Scaling-Up NCD Interventions
in South-East Asia

SUNI-SEA WP3
Guidelines and Training Materials
Final report

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Scaling-Up NCD Interventions in South-East Asia (SUNI-SEA) is a research consortium project delivered through a collaboration of ten consortium members. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 825026, under the Global Alliance for Chronic Diseases.

This report Guidelines and Training Materials is part of a series of three reports. The other two reports Scaling Up NCD interventions (WP1) are Cost-effectiveness (WP2). Together, these reports provide a comprehensive overview of the SUNI-SEA research project.
Also read our policy briefs Achieving Universal Health Coverage for NCDs, Scaling up community-based NCD interventions Bridging the digital divide, as well as the country specific policy briefs.
Find all information about the SUNI-SEA research project on www.suni-sea.org

Scaling-Up NCD Interventions in South-East Asia (SUNI-SEA):

The increasing prevalence of non-communicable diseases (NCDs) and their high impact on mortality, morbidity and public health, particularly in low- and middle-income countries, prompted the launch of an implementation research project "Scaling-Up NCD Interventions in South-East Asia (SUNI-SEA)" which was being implemented in Indonesia, Myanmar and Vietnam. This four year initiative began in 2019 and was a collaboration between ten consortium members namely University Medical Center Groningen (Netherlands), Faculty of Economics and Business, University of Groningen (Netherlands), University of Passau (Germany), Trnava University (Slovak Republic), HelpAge International, Age International, Sebelas Maret University (Indonesia), Thai Nguyen University of Medicine and Pharmacy (Vietnam), Health Strategy and Policy Institute (Vietnam) and Vietnam Association of the Elderly (VAE).
The SUNI-SEA project aims to identify the best and most affordable ways to expand programmes that prevent and control diabetes and hypertension in Southeast Asia. The project investigates which interventions work effectively and are worth the investment, also in other low- and middle-income countries.

Disclaimers:

The contents of this report are the sole responsibility of the SUNI-SEA consortium and do not necessarily reflect the views of the European Union or the Global Alliance for Chronic Diseases.

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List of abbreviations

BMI	body mass index
CBO	community-based organisation
CHS	commune health station
CVD	cardiovascular disease
ISHC	intergenerational self-help club
KAP	knowledge, attitude and practice
NCD	non-communicable disease
NGO	nongovernmental organisation
OSCE	objective structured clinical examination
PHC	primary health care
WHO	World Health Organization
WP3	work package 3

Executive summary

Introduction

Scaling-Up Non-communicable diseases Interventions in South-East Asia (SUNI-SEA) was a four-and-half-year research project which started in 2019 and was conducted in Indonesia, Myanmar, and Vietnam. The activities of work package 3 (WP3) focused on providing capacity building to professionals in PHC services and health volunteers and improving and testing guidelines and instruments for scaling-up prevention and management of hypertension and diabetes.

Research methodology

The first step dealt with mapping current practice and assessing the extent of compliance to internationally recognised evidence-based guidelines. The rules and practices of referrals from communities to facilities and back were evaluated. The roles of local authorities in managing the patient flow were studied and eventual gaps were identified. The study continued with activities of adapting and implementing evidence-based instruments, including evidence-based tools for creating synergies between PHC and communities. A set of training and other educational activities for PHC staff and health volunteers was provided. The focus was on distance training tools using a Learning Management System.

Implemented activities

A need for developing and adapting guidelines, standard operating procedures, manuals, and training materials for health workers was identified at the beginning of the project in all three countries. The educational materials were prepared with respect to the culture and local context based on a guideline developed within the SUNI-SEA project. Subsequently, a set of training courses was organised and delivered to PHC staff and health volunteers. The main aim of the capacity building was to provide them with the most up-to-date information on the prevention, management, and control of NCDs, enhance their knowledge of NCD risk factors and train them in conducting screening for hypertension, diabetes, and related risk factors.

Findings

In Indonesia, the knowledge of the cadres increased immediately after the training. However, four months after the training their mean knowledge score declined, although it was still higher than before the training. The cadres were followed when conducting screening activities in order to assess their skills and accuracy in triaging community members into healthy, at risk of NCD or suffering from NCDs correctly. The cadres from Batang and Kediri (interventions areas) achieved higher scores on most parts of the practical assessment in comparison to the control group (Jember). Based on a questionnaire consisting of 75 questions, the level of cadres' knowledge and attitude in the intervention areas were higher than in the control areas (Solo, Jember), but the practice of cadres in the intervention areas was quite similar to the cadres in the control areas.

In Myanmar, 30 health volunteers have undergone training on self-assessment and health education tools for screening for NCDs and mental health. Their knowledge of healthy lifestyle and the risk factors, prevention, complications, and symptoms of NCDs has increased after the training comparing the results from pre- and post-training questionnaires. NCD public health modules were developed in order to increase the capacity of front-line public health workers in the prevention, management and control of NCDs. An online learning platform based on Moodle technology was created in English and Burmese languages. It is also accessible as an application for Android as well as iOS operating systems. Pilot testing was organised as a four-day event in which 17 individuals from a variety of community-based organisations actively participated.

A self-administered questionnaire was distributed to PHC staff before and after the training to be completed under the supervision of the Health Strategy and Policy Institute researchers in Vietnam. The results demonstrate a significant improvement in the knowledge of PHC staff regarding several

topics related to the diagnosis and treatment of hypertension and diabetes. Clinicians reported an increase in providing health education, which encourages patients to maintain a healthy lifestyle and adhere to treatment. Approximately 93% of physicians reported using the simplified guidelines as a resource for health education during face-to-face patient counselling. However, only up to one third of physicians were able to fully apply the knowledge and skills acquired from the training course. This can be attributed to the issue of interrupted supply and poor availability of anti-hypertensive medications at most commune health stations. The mean knowledge score of health volunteers has significantly improved after the training.

Challenges

Given the project started in 2019, it has been affected by two significant events. Firstly, the project activities were disturbed by the restrictions which were imposed by the governments due to the COVID-19 pandemic in all three project countries. The second event, the military coup in Myanmar, had a tremendous impact on the project course in this country.
Regardless of the usefulness of the guidelines developed and training provided to health volunteers and PHC staff, they encountered several challenges in practice which prevented them from applying all their knowledge and skills. A substantial part of the challenges is related to a lack of resources, either a lack of devices, medicines, human resources, or time.

Lessons learned

Training materials were found critical for the sustainability of scaling-up the comprehensive community-based and primary health facility-based programmes. Given different cultures and contexts, it is useful to adapt training materials to local conditions. Training provided to healthcare and community health workers increases their knowledge and improves the skills needed to take care of patients and communities. However, there is a need to deliver refresher training after a few months to keep the knowledge and skills of workers at the required and the most up-to-date standards.
National and international guidelines were found to be too complex to be used by healthcare workers and implemented in practical clinical settings. Simplified guidelines for PHC staff and health volunteers are useful for enhancing their use and increasing the efficacy of PHC and behavioural change procedures. They effectively support face-to-face counselling and encourage patients to adhere to medical treatment and modify their lifestyles. Barriers to implementing guidelines into preventive and clinical practice are mostly due to a lack of local resources (health care professionals, medicines, finances).

Conclusions

The scaling-up is an integrated component of the SUNI-SEA project and the dimension of quality was a crucial element of the scaling-up strategy. WP3 contributed to this dimension by improving the knowledge and skills of primary healthcare workers, cadres and health volunteers through training adapted to their needs, culture, and local context. The quality of services was also enhanced by providing PHC staff with simplified guidelines which are easier to follow and serve as an educational tool during consultations with patients and clients. Thanks to the training provided to cadres and health volunteers, the services can be offered to more people in areas where health services are hard to reach. This can help to diagnose more people at earlier stages of diseases through the created synergies between communities and primary care.
One of the project's ambitions is to contribute to the adaptation of international guidelines, tools and instruments related to hypertension and diabetes. The educational materials and guidelines developed within the project will be shared not only via the project website but also through maintaining contacts with the Global Alliance for Chronic Diseases. In addition, they will be disseminated to other networks of the project partners and relevant stakeholders at the national as well as international levels.

1 Introduction

Non-communicable diseases (NCDs) account for three quarters of deaths globally, and their burden is rising disproportionately among lower-income countries and populations. Three quarters of all NCD deaths and the majority of premature deaths occur in low- and middle-income countries. NCDs are estimated to be responsible for 81% of all deaths in Vietnam, 76% in Indonesia, and 71% in Myanmar. Cardiovascular diseases (CVDs) contribute to all deaths by 31% in Myanmar, 38% in Indonesia and 39% in Vietnam. The proportion of deaths due to diabetes is about 6% in all three countries. NCDs can be attributed to almost 600 000 deaths in Vietnam, over 275 000 deaths in Myanmar, and almost 1 400 000 deaths in Indonesia. [1]

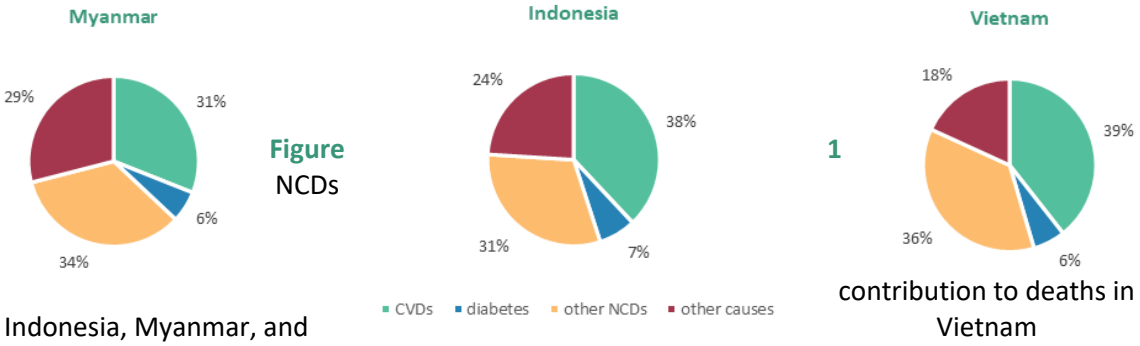


Figure 1 NCDs contribution to deaths in Indonesia, Myanmar, and Vietnam

Scaling-Up Non-communicable diseases Interventions in South-East Asia (SUNI-SEA) was a four-and-half-year research project which started in 2019 and was conducted in Indonesia, Myanmar, and Vietnam. It aimed to research evidence for the effectiveness and cost-effectiveness of an integrated approach with synergies among four components, namely prevention screening, primary healthcare (PHC), disease management and community organisation. The project was shaped around three leading themes.

- **Effectiveness of scaling-up** hypertension and diabetes prevention and management interventions (work package 1)
- **Cost-effectiveness** of scaling-up hypertension and diabetes prevention and management interventions (work package 2)
- **Global NCD instruments** focusing on evidence-based methods in scaling-up NCD interventions and using them for sustainability and global innovative approaches in prevention and management, especially with regard to hypertension and diabetes (work package 3)

The work package 3 (WP3) intended to provide capacity building to professionals in PHC services and health volunteers that carry out preventive activities in communities. It evaluated existing training modules and clinical guidelines, and coordinated educational activities, based on clinical guidelines, and internationally recognised best practices. The activities of WP3 focused on improving and testing guidelines and instruments for scaling-up prevention and management of hypertension and diabetes. A substantial part of the project was affected by restrictions imposed by the governments in the project countries due to the COVID-19 pandemic. In February 2021, the military coup in Myanmar disabled the full implementation of the project activities as had been initially planned. Despite these circumstances and after some adjustments, the project continued in all three countries.

[1] World Health Organization. NCD Data Portal. Available at https://ncdportal.org/CountryProfile/GHE110/MMR

2 Research methodology

The research methodology comprised four phases, from A to D.

Phase A: Retrospective study – *Assessment of local training, instruction materials and compliance to evidence-based medicine*

In Indonesia, Myanmar, and Vietnam, guidelines, operating procedures, and manuals for diabetes and hypertension prevention and management have been developed, based on national and international evidence, for example, the *WHO Package of Essential NCD Interventions* protocols[2]. The first step dealt with mapping current practice and assessing the extent of compliance to internationally recognised evidence-based guidelines. The rules and practices of referrals from communities to facilities and back were evaluated. The roles of local authorities in managing the patient flow were studied and eventual gaps were identified. Based on the comparison between national and international guidelines, a systematic review was prepared and later published.

Phase B: Adjustment phase – *Implementation of global instruments in practice*

The study continued with activities of adapting and implementing evidence-based instruments, including evidence-based tools for creating synergies between PHC and communities.

Phase C: Prospective study – *Promoting development of tools supporting the implementation of adapted guidelines*

A set of training and other educational activities for PHC staff and health volunteers was provided. The focus was on distance training tools using a Learning Management System.

Phase D: Draw lessons for policy

Final guidelines, tools and instruments were developed, shared across the project and partners, and made internationally available.

A mixed methods approach was used to gather qualitative and quantitative data such as focus groups, interviews, questionnaires, and observations to assess the impact of training.

[2] World Health Organization, 'Package of essential noncommunicable (PEN) disease interventions for primary health care in low-resource settings', World Health Organization, Geneva, 2020, 77 p., ISBN 978-92-4-000922-6.

3 Implemented activities

In the retrospective study of the project, the current epidemiological patterns of hypertension and type 2 diabetes mellitus were mapped in Indonesia, Myanmar, and Vietnam[3]. The national guidelines were compared with internationally recognised evidence-based guidelines, and recommendations were drafted. Based on this comparison, a systematic review of international and national guidelines for hypertension and type 2 diabetes mellitus[4] was developed.

A need for developing and adapting guidelines, standard operating procedures, manuals, and training materials for health workers was identified at the beginning of the project in all three countries. The educational materials were prepared with respect to the culture and local context based on a guideline developed within the SUNI-SEA project "Guideline for adaptation of community-based health interventions to culture and context".

Subsequently, a set of training courses was organised and delivered to PHC staff and health volunteers. The main aim of the capacity building was to provide them with the most up-to-date information on the prevention, management, and control of NCDs, enhance their knowledge of NCD risk factors and train them in conducting screening for hypertension, diabetes, and related risk factors.

3.1 Indonesia

In Indonesia, the focus was on enhancing and updating the knowledge of community volunteers (cadres) and providing them with skills needed to screen community members for NCDs. They are organised in *Posbindu (abbreviation in Bahasa Indonesia is Pos Pembinaan Terpadu-Penyakit Tidak Menular)*, a community-based prevention programme. A dedicated training module was developed to provide cadres with information on NCDs with an emphasis on the algorithm for early detection of NCDs. In addition to the algorithm, it focused on the use of the Posbindu smart application, healthy lifestyle, complementary medicine, persuasive communication, and practical training on screening correctly (blood pressure, weight, height, and blood glucose measurements).

Capacity building also aimed to point out the importance of the linkage between communities and primary care. Thus, PHC staff was involved in the training on the algorithm. The training delivered to cadres within the project SUNI-SEA was enriched by practical sessions on how to screen community members for NCDs and relevant risk factors. Such a practical part is not a component of the usual training cadres receive.

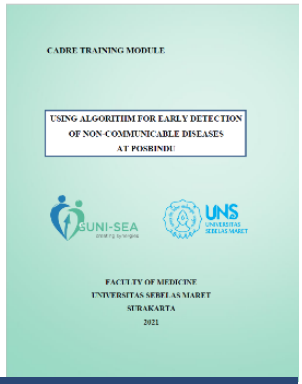
In total, 92 cadres in the intervention areas were trained within the SUNI-SEA project. The training was delivered to 58 cadres in Kediri and 34 cadres in Batang.

[3] Sivco, P, et al., 'Epidemiological Patterns of Hypertension and Type 2 Diabetes Mellitus in the Socialist Republic of Vietnam: an Ecological Study', The Open Public Health Journal, Vol. 15, No 1, 2022.

[4] Melichova, J, et al., 'International evidence-based guidelines on hypertension and type 2 diabetes mellitus: A systematic review', Journal of Public Health Research, Vol. 12, No 1, 2023.

Cadre training module: using algorithm for early detection of non-communicable diseases at Posbindu consists of eight lessons which are listed below.

- Overview of NCDs
- Algorithm for screening or early detection of NCDs
- Anthropometric, blood pressure, and blood glucose level measurement
- NCDs information, education, communication, and counselling
- Persuasive communication in NCDs prevention and management
- Nutritional aspects in NCDs prevention and management
- Exercise guidance in NCDs prevention and management
- Complementary medicine in NCDs prevention and management



Educational material for cadres when conducting screening was developed. It includes basic information on balanced nutrition, diabetes mellitus, hypertension and what cadres should do at different desks during the screening, such as measuring blood glucose levels, blood pressure, and BMI and referring community members to PHC facilities.

Leaflets for community members

- Brochure about Posbindu services
- Diabetes mellitus and hypertension brochures
- Obesity brochure

In addition, several videos were created to promote the SUNI-SEA project in Indonesia and to attract community members to screening activities conducted by the cadres at Posbindu. Some of the videos serve as educational materials for the cadres. A complete list of the videos is available here.

Training for cadres and PHC staff

In Indonesia, cadres and PHC staff participated in the training to ensure the linkage between primary care and communities. In total, 20 PHC workers have been trained in Kediri and 20 PHC workers in Batang district.

The training for cadres was delivered in two districts – Kediri and Batang, from the 6th to the 10th of December 2021. The cadres were randomly selected by Puskesmas (Indonesian: *Pusat Kesehatan Masyarakat*, lit. 'Community Health Centre') from both districts. Due to a change in the cadre structure in the Kediri district, the training was delivered to new cadres in Kediri in April 2022.

3.2 Myanmar

The project activities in Myanmar were affected by the military coup, which occurred in February 2021. Given the political situation, the project activities had to be adjusted. Initially planned in person capacity-building activities for public health workers were moved to an online environment. Training for health volunteers was oriented not only on the topics of hypertension and diabetes, but the issue of mental health was also incorporated into training and educational materials.

Guidelines, handbooks, and standard operating procedures were developed to guide health volunteers in conducting screening activities and using the NCD self-assessment reporting app. Wider use of the developed materials was facilitated by sharing with non-governmental organisations (NGOs) and offered online. The educational materials listed below were used to train health volunteers.

- **Standard Operating Procedures on Health Activities for Project Officers –** This manual aims to provide guidance to project officers for their supporting and monitoring roles to health volunteers.

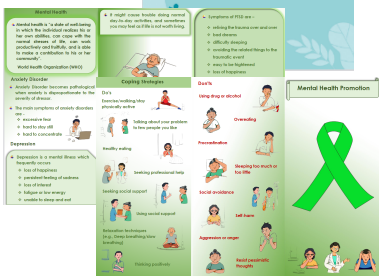
- **NCD and Mental Health Screening Application (SUNI-SEA NCD Self-Care Application): User Guidebook** explains how to use the self-screening application to assess the risk for hypertension, diabetes, and mental health issues. The application also provides information about activities which can be taken for maintaining health.

- **NCD and mental health self-reporting app: standard operating procedure** describes the overall workflow of the NCD and Mental Health Self-Reporting App using Android devices.

- **Community Volunteers Handbook for NCD and Mental Health Screening** incorporates information on NCDs, diabetes, hypertension, and mental health. It serves as a guide for community volunteers to conduct basic anthropometric measurements and blood pressure and educate community members about NCDs and their risk factors.

- **Promoting mental health** manual for community volunteers in Myanmar aims at raising awareness and improving understanding of mental health and its importance. The manual provides information on three mental health conditions – anxiety, depression, and post-traumatic stress disorder. It includes assessment tools for each condition, coping mechanisms at home and self-care tips.

Furthermore, a **video on mental health** and a **mental health promotion leaflet** was created to support the mental health of community members. The leaflet provides a definition of mental health and the most common mental health disorders. It summarises coping strategies and activities, and things people should avoid staying mentally healthy.



In addition, a manual and a guide developed by the WHO – Psychological first aid: Facilitator´s manual for orienting field workers[5] and Psychological first aid: Guide for field workers[6] were used in training for health volunteers.

Training for health volunteers

In Myanmar, 30 health volunteers have undergone training on self-assessment and health education tools for screening for NCDs and mental health. In total, 12 health volunteers have been trained in Pindaya and 18 in Yangon, Mandalay and Ayeyarwaddy regions.

NCD public health modules

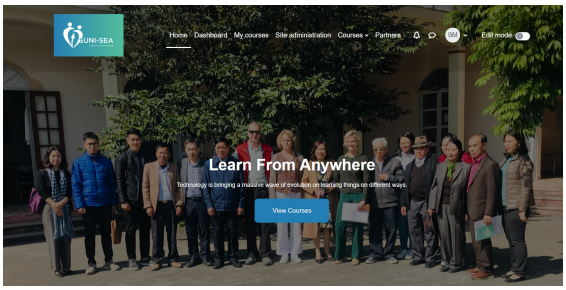
A course on NCDs aimed at front-line workers operating in the public health field was created to enhance their knowledge and capacity in preventing, managing, and controlling NCDs. An online learning platform based on Moodle technology was developed. The platform is available in English and Burmese languages. It is also accessible as an application for Android as well as iOS operating systems.

The platform was piloted in early March 2023 throughout four-day training among participants from NGOs, community-based (CBOs) and civil society organisations. The SUNI-SEA Myanmar team members acted as the facilitators. Subsequently, the modules were amended and updated based on feedback from the pilot testing.

Modules contain a range of approaches for the delivery of information such as animated video presentations, recorded PowerPoint presentations, and readings. Participants are required to pass a quiz or contribute to discussion forums at the end of each module and score a minimum of 80% on the quizzes in order to progress to the next module. After the successful completion of the course, the participants receive a digital certificate.

The course consists of seven modules:

- Module 1: Introduction to public health
- Module 2: Introduction to NCDs
- Module 3: Comprehensive assessment and problem identification
- Module 4: Prevention and control of NCDs
- Module 5: Implementation of interventions
- Module 6: Monitoring and evaluation
- Module 7: Introduction to NCD self-care



3.3 Vietnam

Capacity building in Vietnam was organised for PHC staff working at commune health stations (CHSs) and district health centres, and for health volunteers organised in Intergenerational Self-Help Clubs (ISHCs).

[5] World Health Organization, War Trauma Foundation and World Vision International, 'Psychological first aid: facilitator's manual for orienting field workers'. World Health Organization, Geneva, 2013, 82 p., ISBN 978 92 4 154861 8.

[6] World Health Organization, War Trauma Foundation and World Vision International, 'Psychological first aid: Guide for field workers'. World Health Organization, Geneva, 2011, 56 p., ISBN 978 92 4 154820 5.

Simplified guidelines and training for PHC staff

Healthcare workers at CHSs are required to adhere to the national guidelines *"Guidelines for diagnosis, treatment and management of some non-communicable diseases at commune health stations"* issued in 2019. However, the baseline survey found that the national guideline is somewhat complicated and not easy to follow for PHC staff at CHS. Furthermore, gaps in knowledge and practice on NCD diagnosis and treatment were found in the baseline survey. Therefore, a simplified version of clinical guidelines was created for PHC staff, drawing upon the existing guidelines issued by the Ministry of Health.

The development and distribution of simplified clinical guidelines for the diagnosis and treatment of hypertension at CHSs played a crucial role in the SUNI-SEA project in Vietnam. The simplified guidelines offer a step-by-step framework for examining, diagnosing, and treating hypertension at CHSs. The guidelines serve as a practical tool for PHC staff to facilitate effective communication between doctors and patients. Additionally, it includes health education materials that support face-to-face counselling with patients, covering topics such as medical adherence and the adoption of a healthy lifestyle.

In total, 114 CHSs and seven district health centres were provided with these guidelines. Moreover, a training session was conducted to instruct PHC staff on how to utilise the simplified guidelines effectively. The training on hypertension and diabetes was delivered to 143 PHC staff members, including 17 doctors or assistant doctors from seven district health centres and 126 health workers from 114 CHS. In both provinces, local health managers were also involved in supporting the implementation and supervising the activity, namely eight provincial-level health managers and 14 district-level health managers officially assigned to be involved in the project in two provinces.

Training for healthcare workers was divided into four classes:

- Screening, diagnosis, treatment and management of hypertension and diabetes at CHSs
- Rational use of medications for hypertension treatment at PHC
- Planning for NCD management programme and patient counselling for behaviour change
- NCD information management

Guidelines and training for health volunteers

Intergenerational Self Help Club guidelines in the form of handbooks on prevention and control of hypertension and type 2 diabetes mellitus were developed. The handbooks were used by health volunteers and the directors of organisations providing services in local communities.

- Handbook on prevention and control of type 2 diabetes mellitus for health volunteers and the Board of directors of the ISHCs
- Handbook on prevention and control of hypertension for health volunteers and the Board of directors of the ISHCs
- Handbook on screening for health volunteers

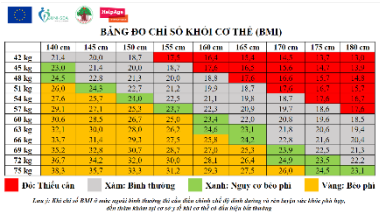
In total, 295 health volunteers were involved in initial 4-day training and refresher 2-day training. They were joined by members of club management boards, associations of the elderly, and health staff (355 in initial training and 282 in refresher training).

Initial training for health volunteers was organised as a four-day event and included topics such as healthy ageing, conducting screening for hypertension and diabetes risks, introducing booklets, forms and templates used in screening, and using tablets and other equipment.

Refresher training for health volunteers was organised for two days.

In addition, the following materials have been created to help health volunteers in screening activities:

- BMI banner;
- FINDRISC banner;
- Leaflet on hypertension;
- Leaflet on diabetes;
- NCDs calendar 2022;
- NCDs calendar 2023;
- video on tutorial on the use of DHIS2.



A video collection of five videos on the prevention and management of hypertension and diabetes was developed to spread positive messages about healthcare with community members, ISHCs and relevant stakeholders. The videos are available here.

3.4 General training materials

Capacity building was also aimed at researchers from the project countries and intended to exchange knowledge and expertise between the researchers within the SUNI-SEA project. Several webinars were delivered with a focus on research in health promotion and disease prevention, and qualitative research. The materials can be found on the project website.
Furthermore, two publications were developed within the project for capacity building.

- **Guideline for adaptation of community-based health interventions to culture and context** was developed to guide the process of adapting a community-based health intervention, training, or programme to the local context. Capacity building in the SUNI-SEA project was adapted to culture and context based on this guideline.
- **Soft skills manual for training of trainers and healthcare staff** is primarily intended to help a core group of trainers to design and organise their training programmes for soft skills development in areas of community mobilisation, behaviour change communication, and health promotion.

Community-based approaches to healthy ageing working group

As part of the process of wide dissemination of the SUNI-SEA project community training resources, a global technical working group was formed in 2022, consisting of members from the HelpAge International country teams and network partners from 12 countries in Africa, Asia and Latin America regions and SUNI-SEA consortium members.
The working group was tasked with reviewing the SUNI-SEA training resources and adding additional evidence-based resources from their respective regions to compile a package of generic community-based approaches training resources. On finalisation, the package of training resources will be disseminated by working group members based in each of the HelpAge regions and via a HelpAge International online library accessible to network members across the globe and to other stakeholders.
The final training package of resources consists of a facilitator skill-building guide; a community volunteer training manual; a self-care booklet for healthy ageing, and a community health committee guide to healthy ageing. It also includes a variety of community mobilisation resources. The resources will also be available on the project website.

4 Findings

4.1 Indonesia

In order to assess the effectiveness of the training programme in increasing the knowledge and practical skills of the cadres to carry out the Posbindu activities, pre- and post-training questionnaires were developed and distributed among the cadres. The questionnaire consisted of 20 questions regarding the knowledge of NCDs.
The cadres filled in the questionnaire before, immediately after the training in December and four months after their training. The new cadres in Kediri filled in the questionnaire only before and directly after the training. In total, the questionnaire was completed by 23 cadres from Batang, 27 primary cadres and 26 new cadres from Kediri.
In the pre-training questionnaires, the cadres from Batang reached the mean score of 9.8 and the cadres from Kediri 10.8. Immediately after the training, the mean questionnaire score increased from 9.8 to 15.1 in the Batang district and from 10.8 to 15.6 in the Kediri district (out of 20). However, in April, four months after the training, the mean score declined to 11.0 in Batang and 11.9 in Kediri (Figure 2).

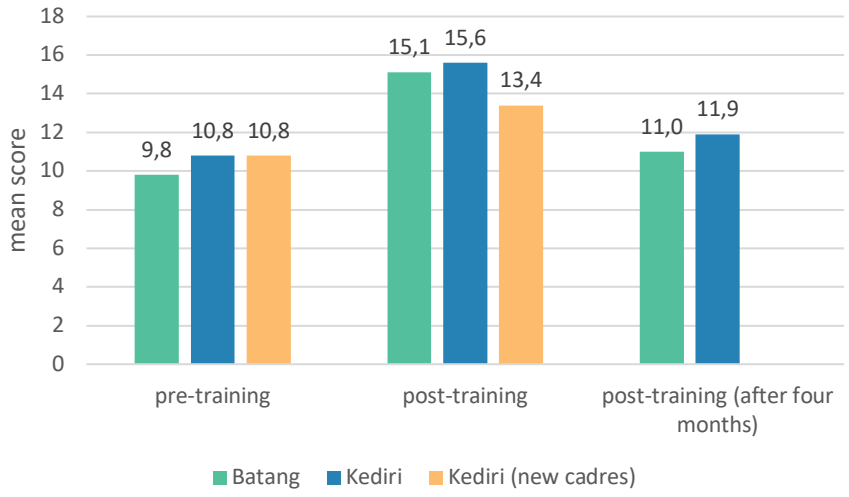


Figure 2 Mean score in the knowledge of cadres before and after training by districts

Follow-up of cadres

The cadres were followed when conducting screening activities in order to assess their skills and accuracy in triaging community members into healthy, at risk of NCD or suffering from NCDs correctly. In addition, field coordinators assessed whether the cadres are able to educate community members about NCDs and communicate with them appropriately. The checklist was based on the SUNI-SEA's training module that followed a standard perating procedure for performing practical skills. The observations were performed during Posbindu activities by a trained field coordinator in April 2022. The cadres were observed in the intervention areas (Batang and Kediri) and the control area (Jember). The cadres from Batang and Kediri achieved higher scores on most parts of the practical assessment in comparison to the control group. The majority of the cadres (77%) in the intervention site had good practical skills and 23% had sufficient practical skills. However, the field coordinators agreed the cadres from all three areas should have refresher training.

Objective structured clinical examination

Another observation of the cadres, the *objective structured clinical examination* (OSCE), was conducted to evaluate the ability of cadres to practically carry out Posbindu activities in the intervention areas (Batang and Kediri) in a year after the training. The OSCE was carried out by simulating the implementation of Posbindu activities. The checklist form focused on the use of the algorithm and conducting anthropometric, blood pressure and glucose measurements.
In total, 48 cadres were involved in the OSCE activity. The maximum score that could be obtained at each desk was 100. Subsequently, the average OSCE score was calculated. It was categorised into three groups, namely low (score 0 to 33.3), middle (score 33.4 to 66.7), and high (score 66.8 to 100). The results of the analysis showed that the percentage of cadres who scored in the high category was higher in Kediri (91%) than in Batang (67%), and there were no cadres with low scores in either Batang or Kediri (Figure 3).

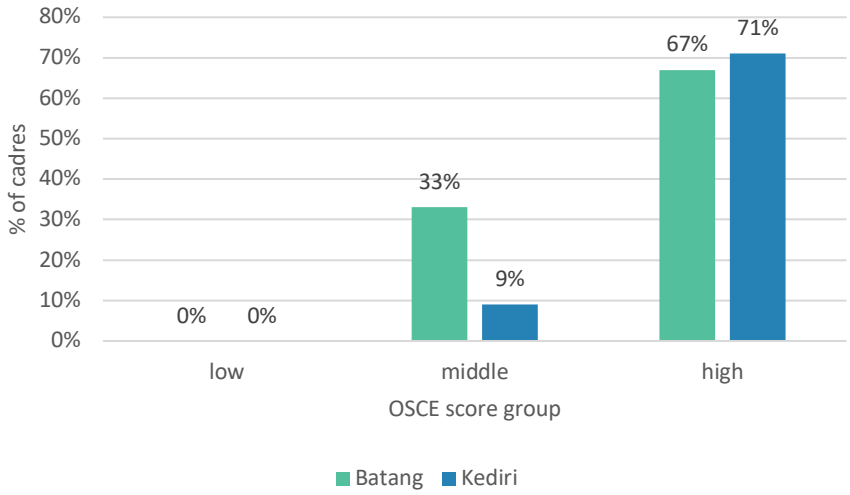


Figure 3 Distribution of cadres by OSCE score groups and districts

Knowledge, attitude, and practice of cadres

A questionnaire was prepared to determine the level of *knowledge, attitudes and practices* (KAP) of cadres regarding NCDs and healthy lifestyle. It was administered to cadres in the intervention areas (Batang and Kediri), and cadres in the control areas (Solo and Jember) as a comparison. In the intervention areas, the questionnaire was filled in by the cadres less than one month after the training. The KAP questionnaire consisted of 75 questions. It was completed by 28 cadres from Kediri and 21 cadres from Batang. In the control areas, it was collected from 13 cadres in Solo and 15 cadres in

Jember. The results showed that the level of cadres' knowledge and attitude in the intervention areas were higher than in the control areas, but the practice of cadres in the intervention areas was quite similar to the cadres in the control areas.

Results from focus group discussions

Focus group discussions with cadres, PHC staff, heads of Puskesmas and district health officers were organised to explore their perspectives regarding the implemented project activities. The cadres trained within the SUNI-SEA project consider the training sessions to be very useful for them in getting knowledge on NCDs as well as gaining practical skills on screening for NCDs and their risk factors. The training provided to the cadres also enhanced their knowledge of how to use medical devices and help them practise health checks independently.

"From SUNI-SEA's training, we got a lot of knowledge. Previously, we didn't know how to use medical devices, now we know, and we also know about non-communicable diseases, so if asked by people around us, we can answer right away." ***(cadre, Batang)***

The leaflets provided by the SUNI-SEA project assist cadres in providing education to community members. They are also distributed to Posbindu participants so the information can be spread to their families at home, and they also serve as an invitation for other community members to attend Posbindu activities.
The assistance of the SUNI-SEA field coordinator during Posbindu activities is very helpful for cadres, especially when there are many participants, thereby increasing the enthusiasm of the participants because the queues are not too long. The Posbindu-SMART application (the meaning is SMART behaviour which contains a message for controlling risk factors of NCD) helps cadres in conducting education because the results of the examination have been displayed in the application.
The PHC staff stated that the training provided by the SUNI-SEA team members is beneficial for the cadres, who are now much more active and confident in screening activities. Thanks to the training, they became more capable of taking measurements and providing education to community members.

"After the training, the cadres' knowledge has clearly increased, and their skills have also improved. I see that sometimes the participants don't go to the officers, but the cadres can directly educate them too. In the past, the cadres maybe lacked confidence, but now they are more professional."
"Empowering cadres is very beneficial because they are our spearheads in society." (PHC staff, Kediri)

4.2 Myanmar

Training for health volunteers

In Myanmar, 30 health volunteers have undergone training on self-assessment and health education tools for screening for NCDs and mental health. Their knowledge of healthy lifestyle and the risk factors, prevention, complications, and symptoms of NCDs has increased after the training from 64% to 80% in Pindaya and from 56% to 80% in Yangon, Mandalay and Ayeyarwaddy regions when comparing the results from pre- and post-training questionnaires.

"I believe I will be able to do social work more effectively when I return to the village because I gained new health knowledge and learned how to conduct health checkups properly during this four-day training. When I get home, I will read again the notes I took during the training and the books the trainers gave." (U Htun Htun, health volunteer, Mandalay region)

NCD public health modules

The modules were developed in order to increase the capacity of front-line public health workers in the prevention, management and control of NCDs. Pilot testing was organised as a four-day event in which 17 individuals from a variety of CBOs actively participated. All of them filled in a short questionnaire, and four participants provided more in-depth feedback. The overall feedback was positive. The median score was 4 for each question which could be answered on a Likert scale from 1 (not very happy) to 5 (completely satisfied). The Likert scale items assessed the perception regarding the overall rating of the platform, ease of use and navigation, content meeting learners' expectations; satisfaction with opportunities for engagement with other learners; the course materials are engaging and interactive; usefulness of quizzes and discussion prompts for reinforcing the learning process; and skills provision. When the mean score was calculated, the overall rating of the platform was 4.3. The score was the lowest for the item assessing the engagement with other participants (3.9) (Figure 4).

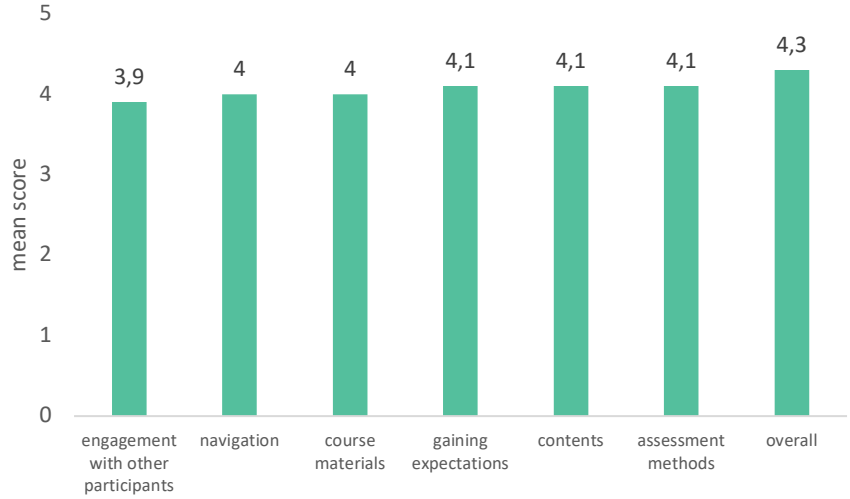


Figure 4 Mean rating score for the items regarding the perception on online learning platform usage

Almost all the participants (94%, n=16) would recommend the platform to other people. Nearly two thirds of the participants (65%, n=11) agreed that the length of the course was appropriate. However, over one third of them would add more time to some of the modules.
The participants were especially satisfied with the lecturers, content, videos, methods of learning and quizzes. They plan to share the gained knowledge as well as this training with their colleagues, families and other people from their environments and apply the knowledge and skills in their professional lives.

"It is very useful to gain knowledge on how to change our lifestyle. I can share the information and knowledge among family, friends, community, and among the staff within my organisation."
(participant in the pilot testing)

Most participants proposed more figures, and images, as well as quizzes and opportunities for discussion in order to improve the platform. They suggested that the platform should be promoted with the help of other organisations; a mobile version of this NCD public health module should be developed, and more courses (in Burmese) focusing on certain NCDs such as hypertension should be prepared. The HelpAge International Myanmar team plans to continue the development of the NCD modules and incorporate new features and functionalities into the modules.

4.3 Vietnam

PHC staff training

A self-administered questionnaire was distributed to PHC staff before and after the training to be completed under the supervision of the Health Strategy and Policy Institute researchers. Overall, 102 doctors and assistant doctors working at CHSs and district health centres in Ninh Binh and Hai Phong took part in the baseline survey and 105 in the endline survey. The difference in the sample of PHC staff in the baseline and endline surveys was caused by changes in personnel arrangements, such as retirement and relocation of the staff.

The results demonstrate a significant improvement in the knowledge of PHC staff regarding several topics related to the diagnosis and treatment of hypertension. These topics include the procedure for measuring blood pressure, the blood pressure threshold for diagnosing hypertension, the criteria for referring patients to a higher level of care, and the frequency of blood pressure monitoring (Figure 5).

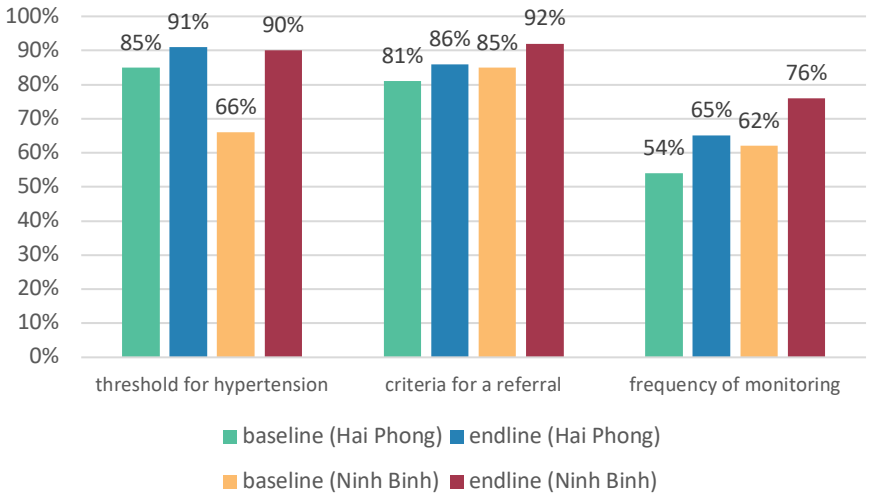


Figure 5 Percentage of PHC staff responding correctly to the questions related to management and control of hypertension by provinces in the baseline and endline surveys

Similarly, the knowledge of CHS physicians regarding the diagnosis and treatment of diabetes improved after the training. More doctors provided correct answers related to the risk factors of diabetes, first-line treatment for diabetes, and referring patients to a higher level of care. Particularly, the percentage of doctors in Hai Phong who knew about first-line diabetic medications more than doubled in the endline compared to the baseline survey (Figure 6).

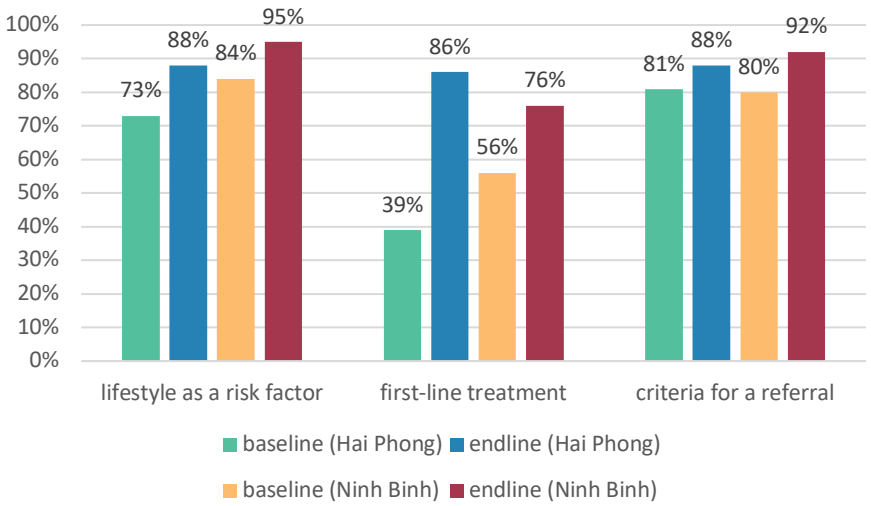


Figure 6 Percentage of PHC staff responding correctly to the questions related to management and control of diabetes by provinces in the baseline and endline surveys

When comparing baseline and endline surveys, the findings indicate positive changes in physicians' practice regarding the treatment and management of hypertension at CHSs. Clinicians reported an increase in providing health education, which encourages patients to maintain a healthy lifestyle and adhere to treatment. In the endline survey, 100% of physicians reported that they were able to include health education as a routine practice during medical appointments with hypertensive patients. Additionally, the percentage of physicians in Hai Phong performing regular health monitoring for patients almost tripled compared to the baseline survey (20 vs 56%).

On one hand, positive changes were observed in physicians' practice of asking and recalling patients' medical histories and risk factors in both provinces. On the other hand, there was no significant improvement in their performance of physical examination during a typical medical appointment with hypertensive patients. Most physicians reported that they were unable to provide any para-clinical tests due to the unavailability of testing devices at CHSs.

Regarding the treatment practices, calcium channel blockers, primarily amlodipine, were the most prescribed antihypertensive medicine by physicians in both provinces. It appeared that physicians had a wider range of antihypertensive medicines to choose from when prescribing to patients. Specifically, at the endline, all groups of medications had been prescribed at CHSs in Ninh Binh, compared to the physicians' practice at the baseline.

CHS physicians were more likely to provide a wide range of health education topics to patients with hypertension after the training was provided. The most common medical advice given to patients with hypertension was related to maintaining a healthy diet and lifestyle, which included recommendations to reduce salt intake, consume more fruits and vegetables, engage in physical activity, and avoid harmful alcohol use (Figure 7).

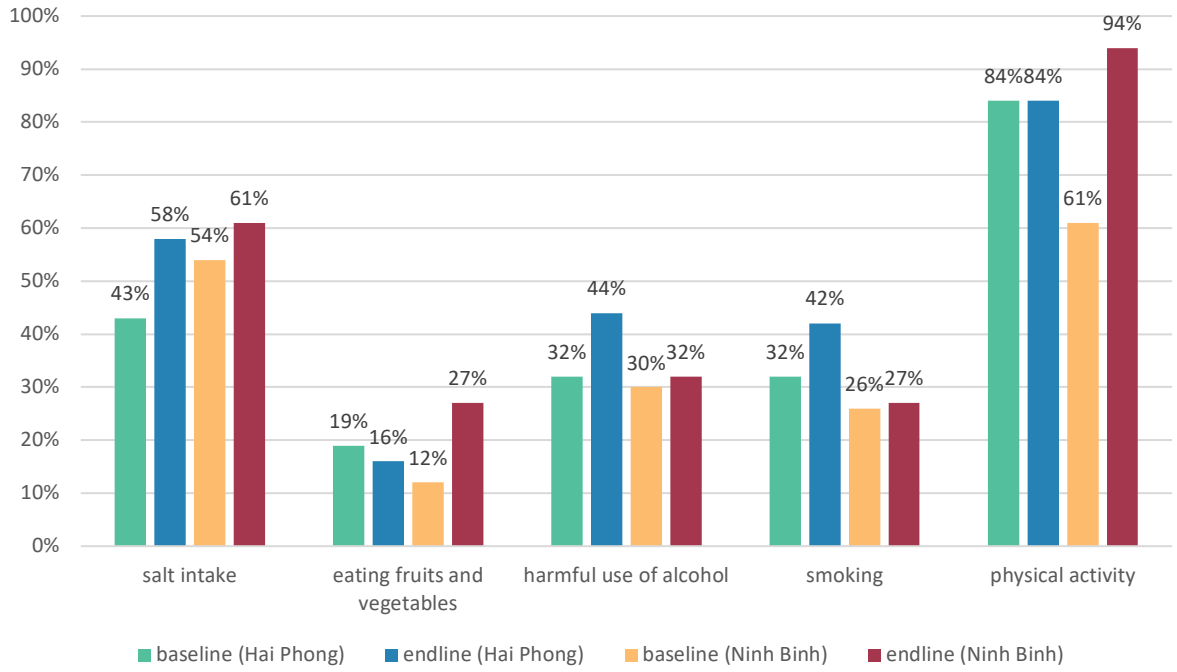


Figure 7 Percentage of PHC staff providing health education to patients by health topics and provinces in the baseline and endline surveys

The usefulness and application of SUNI-SEA training for clinical practice

Nearly 100% of health workers who participated in the training expressed their appreciation for the valuable knowledge and materials provided. However, the study revealed that only up to one third of physicians were able to fully apply the knowledge and skills acquired from the training course on screening, diagnosis, and treatment of hypertension. The percentage for diabetes was even lower.
This can be attributed to the limited range of available anti-hypertensive medications at local CHSs. The qualitative data emphasise the issue of interrupted supply and poor availability of anti-hypertensive medications at most CHSs. Furthermore, approximately 90% of physicians reported that topics related to diabetes were not practically applicable at CHSs where diabetes treatment was not available.
Most respondents (98%) can partly or fully apply the knowledge and skill learned from the training class on health education and health planning in their practice at CHSs.
All CHS physicians surveyed found the simplified guidelines of significant value and applicable in practice. Additionally, approximately 93% of physicians reported using the guidelines as a resource for health education during face-to-face patient counselling. Furthermore, around 80% of physicians disclosed that these guidelines served as a practical manual, assisting them in adhering to the clinical guidelines.
Needs for additional training on hypertension and diabetes were indicated in the endline survey. Almost all health workers would welcome training combining theoretical and practical parts and prefer professionals from the provincial or national level.

Knowledge, attitudes, and practice of patients treated at commune health stations

The training of the PHC staff could also contribute to the changes in the KAP of patients treated at CHSs. Their knowledge regarding hypertension and its risk factors has significantly improved when comparing the mean knowledge score of the baseline and endline surveys from 11.3 to 13.0. Differences in the attitudes of the patients can also be found. The mean attitude score increased from 3.9 to 4.3.

Based on the results of the endline survey, medication adherence has increased after the interventions. Although the high medication adherence is still very low, there was a significant increase in medication adherence assessed as moderate, especially in Ninh Binh. In total, 76% of patients had a moderate and high level of medication adherence in the endline survey compared to 67.5% in the baseline survey (Figure 8).

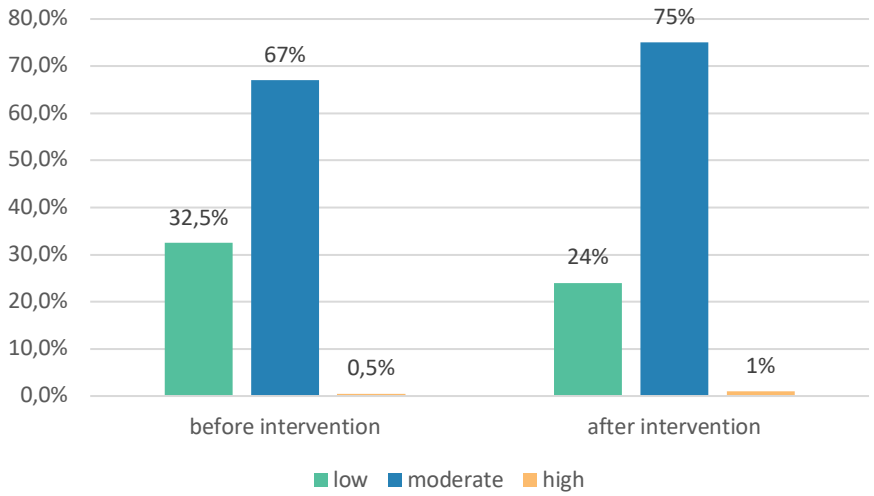


Figure 8 Distribution of patients by adherence to antihypertensive treatment before and after the intervention

Health volunteers training

In total, 484 participants completed pre- and post-training questionnaire surveys. Over two thirds of the volunteers were females (67.5%), and almost one third were males (32.5%). The mean knowledge level has significantly improved from 69% of correct answers to 86% among the participants younger than 60 years, from 67% to 82% among the participants in the age group between 60 and 70 years, and from 68% to 80% in the participants older than 70 years.

Knowledge, attitude, and practice survey among health volunteers

A survey on KAP was conducted among 37 community volunteers before and after initial training, and before and after refresher training. The training improved knowledge among community health volunteers. However, their attitude and practice did not improve. The gained knowledge decreased six months after the training and a refresher training did not fully restore the lost knowledge on prevention and management of NCDs. Based on a focus group discussion, it was revealed that emphasis on practising, applying different learning methods, enough leisure and fun time, efficient coordination of time located for theory and practice, and handout materials could act as potential mechanisms for improving KAP. On the other hand, large groups, and difficulties in learning how to apply a digital application for screening results may be mechanisms for a decrease in KAP regarding the prevention and management of NCDs.

The Head of the Tien Thang CHS, Ms. Pham Thi Nhung, commented on the Intergenerational Self-Help Club's health care activities:

"I found the activities of the ISHC very useful. ISHC is an "extension arm" of CHS that helps to provide PHC for the locals. CHS has a very close relationship with the Commune Association of the Elderly and Intergenerational Self-Help Clubs."

"When participating in the training class, I learned new knowledge about hypertension, diabetes, and skills to screen the risk factors for these two diseases for club members. Along with the theory sessions, I also directly participated in the practical sessions during training classes. The practical sessions helped me, and other volunteers not be confused when conducting screening at the club."

Mrs. Trinh Thi Dao, health volunteer of Cam Khe ISHC, Toan Thang commune, Tien Lang district, Hai Phong city

5 Challenges

Given the project started in 2019, it has been affected by two significant events. Firstly, the project activities were disturbed by the restrictions which were imposed by the governments due to the COVID-19 pandemic in all three project countries. The second event, the military coup in Myanmar, had a tremendous impact on the project course in this country. Despite the substantial constraints, the project activities could progress after some adjustments.

Regardless of the usefulness of the guidelines developed and training provided to health volunteers and PHC staff, they encountered several challenges in practice which prevented them from applying all their knowledge and skills. A substantial part of the challenges is related to a lack of resources, either a lack of devices, medicines, human resources, or time.

The field coordinators in Kediri and Batang districts (Indonesia) indicated that the time and resources for NCD screening were not sufficient. Shortage of blood test strips causes that community members have to pay for them or wait until they are again available for free. The lack of cadres could be at least partially solved by providing all of them with some incentives which would attract more community members to become cadres.

In Hai Phong and Ninh Binh (Vietnam), most physicians were not able to conduct any paraclinical tests due to the unavailability of testing devices at CHSs. Only up to one third of physicians were able to fully apply the knowledge and skills gained from the training course on screening, diagnosis, and treatment of hypertension due to the issue of interrupted supply and poor availability of antihypertensive medications at most CHSs.

6 Lessons learned

- The integration of prevention and management within primary healthcare systems is vital for the effective scaling-up of interventions.
- Training provided to healthcare and community health workers increases their knowledge and improves the skills needed to take care of patients and communities. However, there is a need to deliver refresher training after a few months to keep the knowledge and skills of workers at the required and the most up-to-date standards.
- Training materials were found critical for the sustainability of scaling-up the comprehensive community-based and primary health facility-based programmes.
- Given different cultures and contexts, it is useful to adapt training materials to local conditions. This can be done by using a guideline developed within the SUNI-SEA project *Guideline for adaptation of community-based health interventions to culture and context.*
- National and international guidelines were found to be too complex to be used by healthcare workers and implemented in practical clinical settings.
- Reviewing global international guidelines was supportive in developing national versions.
- Simplified guidelines effectively support face-to-face counselling and encourage patients to adhere to medical treatment and modify their lifestyles.
- Simplified guidelines for PHC staff and health volunteers are useful for enhancing their use and increasing the efficacy of PHC and behavioural change procedures.
- Barriers to implementing guidelines into preventive and clinical practice are mostly due to a lack of local resources (health care professionals, medicines, finances).

7 Conclusions

By focusing on evidence-based policies and awareness and education, the WP3 demonstrated the feasibility of implementing effective strategies that address the risk factors and promote healthier lifestyles in vulnerable populations with significant burdens from hypertension and diabetes. One crucial aspect of scaling-up interventions in hypertension and diabetes prevention is raising awareness and educating the population about the risks, causes, and consequences of diseases. Through community-based campaigns, healthcare providers disseminated information about healthy lifestyle practices, including maintaining a balanced diet, engaging in regular physical activity, and managing stress in some project sites. Furthermore, educational initiatives emphasised the importance of regular NCD screenings. By addressing the multiple determinants of both diseases, a comprehensive approach promised sustainable impact and long-term behaviour change. It helped to create supportive environments, improved access to healthcare, and empowered individuals to take ownership of their health.

The scaling-up is an integrated component of the SUNI-SEA project. It is built on three dimensions, as defined in work package 1, horizontal scaling-up, vertical scaling-up, and quality. The dimension of quality was a crucial element of the scaling-up strategy. WP3 contributed to this dimension by improving the knowledge and skills of primary healthcare workers, cadres and health volunteers through training adapted to their needs, culture, and local context.

The quality of services was also enhanced by providing PHC staff with simplified guidelines which are easier to follow and serve as an educational tool during consultations with patients and clients. In the endline survey, PHC staff reported an increase in providing health education to patients, which resulted in higher adherence to treatment. After the training, the PHC staff prescribed a wider range of antihypertensive medications. Thanks to the training provided to cadres and health volunteers, the services can be offered to more people in areas where health services are hard to reach. This can help to diagnose more people at earlier stages of diseases through the created synergies between communities and primary care.

Educational materials and guidelines created within the project are expected to be included into further development of capacity building for health volunteers and PHC staff.

A global technical working group was formed in 2022, consisting of members from the HelpAge International country teams and network partners from 12 countries in Africa, Asia and Latin America regions and SUNI-SEA consortium members to ensure a wide dissemination of the SUNI-SEA project community training resources. The working group has been preparing the package of training resources which will be disseminated by working group members based in each of the HelpAge regions and via a HelpAge International online library accessible to network members across the globe and to other stakeholders.

Overall, the results from comparing the baseline study with those after intervention indicate that technical support for participating sites to improve the guideline adaptation and capacity building for local PHC staff and community volunteers was effective and provided a firm basis for further scaling-up activities, thus sustaining the WP3 efforts. The repository of materials made publicly available can support future development and activities for the benefit of population health.

One of the project's ambitions is to contribute to the adaptation of international guidelines, tools and instruments related to hypertension and diabetes. The lessons learned from the SUNI-SEA project countries can also be applied in other countries. The educational materials and guidelines developed within the project will be shared not only via the project website but also through maintaining contacts with the Global Alliance for Chronic Diseases. In addition, they will be disseminated to other networks of the project partners and relevant stakeholders at the national as well as international levels.

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