo	na		Just anough	То	o short
topic	10010	ng		Just enough	10	o short

Notes:

*A 5-point scale in the following order: 1 = very bad, 2 = bad, 3 = fair, 4 = good, 5 = very good

^A 5-point scale in the following order: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree





Attachment 1. Final Evaluation of the Training

Final evaluation of the training will be divided into two sessions, i.e., filling out the form and focus group discussion.

First Session: Filling out the form (Quantitative)

	1	2	3	4	5
Expectation			•		
This training meets your					
expectation ^{\$}					
Facilitators					
How would you rate the					
quality of the facilitators?^					
The facilitators had prepared					
well ^{\$}					
The facilitators provide					
understandable explanations ^{\$}					
The trainer had necessary					
knowledge and skills ^{\$}					
Organizational Factors					
How would you rate the					
training facility?^					

Note:

* A 5-point scale in the following order: 1 = very bad, 2 = bad, 3 = fair, 4 = good, 5 = very good

^ A 5-point scale in the following order: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree





Second Session: Focus Group Discussion (Qualitative)

In this focus group discussion, please express your arguments regarding the following questions.

Expectations

- 1. Did the content of this training day meet your expectations? Why or why not?
- 2. What can we do better to meet your expectations?

Content of the Training

3. Do you have any suggestion to improve the content delivered in this training?

Facilitators

4. What feedback (compliment and tips) do you want to give to the facilitators?

Organizational Factors

5. Was the size of your training group appropriate? Why or why not?

Outcome

- 6. Did you learn anything new today? If yes, please provide details
- 7. How will you apply the content of this training after the training? What concrete steps will you take?

Success Factors

8. What appealed to you the most today?

Recommendations

- 9. What did you not like today?
- 10. Do you have any suggestion to improve today's training?

NCDs Posbindu Activities

- 11. What do you think about NCDs Posbindu implementation during the pandemic?
- 12. Do you have any suggestion regarding the place, time and health protocol in NCDs Posbindu implementation during the pandemic?
- 13. Could you describe the NCDs Posbindu's financial plan?





- 14. Have all NCDs Posbindu activities been covered by the BPJS? If not, what financing schemes can be used?
- 15. Are there any social factors, political factors, or environmental conditions that have influenced the NCDs Posbindu implementation so far? If so, what are these factors?
- 16. How do these factors influence the implementation of NCDs Posbindu? Do these factors tend to support or hinder the implementation of NCDs Posbindu?
- 17. How do you manage these factors so NCDs Posbindu implementation target can be achieved optimally?





Attachment 2. *Checklist* for observation of cadre's skills in anthropometric examinations and blood sugar measurements

1. Body Weight Measurement

NO		SCORE		
NO	ASPECI		1	2
1.	Greeting patient			
2.	Stating the purpose of this measurement			
3.	Prepare the instrument properly (put the instrument on a flat place and perform the calibration)			
4.	Preparing the patient properly (minimal clothing, removing footwear, removing the contents of the pocket, standing or supine position according to the purpose of measurement)			
5.	Read the scale at the correct position			
6.	Repeats the measurement 3 times and calculates the average measurement			
7.	Record measurement results			
Mate				

Note

2 : done correctly

1 : done incorrectly

0 : not done

% Achievement = <u>TOTAL SCORE</u> X 100 % =%

14

Facilitator

(.....)







2. Body Height and BMI Measurement

NO			SCORE		
NO	ASPECI	0	1	2	
1.	Greeting patient				
2.	Stating the purpose of this measurement				
3.	Prepare the instrument properly (put the instrument on a flat place and perform the calibration)				
4.	Prepare patient properly (remove footwear, anthropometric position, remove head accessories)				
5.	Shows the correct position of the vertex and Frankfurt plane (head position facing forward)				
6.	Take height measurements correctly (inspiration / pressure on the stomach; at least 3 points of the body against the wall)				
7.	Read the scale at the correct position				
8.	Repeats the measurement 3 times and calculates the average measurement				
9.	Record measurement results				
10.	Calculate BMI based on patient's weight and height				

Note

2

: done correctly

1 : done incorrectly

0 : not done

% Achievement = <u>TOTAL SCORE</u> X 100 % =%

20

Facilitator

(.....)







3. Waist Circumference Measurement

			SCORE		
NO	ASPECT	0	1	2	
1.	Greeting patient				
2.	Stating the purpose of this measurement				
3.	Prepare the instrument properly				
4.	Prepare patient properly (ask patient to undress, anthropometric position)				
5.	Shows the narrowest part between <i>crista illiaca</i> and the ribs correctly				
6.	Measure waist circumference correctly (using a ribbon starting from zero; pull the tape tight, not pressing the skin, straight in line)				
7.	Read the scale at the correct position				
8.	Repeats the measurement 3 times and calculates the average measurement				
9.	Record measurement results				
Note	·				

2 : done correctly

1 : done incorrectly

0 : not done

% Achievement = <u>TOTAL SCORE</u> X 100 % =%

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Facilitator

(.....)







4. Blood Pressure Measurement

NO	ASPECT		SCORE		
NU			1	2	
1.	Preparing patient in sitting or sleeping position, the examiner is on patient's right side				
2.	Prepare the sphygmomanometer and put the cuff on patient's upper				
	arm				
3.	Press "START / STOP" button to turn on the sphygmomanometer				
4.	Ask patient to remain seated without moving and not speaking at				
	the time of measurement				
5.	Make sure that patient's arm is comfortable with fingers				
	unclenched. Make sure there are no ties to the pipes				
6.	After the measurement is complete, press "START / STOP"				
	button again to turn off the sphygmomanometer				
7.	Measurements were made three times. With 10-15 minutes				
	between each measurement and removing the cuff after each				
	measurement				
Noto					

Note

- 2 : done correctly
- 1 : done incorrectly
- 0 : not done
- % Achievement = <u>TOTAL SCORE</u> X 100 % =%

14

Facilitator

(.....)

(1













5. Blood Glucose Level Measurement

NO	ASPECT		SCORE			
			1	2		
1.	Greet and make sure patient is comfortable					
2.	Make sure the glucometer can be used, attach the stick to the glucometer					
3.	Prepare lancet and alcohol swab					
4.	Wash hands and wear a hands Coen					
5.	Clean the finger of the patient's hand where the capillary blood will be drawn. Draw capillary blood					
6.	Cover the wound with an alcohol swab					
7.	Waiting for the glucometer to finish					
8.	Tidy up the glucometer and wash hands					
Note	•			,		

Note

- 2 : done correctly
- 1 : done incorrectly
- 0 : not done
- % Achievement = <u>TOTAL SCORE</u> X 100 % =%

16

Facilitator

(.....)





Attachment 3. Observation checklist of cadre's skills in using algorithms

NO	ASPECT		SCORE		
NO			1	2	
1.	Register the patient				
2.	Explore the history of NCDs (hypertension, stroke, diabetes, heart disease) in patient				
3.	Identifying lifestyle risk factors for NCDs: diet, smoking, physical activity, alcohol				
4.	Perform BMI measurement				
5.	Perform blood pressure measurement				
6.	Perform blood sugar measurement				
7.	Interpret the results				
8.	Conduct education based on results				
Note	•	•		<u> </u>	

Note :

- 2 : done correctly
- 1 : done incorrectly

0 : not done

% Achievement = <u>TOTAL SCORE</u> X 100 % =%

16

Facilitator

(.....)





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Attachment 4. Blueprint for Early Detection of Non-communicable Disease for Cadre Training

Session	Торіс	Learning Objection	Training Strategy	Monitoring and Evaluation
1	Overview of Non- Communicable Diseases (NCDs)	 NCDs Posbindu cadres can: 1. Explain the situation and background of diabetes mellitus (DM) and hypertension in their area correctly 2. Explain the signs and symptoms of diabetes mellitus and hypertension correctly 3. Explain immediate and long- term complications of DM and hypertension 4. Explain the importance of proper DM and hypertension screening 5. Explain the management of diabetes mellitus and hypertension, including general treatment principles, the referral system, and lifestyle modification 	 Offline Leaflets PowerPoint presentation Discussion/ Question and answer 	Pre-test and post-test
2	Algorithm for Screening or Early Detection of NCDs	 NCDs Posbindu cadres can: Use the manual NCDs algorithm correctly Use the NCDs algorithm application correctly Fill the NCDs recording and reporting forms correctly Refer patients with DM and hypertension found in NCDs Posbindu correctly 	 Offline Leaflets Video playback PowerPoint presentation Discussion/ Question and answer Simulation 	 ○Pre-test and post-test ○Observation checklist
3	Anthropometric, Blood Pressure and Blood Glucose Level	 NCDs Posbindu cadres can: 1. Explain how to do anthropometry measurement (body weight, height, abdominal) 	 Offline Leaflets Video playback PowerPoint 	 Pre-test and post-test Observation checklist

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	Measurement	 circumference, body mass index) correctly 2. Explain how to measure blood glucose level correctly 3. Explain how to measure blood pressure correctly 4. Do anthropometric measurements (body weight, height, abdominal circumference, body mass index) to every NCDs Posbindu visitor in new normal period. 5. Measure blood glucose level to every NCDs Posbindu visitor in new normal period. 6. Measure blood pressure to every NCDs Posbindu visitor in new normal period. 	ion on/ and on
4	NCDs Information, Education, Communication (IEC), and Counseling	 NCDs Posbindu cadres can: 1. Explain health education techniques, including avoiding stigmatization related to DM and hypertension risk factors correctly 2. Use health education materials related to diabetes mellitus and hypertension correctly 3. Conduct health counseling regarding prevention and management of diabetes mellitus and hypertension (psychological conditions, exercise, and nutrition) correctly 	int oPre-test and post-test oObservation checklist oFocus group discussion
5	Persuasive Communication in NCDs Prevention and Management	 NCDs Posbindu cadres can: Carry out persuasive communication to screen and refer diabetes mellitus and hypertension Conduct persuasive communication to community Offline Leaflets PowerPo presentat Discussion 	int int ion on/ and oPre-test and post-test oObservation checklist oFocus group discussion

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		100 dags and other		
		 adders and other stakeholders to increase active community participation correctly Perform persuasive communication with community leaders and other stakeholders in the correct manner in order to increase participation in the NCDs Posbindu implementation 	 Simulation 	
6	Nutritional Aspects in NCDs Prevention and Management	 NCDs Posbindu cadres can: 1. Explain nutritional educations which are relevant for the prevention and management of DM and hypertension correctly 2. Carry out nutritional educations which are relevant for the prevention and management of diabetes mellitus and hypertension correctly 3. Apply the principle of balanced nutrition for the prevention and management of diabetes mellitus and hypertension in NCDs Posbindu activities correctly 	 Offline Leaflets PowerPoint presentation Discussion/ Question and answer 	Pre-test and post-test
7	Exercise Guidance in NCDs Prevention and Management	 NCDs Posbindu cadres can: 1. Explain general principles of physical activity and their benefits related to DM and hypertension correctly 2. Describe the various types of sports that are relevant to fitness 3. Describe the various types of exercise that are relevant to the prevention and management of DM and hypertension, for example weight loss 	 Offline Leaflets PowerPoint presentation Discussion/ Question and answer 	Pre-test and post-test
8	Complementary Medicine in NCDs	NCDs Posbindu cadres can: 1. Explain the local wisdom of medicinal plants (herbals) in	OfflineLeaflets	Pre-test and post-test

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Prev Man	vention and nagement	 Indonesia for the prevention of DM and hypertension risk factors 2. Explain the general benefits of medicinal plants (herbals) for 	 PowerPoint presentation Discussion/ Question and
		 health, especially for DM and hypertension 3. Describe simple herbal remedy which is beneficial for DM and hypertension 	answer

