

## Simplified non-communicable diseases screening algorithm



### SUNI-SEA Indonesia

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### **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 is being implemented in Indonesia, Myanmar, and Vietnam. This four year initiative began in 2019 and is 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.

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:**

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## Introduction

The increasing trends of Non-Communicable Diseases (NCDs) in the world, including Indonesia, require targeted and specific primary and secondary prevention.<sup>1,2</sup> Almost 1 in 3 adults in Indonesia have hypertension, but only less than 30% were aware of their hypertension status, and only 47% of people with Diabetes were aware of their Diabetes status.<sup>3</sup> Therefore, hypertension screening is an important strategy to address increasing NCD burden in Indonesia.

The Ministry of Health (MOH) in Indonesia launched the Integrated Health Post (Posbindu), as a community-based screening and prevention program for NCDs. However, previous studies have reported suboptimal implementation of Posbindu. This includes the lack of younger male participation, with more than 80% of participants were female, and more than 50% were more than 50 years old. Less than 25% of the visitors reported to be interviewed for NCDs risk factors during their first visit, less than 80% had anthropometric measurements, and less than 15% had blood cholesterol examinations.<sup>4</sup>

In addition, other studies also state that although effective pharmacological treatment is available, adherence to antihypertensive medications in patients with type 2 diabetes is known to be suboptimal. Notably, nonadherence to antihypertensive medication is associated with poor health outcomes.<sup>5,6,7</sup>

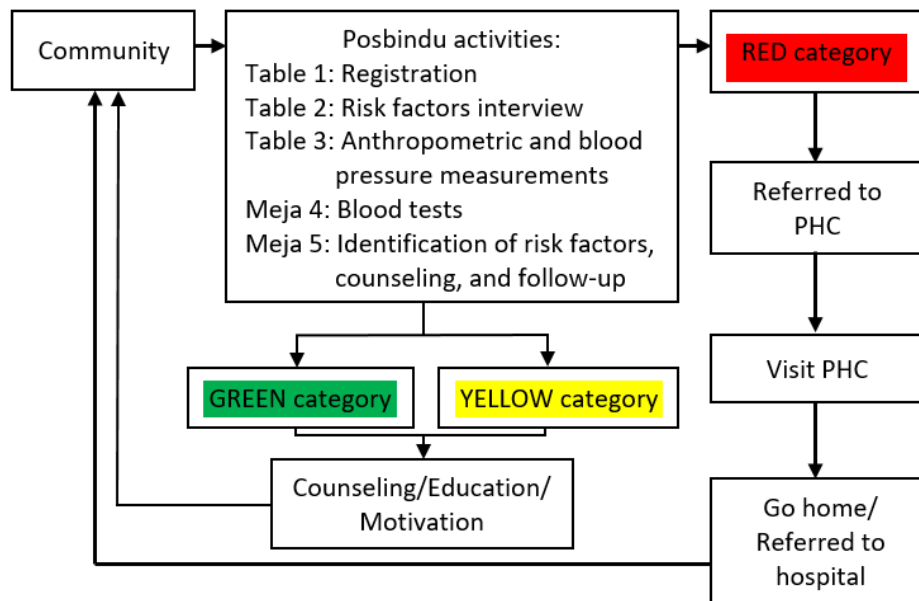
And while there is a national guideline on NCD screening, however, our previous evaluation reveals the need for operational tools for the cadre. The SUNI-SEA aims at increasing services for NCD prevention and control in the community in Indonesia, by implementing a simplified algorithm for community-based screening. This initiative is coherent with the ongoing primary healthcare integration as a part of health systems transformation in Indonesia.

## Evidence from the SUNI-SEA project

### *Development of simplified screening algorithm*

The SUNI-SEA team developed a simple screening algorithm to be used to identify people with NCD-risk factors, especially hypertension and diabetes and to identify those who need referral. The development of the screening algorithm includes: (1) Delphi survey among the panel of experts related to the available guidelines that can be used by cadres; (2) Development of both manual and apps versions of simplified screening algorithm; (3) Pilot and training among cadres; (4) Improvement for better implementation.

**Figure 1: Simplified algorithm of community-based noncommunicable diseases screening through Posbindu**



### ***Implementation of simplified algorithm***

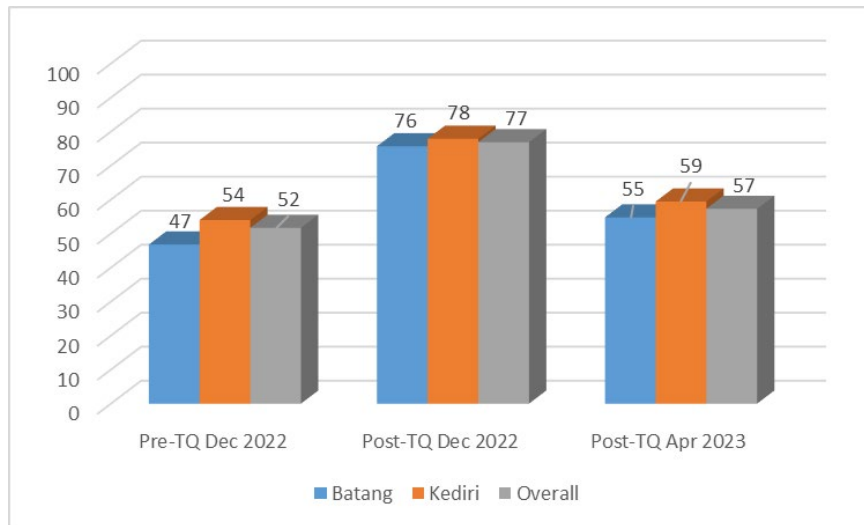
The simplified algorithms were implemented in 2 intervention districts. For each district, 5 Puskesmas and 15 Posbindu were selected randomly. The implementations were conducted through: (1) Training of cadres; (2) Monitoring and evaluation process.

#### **1) Training of cadres**

The training includes interactive sessions to improve knowledge and attitude regarding NCDs and the algorithm. Followed by practice sessions and simulation to improve skills and practice. In total 92 cadres were trained in 3 training sessions in Batang (1 session) and Kediri (2 sessions). Immediately after the training knowledge level increased, but decreased again after 4 months of training (Figure 2).

Skills levels showed little improvement immediately after the training and one year after the training. This shows that for maintaining levels of knowledge and skills regular supervision, on-the-job training and refresher courses are needed.

**Figure 2: Pre-post training questionnaire (TQ) scores in Batang and Kediri**



The simulation and practical training were reported to improve cadres' skills, as reflected by the results of interview and focus group discussions. Cadres feel that the practical activities in the training held by the SUNI-SEA team can add more skills in implementing algorithms and doing the health checks in Posbindu activities.

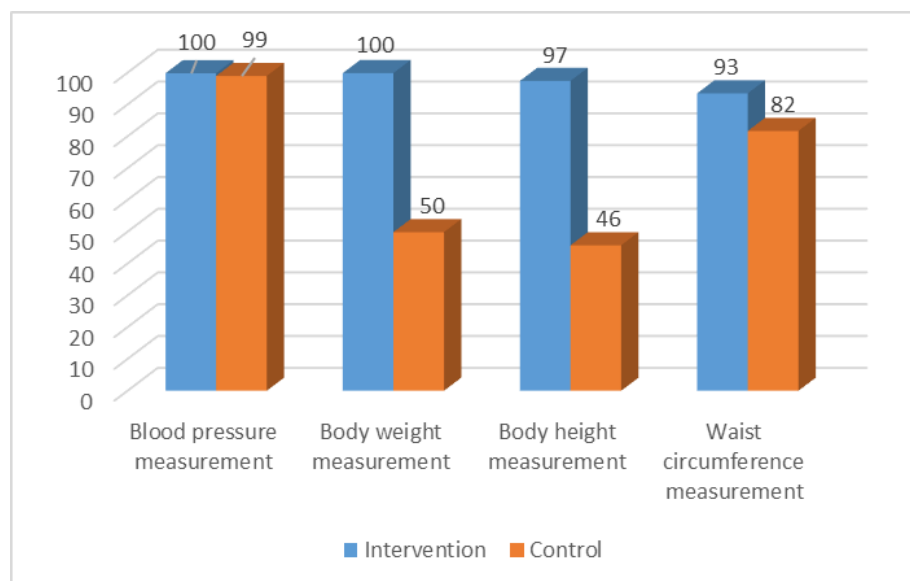
*"The cadres have been able to check blood, have received sticks for glucose check, many cadres have come to check blood glucose for free, and have attended SUNI-SEA training and also training from PHC to take measurements."* (Health worker from PHC in Batang).

*"After the cadres training from SUNI-SEA, we become more knowledgeable about Posbindu activities and know about non-communicable disease and also how to prevent it. We were also trained to carry out health checks at Posbindu. We become able to do the health checks at all tables in Posbindu activities..."* (Cadre from Kediri).

## **2) Monitoring and evaluation process**

The observational checklists were developed to gain insight into how well the cadres screen people for NCDs at Posbindu. The checklists were based on SUNI-SEA's training module that followed a standard operating procedure for performing practical skills.

**Figure 3: Fidelity of NCDs risk factor screening among Posbindu participants based on observation during Posbindu activities**



Note: The bars represent the proportion of measurement events of each risk factor among Posbindu participants

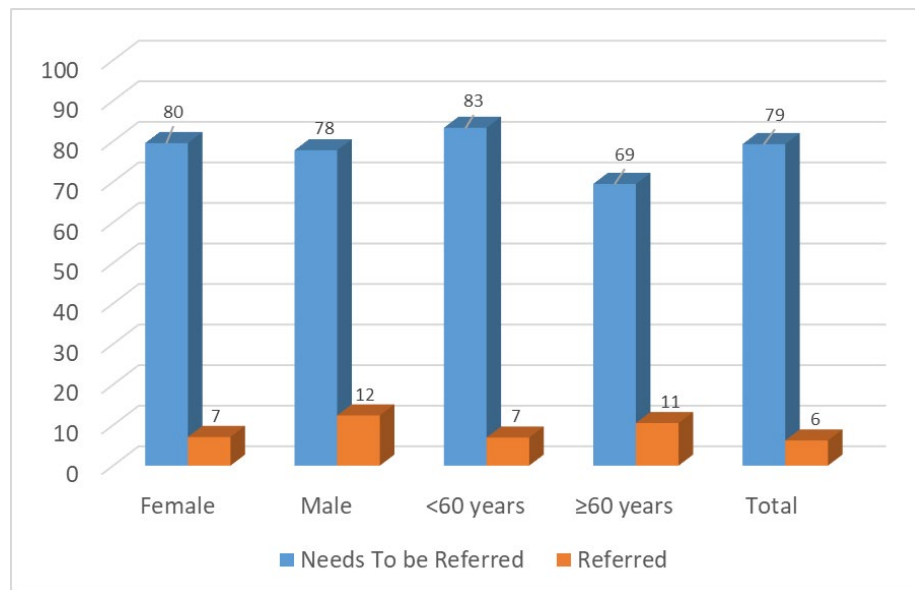
The improvements were also reflected in Posbindu participants' satisfaction. These are quotations from Posbindu participants in the intervention area:

*"Posbindu activities really helped me, I could know my health conditions regularly through blood pressure and blood glucose checks in the Posbindu activities."* (Posbindu Participant from Kediri).

*"After joining Posbindu, I understand NCDs especially from the education given and the papers given to me (SUNI-SEA's leaflet). It is also really helpful for me because we are able to check our health at Posbindu, such as controlling blood pressure and blood glucose."* (Posbindu Participant from Kediri).

We also obtained data regarding referral to Primary Health Care, for a subsample of participants. We recorded that from 79% of high-risk participants (both from NCDs risk factors and examination), only less than 8% of them were referred (Figure 3).

**Figure 4: The proportion of high risk and referral of Posbindu participants (selected samples)**



The reasons for non-referral include the participants were advised to go to the next Posbindu activities (55.6%), the participants were given medicine during Posbindu activities (22.9%), the participants were given education to maintain a healthy lifestyle (10.2%), and other reasons (11.3%). Other reasons for non-referral were rather i.e. they were having routine self-medication (family doctor, patient remains in hospital/health center/midwife), the participants prefer to buy medicine by themselves at the pharmacy rather than to go to the PHC, and there were barriers in accessing healthcare such as the distance to next healthcare center, etc.

*“PHC (Puskesmas) only motivates them to come to the PHC, and usually those who don't come because they feel there are no complaints or health matters, so they don't go to the PHC.”* (Health worker from PHC in Kediri).

*“The PHC is far away from my home, so even though it's free, there are still costs for a motorcycle taxi or transportation to get there and the costs can be more expensive than the medicine. So it's better to go to the midwife or just buy medicine in the pharmacy, even though I have to pay, it's closer to my home.”* (Posbindu participant from Batang).



The SUNI-SEA project developed training includes interactive sessions to improve knowledge and attitude regarding NCDs and the algorithm

“After the cadres training from SUNI-SEA, we become more knowledgeable about Posbindu activities and know about non-communicable disease and also how to prevent it. We were also trained to carry out health checks at Posbindu. We become able to do the health checks at all tables in Posbindu activities...” (Cadre from Kediri).



The SUNI-SEA project developed an operational and simple screening algorithm to identify people with NCD-risk factors.

“After joining Posbindu, I understand NCDs especially from the education given and the papers given to me (SUNI-SEA’s leaflet). It is also really helpful for me because we are able to check our health at Posbindu, such as controlling blood pressure and blood glucose.” (Posbindu Participant from Kediri).

## Policy recommendations

The simplified algorithm improves cadres’ fidelity in providing community-based screening, particularly for hypertension and diabetes mellitus

There is a need for repetitive training, in the form of initial training with simulation, videos for review, and on-the-job or refresher training

There is a need for an offline based app due to some challenges in implementation of app-based algorithm, particularly in rural areas with difficult internet connectivity.

Improvement of linkage to care for management of high risk population identified in community-based screening



## Roles and responsibilities of stakeholders

Stakeholders	Recommendation
Ministry of Health	<ul style="list-style-type: none"> <li>• Integrate the simplified algorithm that are simple and operational into existing NCDs screening program, including strengthening of linkage to care</li> <li>• Involve multi sector stakeholders in NCDs prevention, as target participants and active leaders in addressing social determinants of health.</li> </ul>
Province and District Health Office	<ul style="list-style-type: none"> <li>• Step up investments in primary health care so that more people can have access to integrated quality health care services closer to where they live.</li> <li>• Build the capacity of PHC health staff in planning and management of resources for NCD prevention and control</li> </ul>
Primary Health Care	<ul style="list-style-type: none"> <li>• Involve local stakeholders in NCDs screening in the community</li> <li>• Allocate funding and resources for cadres' training and retraining of using simple screening algorithm</li> </ul>
Village and Community Stakeholders	<ul style="list-style-type: none"> <li>• Allocate funding for NCDs screening at the community level from village funds or other community-based funding</li> <li>• Engage community members to be actively involved in NCDs screening</li> </ul>

## Conclusion

The SUNI-SEA project developed an operational and simple screening algorithm to identify people with NCD-risk factors. The algorithm improved the implementation fidelity among cadres. Hence, the simplified screening algorithm could be used for tools to strengthen NCD screening as a package of community-based health services by the cadres. However, repetitive training for cadres with methods of simulation, video review and on the job refresher training are needed. Hence, to improve the sustainability, we call for action from village/community authorities, primary health care and province/district health offices to allocate financing support for the implementation of the NCDs algorithm.

## Endnotes

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