Barriers and Facilitators for Including Village Health Workers (VHW) in Non-communicable Diseases (NCDs) Prevention and Control in Chi Linh District, Hai Duong Province, Vietnam

by

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in the Global Health Program in Duke Kunshan University and Duke University

2017
ABSTRACT

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Abstract

The burden of non-communicable diseases (NCDs) continues to grow in Vietnam. Recently, Vietnam government initiated a new national plan with a strong focus on NCD prevention and control in the community. This study is intended to investigate the current role of Vietnamese village health workers (VHWs) in preventive and NCD-related care, and to explore the barriers and facilitators to expand the role by including routine community-based NCD prevention and control services. From June to July 2016, four focus group discussions with VHWs (n=24) and thirteen in-depth interviews (n=13) with public health administrators (n=13) were conducted in Chi Lin District, Hai Duong Province, Vietnam. A thematic analysis was conducted to identify themes in the data. The participants identified health education, program outreach, and case management as the current responsibilities of VHW. In NCD programs, VHWs provide these services mostly to hypertension and diabetes patients. Majority of the participants endorsed the idea of incorporating NCD early detection and risk reduction into VHW role, and thought their close connection with community justified their strength in conducting these services. Currently perceived barriers included aging VHW, insufficient NCD-related knowledge, poor training quality, imbalanced workload and remuneration, lack of resource, and policy-driven guideline. While, participants believed that upon empowering through training, guidance, and proper incentive, VHWs would serve as
effective NCD risk detector and healthy behavior promoter in their communities. The study indicates that, with interpersonal, organizational and policy support, VHWs may have the potential to conduct routine community-based NCD early detection and risk reduction activities in Vietnam.
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1. Introduction

1.1 Non-communicable Diseases (NCDs) in Vietnam

Vietnam, with a population of 91.7 million in 2015, is a country with outstanding economic gains in the recent decades. After a long history of internal and external conflicts lasting from 17th to the middle of 20th century, the country has been united under the single authoritarian leadership of the Vietnam Communist Party and gone through a series of marketization economic reforms (i.e., Doi Moi in Vietnamese), transiting Vietnam from one of the world’s poorest countries into a lower middle-income country.\(^1\) According to the new poverty line updated from 1.25 US dollar in 2008 to 1.90 US dollar in 2015, Vietnam has been categorized as a middle-income country by the World Bank.\(^2\)

In line with other middle-income countries with drastic economic development, the epidemiological profile in Vietnam is also experiencing a rapid switch from infectious diseases to a high and growing burden of non-communicable diseases (NCDs). According to the Global Burden of Disease 2015,\(^4\) 532,275 death cases were attributed to NCDs, accounted for 80.49% of the total death cases in Vietnam. The proportion of NCD-related Disability Adjusted Life Year (DALY) increased 21.71% (52.13% - 73.84%) from 1990 to 2016. The proportion of premature (between 30 and 70 years of age) death of the total NCD death case is 43% by the WHO estimation.\(^5\) The top four causes of death in Vietnam are all NCDs: cancer, stroke, heart disease, and Chronic Obstructive
Pulmonary Disease (COPD). High-blood pressure, chronic obstructive pulmonary
disease (COPD), asthma, diabetes and cancer are the major causes of NCD deaths. In
2010, the survey organized by the National hypertension control program revealed that
28.3% adult males and 23.1 females in the community are hypertensive, while less than
half of them (48.4%) were aware of their condition once, less than 30% had treatment,
and the control rate was as low as 10.1%. 82.4% of the participated individuals had good
knowledge about high blood pressure. People acquired information on hypertension
from mass media and three quarters of them would seek for hypertension-related care in
CHCs. One recent review of nationally representative surveys conducted by Nguyen
and Hoang summarized that, from 2002 to 2015, the prevalence of hypertension among
adults aged above 25 increased from 15% to 20%. However, no follow-up survey data
was available to assess the change in the awareness or control rate after 2010. The
diabetes prevalence among the age group 30-69 years was doubled from 2.7% to 5.4%
from 2002 to 2012. In the same period, drastic rise of prevalence also revealed by pre-
diabetes (impaired fasting glucose), increased from 7.7% to 12.8%. The estimated
diabetes prevalence among 20-79 year-old adults in 2010 was 2.9%, accounting for 1.65
million patients. This figure is projected to be 3.42 million by 2030, indicating an annual
increase of 88,000 diabetics.

Vietnam is also suffering from a high prevalence of NCD risk factors. 47.4% of
Vietnamese men and 1.4% women aged above 15 years old were smokers in 2010, with
minimal reductions to 45.3% and 1.1% in 2015 respectively. Exposure to secondhand smoking among adults at home is 73.1%, and 55.9% of workers are exposed to tobacco smoke, while over half of these (accounting for about 38 million people) are non-smokers. Vietnam is ranked as the third highest Asia LMIC for alcohol consumption per capita (12.5 liters per capita). The heavy alcohol intake prevalence rate was 5.7% among men and 0.6% among women in 2004, which has increased to 12.1% and 2% in 2008 respectively. More than a quarter (28%) of the Vietnamese adults are physically inactive, and 57% do not consume enough fruit and vegetable. Moreover, 2.3% of adult men are obese and the rate is doubled (4.8%) among women. However, the rate of obesity is much higher among the sub-population with a high risk of NCDs. The 2015 National Survey on the Risk Factors of Non-communicable Disease (STEPS) showed that, the overweight and obesity ratio among the adults within the age group 44-54 already reached 43% in urban areas and 17% in the countryside.

No updated data was found at the time of this study regarding the post-2015 economic consequences of NCDs in Vietnam. While, Abegunde et al. used a modeling estimation and reported that, in 2005, the economic loss caused by heart disease, stroke and diabetes was about 20 million US dollars in Vietnam, which accounted for 0.33% of annual national GDP. The accumulated economic loss in GDP during 2006 to 2015 was then projected to reach to 270 million US dollars, with a hypothesis that no intervention would be made. However, another empirical domestic study revealed that in 2005, the
inpatient health care cost attributed to smoking-related diseases (treatment for COPD, lung cancer, and ischemic heart disease) already accounted for 0.22% of the GDP and 4.3% of the total health care expenditure in Vietnam. Therefore, the actual total economic burden of NCDs would be much higher than the projection made by Abegunde et al.\textsuperscript{12}

The alarming increase of the NCD burden in Vietnam may firstly due to the aging demographic structure. The current average life expectancy is 71 years for male and 80 for female.\textsuperscript{14} It was projected that the proportion of the total population over sixty years old will be tripled from 9.3% in 2014 to 27.9% in 2050.\textsuperscript{16} While, according to a national survey on the elderly conducted in 2011, 56% of the elderly self-reported their health condition as weak, and 39.2% did not have health insurance card.\textsuperscript{17} In addition, socio-economic development may improve population health by increased access to nutritious food and health care services and information; it also may introduce pollution, unhealthy lifestyle which can put population at risk of chronic illnesses.\textsuperscript{18} Therefore, the prevalence and the impact of the NCD epidemic are likely to expand over time in Vietnam.

1.2 Structure of the Health Care System in Vietnam

Before introducing the actions taken to combat NCDs in Vietnam, it is necessary to first have a brief grasp of the structure of its health system.

The Vietnamese health care system is hierarchically organized into four administrative levels: central (Ministry of Health (MOH)), province (Provincial Health...
Department and Provincial Center for Preventive Medicine), district (District level hospitals and District Center for Preventive Medicine), and commune (community health centers (CHCs) The Ministry of Health acts as the top-level authority in the health sector, formulating national health policies and implementing programs. The Provincial Health Departments and Provincial Center for Preventive Medicine are administered by the Provincial People’s Committee in each province respectively. The District People’s Committee administers district center for preventive medicine and district-level hospitals covering ten to twenty communes, namely 100,000 to 150,000 persons. The district health centers provide primary care and preventive service, and the district-level hospitals provide treatment and first-level curative care. Within districts, the community health centers (CHCs) serve as the basic unit to provide commune-level and village-level public health and preventive care services, each serving for an average of 6,000 people in its surrounding community. By policy, every CHC is staffed by one physician and three to five other health professionals (nurses, midwives, assistant doctors, and pharmacists). In addition, each CHC is supported by a network of eight to twenty community health workers (CHWs) (referred to village health workers (VHWs) in Vietnam) who are members of their own communities working in CHCs as part-time care providers. CHWs are under the direct management of the CHCs and coordinate with community and social organizations.15
1.3 Vietnam's Response to NCDs

Realizing the severity of the NCD epidemic in the country, Vietnam has demonstrated consistent commitment to contain the NCD epidemic in the last two decades. However, little health gain has been achieved. This section will review the current policy and provision to control NCDs and NCD risk factors in Vietnam.

1.3.1 Policies and Provisions for NCD Control

From the initial stage, the national strategy and programs for NCDs were more focused on providing treatment and curative services. In 2002, The government of Vietnam issued the Decision No. 77/2002/QD-TTg approving the National Program on prevention and control of non-contagious diseases in the 2002-2010 period, and subsequently ratified five separate disease-specific vertical projects to be included in the overall national NCD program: the National Mental Health Program (established in 2002), the National Cancer Control Plan (established in 2008), the National Hypertension Program (started from 2010), the National Diabetes Project (started from 2009), and the National Chronic Respiratory Disease Program (established in 2011). In 2010, a Decision was made to establish a Mission for NCD prevention and control governed by the Department of Preventive Medicine. Some major initiatives in these vertically run NCD control projects include: 1) strengthening population awareness about NCD prevention and control; 2) training and developing human resources; 3) screening for early detection of NCDs; 4) managing and treating patients according to
the established guideline; 5) Developing grassroots level care guidelines; 6) integrating with commune health activities; and 7) rehabilitation and reducing disability.

These programs gained some key achievements. First, the programs provided various forms of mass media health education and information on NCDs, including television interview, broadcasting, mobile messaging and paper-based materials. Second, training was provided to all level care providers regarding NCD prevention, diagnosis and treatment. For instance, over 71,000 health care workers received training in hypertension program and 19,000 were trained in diabetes program. Community level staffs also learned blood pressure measuring, lifestyle counseling and drug treatment to prevent and control hypertension. Third, in all the NCD project, health professionals from central, provincial and district level have teamed up to visit communities and provide periodical passive screening for people at risk of NCDs.

However, multiple shortcomings also appeared in the implementation of these NCD control policy. First, these five NCD control projects are separately implemented by different organizations, despite NCDs sharing common risk factors. This has resulted in difficulties to coordinate, integrate, and implement activities and a wasteful manpower deployment.

Second, the fund for NCD programs from the government budget has been low (e.g., 2.5% of the total health care budget in 2009) and largely cut in the implementation of these projects. On one hand, this has led to narrow project coverage, collapses of on-
going local interventions, and inadequate community-level health care capacity to implement NCD prevention and management activities. For instance, the COPD and asthma control project only launched in 25 provinces, and the cancer registration only implemented in nine provinces covering one-fifth of the population. As the budget was cut for the diabetes screening by 70% in 2013, it was forced to terminate before scaling-up in some pilot sites. On the other hand, although other projects covered all 63 provinces, the service network and resource allocation were mainly focused on large cities, leading to inadequate facility for implementing NCD projects and lack of trained NCD caregivers at the grassroots level. As a result, patients still seek care in overcrowding hospitals.

Third, the activities of the projects were still centered on treatment rather than prevention. The population-based passive screening for hypertension and diabetes are costly and unsustainable, therefore was difficult to scale up. For instance, the current hypertension screening model is organized on a periodic basis as a CHC campaign for people over 40 years old. Implementing this passive screening for 25 million people requires a substantial amount of resources and is therefore not feasible for long-term execution. Meanwhile, the health insurance covering 70% Vietnam population does not cover counseling and screening for early detection; therefore, people with health insurance still have to spend out-of-pocket money for NCD prevention and diagnosis.
Fourth, as there is still no national guideline on screening for NCD early detection and a population-based information system to timely report NCDs data such as cases, treatment, and cause of death, it is difficult to closely monitor NCD status and the progress of NCD control interventions.18, 20

To summarize, the existing five national NCD programs are still centered the guidelines, funds and resources on disease treatment delivered by provincial and central level hospitals, rather than on grassroots level prevention activities. This has led to insufficient health care capacity in the primary care system, and an unavailability of community-based NCD preventive care, especially in resource-limited areas. Therefore, there is an urgent need to strengthen and integrate the NCD prevention and control services into the grassroots level health care delivery. Particularly, developing sufficient human resource capacity for NCD prevention and control by increasing the relevant knowledge and skills among health workers in the communities is warranted.

1.3.2 Policies and Provisions for Prevention and Control of NCD Risk Factors

To refine and support the preventive component in the national NCD program, The Government of Vietnam has recently strengthened policies and regulations on the prevention and control of NCDs risk factors, with social inclusion of both health and non-health sectors.

First, strong government policy efforts have been made on tobacco control. The Government Resolution No. 12/2000/NQ-CP enacted the 2001-2010 National Tobacco
Control Policy, prohibiting public cigarette smoking behavior over the country. In 2013, the nation put into effect the first comprehensive tobacco control law No.09/2012/QH13 (enacted in 2012 by the National Assembly), to legislatively regulating tobacco control activities in Vietnam. On the basis of the law, MOH and relevant ministries collaboratively issued various documents to guide the implementation and monitoring of the law, the establishment of a tobacco control fund, and the reinforcement of six key initiatives on tobacco control (i.e., health education, no-smoking signs, health warning labels on the cigarette packages, restriction on cigarette sales, prohibition of cigarette advertising, and increasing tobacco tax). Information and education on preventing and control tobacco have been delivered via mass media campaign under multi-sectoral and public-private collaboration in the locals. Smoking advertisement, marketing, promotion and sponsoring are forbidden in all forms of social media. The tobacco tax has increased to 70% of factory price, and is expected to go up to 80% in 2018.

Regarding the initiatives on alcohol control, in 2014, the Prime Minister has issued the National Policy on Harm Prevention and Control of Alcohol Abuse until 2020 (Decision No. 244/QĐ-TTg). The policy included the WHO-recommended interventions: increase alcohol tax, restrict alcohol retails, and ban alcohol advertisement. The development of legal measures on alcohol control is underway.

In terms of balanced diet promotion, the National Strategy on Nutrition for 2011-2020 includes the control of overweight, obesity, and blood cholesterol as goals for NCD
prevention and management. The Vietnam MOH established the nutrition-medical diet department in hospitals and provided training for staffs. The Ministry of Finance proposed to use tax to limit the demand for carbonated soft drinks. While, with an absence of national strategy, physical activity is promoted via mass media campaign to raise public awareness.

In general, NCD risk factor prevention and control are mainly promoted and regulated by legal documents. However, the community-based implementation is lacking and penalty for violation remains vague. Therefore, little improvement has been made on awareness and behavioral change on tobacco and alcohol use among the population. In addition, the regulation and policies on NCD risk factor control are incomplete, as no national strategies or guideline has been enacted to promote physical activities yet. Last but not the least, like in the national NCD programs, there is no evaluation on the implementation outcome regarding the mass media education, so the actual change in the awareness is not measurable.

WHO suggests that, compared to clinical treatment and legal process, community-level preventive intervention and health promotion program for chronic diseases is more cost-effective and economically sustainable. Therefore, addressing the loophole of ineffective NCD prevention and control intervention coverage by primary care system became a priority in Vietnam’s new health care agenda. On March 20th 2015, the Prime Minister ratified Decision No. 376/QD-TTg to approve the National Strategy
for prevention and control of NCDs for the period from 2015 to 2025,\textsuperscript{5,26} with a significant focus on community-based NCD risk factor control, disease prevention and early detection via multi-sectoral and integration. It also included community-based promotion and prevention as a key solution to combat NCDs in the next decade. The implementation of this new national NCD strategy will have significant impact for Vietnam in the process of achieving the NCD targets of the Sustainable Development Goal 3 (SDGs) in the 2030 Agenda.\textsuperscript{27}

\textbf{1.4 Engaging Village Health Workers to Prevent and Control NCDs}

One of the goals of the aforementioned National Strategy for prevention and control of NCDs for the period from 2015 to 2025 is to have 70\% of the adult population being aware of NCDs and their impact and prevention measures.\textsuperscript{26} As of the end of 2016, there were still 65\% of the Vietnamese lives in rural communities despite the rapid urbanization.\textsuperscript{28} This indicates a need for extensive access to NCD preventive information and services across the country. As resolving NCD problems requires enduring service provision, in order to achieve the target, mobilization of sustainable actions and resources (including fund and workforce) for expanding the prevention and control interventions among rural residents are particularly warranted. However, as the rising burden of chronic diseases has been closely associated with low physician-to-population ratio in Vietnam (0.78 physician per 1000 people in Vietnam in 2016) as well as in other
one promising workforce to improve the access to NCD preventive and control services could be the community health worker (CHW) networks.

According to the 2007 WHO policy brief, CHWs are public health workers who are selected by the communities they serve; meanwhile, they are also members of the communities. They provide counseling, preventive care, health promotion and education within community or households. They share a long-established mutual trust with community members and understand the communities' health needs and cultural backgrounds; meanwhile, they also are supported by the health systems. According to WHO, over 1.3 million CHWs are providing health-related services around the world. Despite that CHWs have less training and education than other professional health practitioners, studies from other LMICs suggested that they could be mobilized to not only contribute to improved population health via providing maternal and child care and infectious disease prevention, but also have a potential to prevent and control NCDs in limited-resource settings. In their study in South Africa, Coleman and colleagues reported that with proper support and simplified education, CHWs in South Africa could conduct early detection and case management for diabetics and hypertensives. In a large-scale randomized controlled trial in Pakistan, Jafar et al reported that CHWs could be trained to deliver home-based health education for hypertension. Also, the intervention model of CHWs plus annually trained general practitioners (GPs) was suggested to be more cost effective to reduce blood pressure
levels in the population compared to use CHW alone, GPs alone, and usual care. This model was further adapted to the development of a multicomponent blood pressure control intervention in rural Sri Lanka and Bangladesh, and examined to be feasible.

In Vietnam, the workforce of CHWs is titled “Village Health Workers (VHWs)”, therefore, the term VHWs will be used to represent this group in the study. According to Vietnam MOH, VHWs are trusted members of the local communities and voluntarily working as the most grassroots primary care personnel under the management of CHCs in both rural and urban settings. There has been no specific distinction between the rural and urban VHWs regarding their scope of work. However, in a domestic study conducted by Eriksson and colleagues, the VHWs in the rural mountainous CHCs were reported to have less training and material resources compared to those in more urbanized settings. Generally, with three to six months basic and program-specific training regulated by the MOH, VHWs serve as the initial contact points for health care services in their communities. In 2016, over 90% of the villages in Vietnam have been served by active VHWs. They execute community mobilization, community-based promotion and for communicable diseases prevention and management, hygiene, and maternal and child health. While, there has been no detailed guideline regarding their actions on NCDs until very recently. In 2016, the MOH of Vietnam issued the Decision No. 4299/QĐ-BYT, specified and expanded the responsibilities of VHWs in the NCD prevention and control under the leadership of district health care system. These include:
• Health education on NCD prevention and control;
• Counseling on risk self-assessment risks and early detection of hypertension;
• Participating in management, counseling and guiding the high risk groups to take the initiative health examination at health facilities;
• Case management, follow-up, supervision, counseling and guidance for individual-based health care and keep the adherence to home-based regimens;
• Organizing community events within patients to exchange information, and to support each other in the process of individual-based health care and home-based regimes.

Given such supportive policy environment, scarce evidence is available regarding the role and experience of VHWs in real practice of NCD-related interventions, to what extent VHWs are engaging in the national NCD programs, and the corresponding factors that may influence their perception, motivation and performance. This unavailability of information would potentially hinder the generation of feasible strategies to engage this workforce in the future NCDs prevention and control intervention delivery.
1.5 Study Objectives

This study aims to first examine the full range of preventive and NCD-related services delivered by Vietnamese VHWs, and then explore the potential of expanding their current role in NCD prevention and control.

To achieve this overall aim, this project has the following specific objectives:

- To understand the types of health care and preventive services that are delivered by VHWs and their experience in the implementation process of those services;

- To assess the extent to which VHWs are engaged in the delivery of NCD care;

- To explore the barriers and facilitators of expanding the current VHW role in the delivery of NCD care.
2. Methodology

2.1 Conceptual Framework

The term *including* in this paper was used to describe a process of occupying efforts or attracting the attention of VHWs to include NCD-related services into their routine work. The completion of such process indicates a necessity of attitude and behavioral change of VHWs. The conceptual framework of this study was adapted from the concept of Bronfenbrenner’s ecological behavior model. This model hypothesizes that human behavioral change is affected by multi-level factors from the internal and external environment. Generally, a VHW not only acts as care giver in the community, but also serves as a supportive linkage to connect community to the health system; this indicates multi-level interactions among different actors. Literature also revealed that CHWs motivation, performance, satisfaction and retention of carrying out work are associated with intrinsic factors such as passion and responsibility, as well as contextual factors such as community trust and government policies. Therefore, we assume that the barriers and facilitators of engaging VHWs in NCD service delivery are from both internal and external sources, and adapted the ecological behavior model as a platform to develop the preliminary conceptual framework for this study.

2.2 Study Site and Participants

The study was conducted in the Chi Linh district, Hai Duong Province, Vietnam. Chi Linh is an urbanizing district located in the northeast of Hai Duong Province in the
Red River Delta region of Vietnam (See Figure 1). It is about 60 km northeast of Hanoi. The area of the district is 281 km square, covering 8 wards and 12 communes. The population size is 164,837, of which 76% live in mountainous rural areas with major income sources in agriculture. According to the population-based surveillance in 2016, the household size in Chi Linh is 3.23 people per household, and gender composition is 48.5 male/51.5 female, which is comparable to the national data in 2014 (average household size: 3.64; gender composition: 49.3 male/50.7 female).

The public health care infrastructure includes a district center for preventive medicine, a regional clinic, and twenty CHCs. Each CHC is located in the central area of the target community, supported with a network of part-time VHWs. It was believed that there were, on average, eight to twenty VHWs within each commune in Vietnam, though the specific data was not available in Chi Linh district.

There were three reasons for selecting Chi Linh as the study site. First, the NCD-related health indicators in Chi Linh are representative for the health patterns in the northern Vietnam as well as in other LMICs with a rapid trend of population aging. In Chi Linh, the proportion of people aged over 65 years old drastically increased from 7.3% in 2004 to 12.3% in 2016, and the population aged between 55 and 64 had risen by 1.5 times from 6.2% to 15.5% during the same period. Lan et al. found that 11.8% of people, who are aged 30 to 69 years old, have impaired fasting glycaemia, which is also known
as pre-diabetes or metabolic syndrome, and 12.1% have suffered from diabetes.\textsuperscript{41}

\textbf{Figure 1. Map of Chi Linh, Hai Duong, Vietnam}

\textit{Data Source: Database of Global Administrative Areas}

Second, in spite of the increasing burden caused by chronic diseases, the relevant health care provision in Chi Linh remains inadequate and ineffective. A recent study conducted by Kien et al. suggested that, the self-reported diagnosis was associated with catastrophic health expenditure.\textsuperscript{42} Another study conducted by Nguyen et al. revealed
the current limited capacity of local CHCs in providing NCD-related services. These indicated a tremendous unmet need for affordable access to NCD detection and management services at the grass-root level. Third, our local research collaborator, the Hanoi University of Public Health (HUPH), has been dedicatedly supporting preventive care interventions and health personnel capacity building in Chi Linh for years, and was interested to expanding this work in NCD fields in the same district.

The VHWs in Chi Linh were selected as the target population in this study. Considering their responsibilities of service outreach and their intimate relationship with the local community, they were believed to be the most promising service providers to resolve the access to health care problem. Meanwhile, in order to achieve an integrated engagement and obtain various perspectives from all the stakeholders in the health care system, public health decision makers from the provincial, district, and commune levels were also chosen as the study participants in the current study.

2.3 Local Research Team and Training

All local research members were recruited through the recommendations from both the field supervisor of the Principal Investigator (PI), and our collaborator, the Hanoi University of Public Health (HUPH). The PI with supports from two bilingual program coordinators managed and conducted all research activities in the field. In addition, our research team members included one field translator, one transcript translator, three data collectors, and four Vietnamese transcribers. All of them had at
least bachelor-level education background in the field of public health or social science, and those involved in the data collection process all had previous fieldwork experience with the HUPH or foreign academic institutes.

The PI gave training to all data collectors. The training included a description of the research protocol, qualitative study method, data collection tool, and the principles of ethical research practice. The members who had double responsibilities in data collection and translation \((n=4)\) were required to be fluent in both English and Vietnamese, and to conduct regular discussions with the PI to better understand the research context and facilitate the research progress. All the field workers received monetary compensation for their dedications on a daily or task-basis, the amount of which had been negotiated before they were hired.

### 2.4 Study Design

This study uses exploratory qualitative methods (focus-group discussions, FGDs and in-depth interviews, IDIs) to understand the views of VHWs and administrators from local and higher levels regarding the role of VHW in the implementation of health programs, and to explore the potential of engaging VHWs in routine NCD prevention and control interventions. The reasons for applying these qualitative approaches are stated as follows:

First, the role of VHWs in providing NCD prevention and control services in Vietnam has barely been investigated. In this case, qualitative methods underpinned a
culturally appropriate context, which allows researchers to explore vivid and in-depth information from the voice and culture of the participants in the local community. Meanwhile, qualitative studies are convincing to the audience, as the substantial engagement from the field participants is included and empowered in the result section to “speak for itself.” In this study, enabling public health policymakers and intervention planners to directly listen to the needs and concerns of VHWs and the stakeholders is essential for the future development of evidence-based policy and comprehensive decision making.

Second, as FGD is effective in understanding the beliefs and behaviors of a group of people whose experiences are associated with the discussion topic, it was appropriate to conduct FGDs with the target population in this study, the VHWs. Besides, FGDs enabled our field investigators to collect a large volume of information in a short time, in turn to quickly understand the VHWs’ most typical unmet needs in the delivery of NCD-related services, and their collective resolutions to meet those needs. Third, in comparison with the open communication in FGDs, IDIs created a private environment for one-on-one conversations. This guaranteed the individual participants with enough time to explain complex issues in detail. Therefore, in this study, conducting IDIs with stakeholders (i.e., public health decision makers) enabled our field researchers to have a deeper understanding of the implementation processes and relevant regulations of the VHW-led health care programs. In addition, the IDIs ensured the interviewed
stakeholders to talk in confidentiality to avoid exposing their statements and identifiable information to other colleagues and community members. As some interviewed administrators directly manage the local VHWs, IDIs minimized the risk of power inequality that might emerge from the conversations in FGD, and thus avoid the potential conflicts between these two parties.

2.5 Study Tool Development: FGD and IDI Guidelines

The structure of the FGD and IDI guidelines (Appendices A and B) were centered on the objectives of this study. Therefore, the guidelines were designed to cover four domains: 1) the role of VHWs in preventive health care services provision; 2) the role of VHWs in NCD care; 3) willingness to expand VHWs’ role to include NCD services into routine practice; and 4) perceived barriers and facilitators to accept the expanded VHW role. Semi-structured design with open-ended follow-up probing questions was used to elicit participants’ opinions of these four domains.

The focuses of the questions were partially adapted from a grounded theory approach. This approach is informed by Bowen et al.\textsuperscript{45} for assessing the feasibility of new evidence-based chronic care intervention implementation. By dividing the implementation process into three phases (i.e., baseline, pilot implementation, and assessment for scaling-up), Bowen and colleagues introduced eight period-specific indicators/areas to assess the intervention feasibility. Particularly, the focused indicators/areas for assessing baseline feasibility were defined as “Acceptability”
“Implementation” and “Practicality,” of which the concepts and outcomes of interests were fit for the aim and context of the current study. Therefore, we used this approach as a platform to design the FGD and IDI guideline questions, as illustrated in Table 1.

The aforementioned conceptual framework of ecological behavioral model assisted to generate probing questions to explore barriers and facilitators. For instance, when asking about VHWs’ perceived difficulties to expand the VHW role in NCD care, probes were used to ask about internal factors such as intrinsic feelings and beliefs towards the role, and external factors such as workload, training and income.

Minor adjustment on probing questions was made between IDI and FGD guidelines. For instance, IDI guideline questions probed more details on implementation process and policy level issue, while FGD guidelines included more questions on VHWs’ interaction with community, patients, and supervisors.

The guidelines were first developed in English by the PI by following the above framework, and then translated into Vietnamese by two local bilingual research team members. During the translation, the PI and the two research members had several reviews and discussions, until consensus was reached that the intended questions were asked in the same meaning with suitable vocabularies in both languages.
<table>
<thead>
<tr>
<th>Concept</th>
<th>Acceptability</th>
<th>Implementation</th>
<th>Practicality</th>
</tr>
</thead>
<tbody>
<tr>
<td>How the targeted individuals and those who involved in the program implementation react to the intended intervention</td>
<td>To what extent can a new idea, program, process, or measure be successfully delivered to intended participants, in some defined, but not fully controlled, context?</td>
<td>The extent to which an intervention can be delivered when resources, time, commitment, or some combination thereof are constrained in some way.</td>
<td></td>
</tr>
</tbody>
</table>

| Outcome of Interests | • Satisfaction | • Degree of execution | • Factors affecting implementation ease or difficulty |
|                      | • Intent to continue use | • Success or failure of execution | • Positive/negative effects on target participants |
|                      | • Perceived appropriateness | • Amount, type of resources needed to implement | • Ability to carry out intervention |

| Key Questions | • What are the things that you feel satisfied /not satisfied in your VHW working experience? (FGD) | • How do you perform...services? (FGD) | • We propose to engage VHWs to be responsible to conduct screening and risk reduction interventions for common NCDs. What do you think? What do you like /not like about this idea? (FGD, IDI) |
|               | • What do you think the community/patients/others will react to your new role in NCDs? (FGD) | • How did you guide VHWs to conduct...service? How was their performance? (IDI) | • What do you think will be the difficulties to expand VHW role in NCD care? (FGD, IDI) |
|               | • Do you think VHWs are the right persons to provide routine NCD preventive services? Why and why not (FGD, IDI) | • What could be improved (e.g., training, workload, income, guidance,) of expand VHW role in NCD care? (IDI) | • What do you think are the most feasible NCD tasks for VHWs? (FGD, IDI) |
|               |                                                                 | • What kind of things would you need to provide routine NCD services? (Workload, training, incentive...) (FGD) |
2.6 Quality Control

2.6.1 Pilot Study

Three pilot IDIs were conducted by two bilingual research members before the final data collection. The aims of the pilot study were to assess the feasibility of study implementation in the local setting, and to make timely adjustments to the original study design and data collection instruments according to the pilot participants' reaction and feedback emerged. After the completion of the pilot study, the three participants were invited to evaluate the acceptability of the interview procedure and the clarity of the IDI guide questions. Suggestions offered by them included avoiding frequent use of academic wording, to use specific examples to clearly explain the jargon, and to add colloquial phrases to create relaxed conversation atmosphere. The questions and the vocabulary used in the FGD and IDI guidelines were then revised to incorporate these received comments. The data generated from the pilot study was not included in the final data analyses.

2.6.2 Field Methods Workshop and Training of FGD Facilitators and IDI Moderators

One week prior to the formal data collection, a training workshop on field methods was conducted by the PI for the local research team members including five FGD facilitators/IDI moderators, in which two were fluent in English and hence involved in translation work. The research protocol, FGD and IDI guideline, and important ethical issues regarding data collection were reviewed and discussed during
the workshop. The moderators were trained with qualitative interviewing techniques; this included how to follow the flow of the conversation, encourage participation in each subject, and stimulate relevant ideas on each topic without imposing one’s own views. With the key content adapted from the Belmont Report, the basic principles of conducting human subjects’ research were emphasized, including informed consent, autonomy, and confidentiality. The PI facilitated the training process with the language assistant from two bilingual research members.

### 2.7 Data Collection

By using purposive sampling, the data was collected in nine selected CHCs and administrative branches of public health in Chi Linh district, Hai Duong Province, Vietnam in July 2016.

Prior to the data collection, our bilingual collaborators from the Hanoi University of Public Health (HUPH) assisted the PI in contacting the administrative staff of local CHCs, the District and Provincial Centers of Preventive Medicine, and the Provincial Department of Health. After a brief introduction of the project, they were invited to help us to recruit the FGDs and IDIs by giving us a name list of all the VHWs and the administrators (i.e., potential participants) in those institutions.

According to the name list, the bilingual co-investigator helped the PI to reach each potential participant through telephone calls. During the call, the bilingual co-investigator briefly introduced the study, including information about who we are, what
the research is about, why we want to talk, what we do to ensure the confidentiality and autonomy of the gathered information, and the predetermined time schedule for the FGDs or IDIs. At this stage, an initial oral consent to the participation was obtained from each eligible participant.

On each day of data collection, two doctoral-level investigators from the HUPH organized and led the PI and the research team to each site to conduct field activities. Before starting each FGD/IDI, the trained local research team member worked as the moderator/facilitator to read and distribute the informed consent forms to the participants in Vietnamese and answered the questions they raised. After the participants confirmed their full understanding of the content of the consent form, they were invited to sign the forms with the PI and join the activities. The signed consent forms were kept by the PI in a locked file box. Each participant was given a copy of the consent form for his/her own record. General demographic information of the FGD participants (i.e., VHWs) was collected through brief self-introduction encouraged by the focus group facilitator in the warming-up open session prior to the discussion.

Then, the facilitator/moderator led the conversation in each FGD/IDI with input questions from the semi-structured FGD/IDI guideline. Participants’ responses were elicited by using predetermined prompts in the FGD/IDI guidelines to follow the conversation flow. Some examples of the prompts were: “Could you tell me more about how you perform (the name of the service)?”; “Could you tell me why you feel satisfied
with this job and why not?” and “What ideas do you have to make this work?” The participants were encouraged to express their opinions and feelings about any given topics. Upon the participants’ agreement, the raw data was collected by two digital recorders, of which the sound quality and battery were checked in advance. Meanwhile, the PI also took notes of the main points from the conversations with the assistance from one real-time field translator. The purposes of this were to have an initial understanding of the original data collected before the transcription process, and to timely raise further probing questions by the end of each conversation.

Each FGD was conducted in a separate room in the local CHC and IDIs were conducted in the participants’ office with the entrance door closed. Each FGD session was attended by three to twelve VHWs and lasted forty to sixty minutes, and IDIs took about forty-five minutes on average. We offered 100,000 VND ($4.4 USD) to each FGD participant and 200,000-300,000 VND ($8.8 - $13.2 USD) to each IDI interviewees as compensation for their time and participation in this study. Microsoft Excel 2010 was used to enter each individual participant’s anonymized ID, interview date, location and position. (Appendix E& F)

The audio data was kept in a confidential Dropbox file with password only accessible to the PI and the research team members. The audio files will be deleted when data analysis is fully completed approximately one year after the data collection.
2.8 Data Analysis

The entire transcription process took 15 days, from the end of July to early August in 2016. After the completion of data collection, the recorded audio documents were verbatim transcribed in Vietnamese by the five FGD facilitators/IDI moderators and other four local research team members. Microsoft Word 2010 was used for the transcription. In order to ensure confidentiality, the names of the participants were replaced by unique numbered IDs at this stage, and other identifiable information such as detailed addresses and telephone numbers was not transcribed from the original audio data. Two bilingual research team members were responsible for monitoring the transcription process in the research team. After the first round of transcription, these two coordinators collected all the transcribed Word documents and conducted quality checks. Referring to the original audio records, they first independently corrected the errors in the transcriptions, and then cross-checked with the updated versions again to ensure that the transcribed content was consistent with the participants’ voice. They uploaded the final transcriptions to the same Dropbox file with access only available to the research team members.

After the completion of all the transcription quality checks, the translation was conducted during August to September 2017 by the same bilingual research team members and one local translator who is fluent in English. The initial translation was delivered by the local transcript translator, upon a written agreement on the
confidentiality. Then, the revised translation was jointly done by the two bilingual program coordinators and the PI. The three members conducted regular discussions and reviews to ensure that no loss of information occurred and the content fitted in the context, with adjustment made to the vocabularies that caused discrepancies and misunderstanding.

Microsoft Excel 2010 was used for demographic data tabulation. The translated transcripts were input into the qualitative research analysis software MAXQDA 12 for coding and analysis. Thematic analysis method with both deductive and inductive approaches was used. The coding and analysis proceeded in the following four phases.

Prior to the coding, the PI and one bilingual research team member who involved in the data translation conducted weekly debrief meetings. By reading and discussing the meanings in each updated translated transcript, the two people first established a general grasp of the data content.

After reading half of the translated data, they began to generate initial codes independently in Vietnam. First, the major domains of the FGD and IDI guideline first assisted to structure the analysis. Then, the scope under each domain was remained for data to be entered from the transcript content and for themes to emerge inductively from the data by applying the “constant comparison” method. Line-by-line open coding was used to capture the micro-level meaning of the data. When reading and re-reading the data, meaningful and relevant phrases were labeled and extracted to
develop preliminary codes and categories. When the first-round independent coding finished, the PI and the coordinator jointly discussed the discrepancies in the identification and interpretation of codes and categories until a consensus was reached. At this stage, 1390 codes, ninety-four preliminary categories were generated under the 5 core themes centered on the study objectives.

Next, axial coding was applied by the PI in China, to reduce codes through further merging the similar initial categories into more abstract, encompassing clusters, and to recognize the logical connection among them by recurrently comparing the newly emerged codes to the initial ones and referring back to the original textual data. 19 sub-themes were extracted at this stage: types of general health care programs involving VHWs (by disease/health condition); types of general health care services delivered by VHWs; working condition; training received by VHW; types of NCD programs involving VHWs; types of NCD-related services provided by VHWs; VHW knowledge and perception about NCD and NCD care; willingness to expand VHW role in NCD care; lack of policy support; short of resources; ineffective incentive; overload; training-related barriers; unhealthy community/patient relationship; aging; insufficient knowledge and skill; suggestion on remuneration and workload; training suggestions; close relationship with the community; raised awareness among patients.

In the final stage, categories were deductively delimited and refined to gain simplicity around the conceptual framework and objectives of the study. Meanwhile,
comparisons were made between the FGD participants (i.e., VHWs) and IDI interviewees (i.e., public health decision makers and administrators), because the experience of “working as VHWs” and “working with VHWs” may influence their perceptions about VHWs’ role in NCD-related service provision.

Table 2 explains the framework for the analysis by showing the example of how data was moved into themes.

2.9 Ethics Approval

Ethical approvals were obtained for the study from Institutional Review Boards (IRBs) at Duke Kunshan University and Hanoi University of Public Health.
<table>
<thead>
<tr>
<th>Data(Quotes)</th>
<th>Codes</th>
<th>Preliminarily Categories</th>
<th>Subthemes</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>For example, today is the vaccination day, they will call all the target subjects use telephone and ask them to come to CHC for the service. (IDI1, rural, Co Thanh)</td>
<td>Vaccination; Telephone call</td>
<td>General healthcare programs involving VHWs;</td>
<td>General service provided by VHWs by disease/condition;</td>
<td>General Healthcare and Preventive Services Provided by VHWs and the Implementation Process</td>
</tr>
<tr>
<td>The NCD programs here focus on hypertension and diabetes. We make the list to record the people suffer from those diseases. Then we talk to them and recommend them to have periodical examinations in CHC. (FGD3, rural, An Lac)</td>
<td>Hypertension; Diabetes; Case recording; Referral for early detection in CHC</td>
<td>Service delivery method; NCD programs involving VHWs;</td>
<td>Implementation process (General); NCD services provided by VHWs by disease/condition;</td>
<td>The Role of VHWs in NCD-related Care</td>
</tr>
<tr>
<td>This proposal is great for NCD prevention. It would be so good if patients could be early identified from the bottom level, because if the patient find out their disease by themselves, it means it is late already. If CHWs can screen and diagnose, the disease will be found much sooner. So this idea is good for residents. (FGD2, urban, Pha Lai)</td>
<td>Expanding the role is a good idea; Early detection by VHWs; good for community</td>
<td>Agree to expand the role; Reasons for positive attitudes</td>
<td>Positive to expand the role;</td>
<td>Willingness to Expand the Current VHW Role in NCD Prevention and Control</td>
</tr>
<tr>
<td>In the beginning of the year, district prevention center has invited only 3 VHWs (1/3 of all VHWs in our CHC) to attend the training sessions about hypertension. (IDI8, rural, Le Loi)</td>
<td>Lack of access to training</td>
<td>Ineffective training organization</td>
<td>Training-related barriers (organizational level)</td>
<td>Perceived Barriers to Expand VHW Role in NCD Prevention and Control</td>
</tr>
<tr>
<td>Before, there were breast-feeding programs organized by the School of Public Health, we participated and we got paid based on the number of households we reached and served...For example, 20.000 VN Dong for one visit... It is fair, because we got paid for what we did. And we hope to have that in the future too. (FGD3B, rural, An Lac)</td>
<td>Satisfied with the fee-for-service payment in previous interventions</td>
<td>Suggestions on monetary incentive payment methods</td>
<td>Balanced workload and incentives (organizational level)</td>
<td>Perceived Facilitators, and Suggestions to Address the Barriers</td>
</tr>
</tbody>
</table>
3. Results

3.1 Participants Characteristics

In total, four FGDs and thirteen IDIs were conducted in July 2016. Twenty-four VHWs from two rural and two urban CHCs participated in the FGDs. Thirteen public health policy makers from nine CHCs (four in rural areas and five in urban or suburban areas), the District Center for Preventive Medicine (including one from the General Office and one from the NCD department), the Provincial Center for Preventive Medicine, and the Provincial Department of Health were interviewed in the IDIs.

As the target population of this study was VHWs, only their characteristics information was intentionally collected. Each participant from FGDs was asked to give a brief introduction regarding the age, work setting, and duration of work as a VHW (in months or years) at the beginning. With the same indicators, IDI participants were invited to share their understanding of the VHWs they managed. Generally, the twenty-four VHWs were representative for the target population as they varied substantially in four major indicators of age, gender, work setting, and duration of work as VHW. The results for these indicators are shown in Table 3.

VHWs who participated in this research ranged in age from 30s to 60s, with 41.67% (10/24) in their 30s; 70.83% (17/24) were female; 41.67% (10/24) worked in rural communities; the number of years working as a VHW ranged from one month to forty-three years, with 62.5% (15/24) in the current position for at least two decades.
Table 3. Characteristics of the VHW Participants

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-39</td>
<td>10</td>
<td>41.67</td>
</tr>
<tr>
<td>40-49</td>
<td>7</td>
<td>29.17</td>
</tr>
<tr>
<td>&gt;=50</td>
<td>6</td>
<td>25.00</td>
</tr>
<tr>
<td>N/A</td>
<td>1</td>
<td>4.17</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>7</td>
<td>29.17</td>
</tr>
<tr>
<td>Female</td>
<td>17</td>
<td>70.83</td>
</tr>
<tr>
<td><strong>Work Setting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>10</td>
<td>41.67</td>
</tr>
<tr>
<td>Urban/suburban</td>
<td>14</td>
<td>58.33</td>
</tr>
<tr>
<td><strong>Time work as a VHW (Year)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;10</td>
<td>5</td>
<td>20.83</td>
</tr>
<tr>
<td>10-19</td>
<td>4</td>
<td>16.67</td>
</tr>
<tr>
<td>20-29</td>
<td>9</td>
<td>37.50</td>
</tr>
<tr>
<td>&gt;=30</td>
<td>6</td>
<td>25.00</td>
</tr>
</tbody>
</table>

### 3.2 Themes

The FGDs and IDIs results revealed five major themes: 1) general healthcare and preventive services provided by VHWs and the implementation process of those services; 2) the role of VHWs in NCD-related care; 3) willingness to expand the current VHW role in NCD prevention and control; 4) perceived barriers to expand the role of VHWs in NCD prevention and control; 5) perceived facilitators, and suggestions to address the barriers.

#### 3.2.1 Theme 1: General Healthcare and Preventive Services Provided by VHWs and the Implementation Process of those Services

The participants reported various types of public health services provided by VHWs. First, the VHWs were guided by CHCs to manage demographic information
with local family planning team via recording birth, death, migrants and incidence of any emerging diseases. In addition, VHWs are assigned with specific tasks by CHC leaders based on their responsibilities in the National Target Health Programs. The frequently reported areas of health programs included maternal and child care (46/99), infectious diseases (e.g., HIV/AIDS, Tuberculosis, sexually transmitted diseases (STDs) and measles) (18/99), sanitation and hygiene (8/99), contraception and family planning (5/99). The noted responsibilities of VHWs included: program promotion and outreach, health communication and education, first-aid treatment, medical record management, medication reminding and monitoring, and case referral to CHCs. After successfully going through the program-oriented short-term training, ranging from 1 to 5 days, organized by the District Center of Preventive Medicine, the VHWs would be eligible to provide the assigned services via home visits, neighbor conversations, paper-based invitations and telephone calls in the corresponding programs in their own communities. However, the delivery pathway and skills required were likely to vary across settings. For instance, according to the statement from the participants who were in charge of maternal and health care, VHWs in the resource-limited mountainous areas usually directly attended births; while, urban VHWs were not qualified to do so or usually not required to do so.

Despite the unavailability of specific formal guideline to evaluate the performance of VHWs, as reported by the respondents, the CHCs introduced informal
performance assessment methods to fill this gap. In the middle of every month, VHWs
gathered in the CHC to assist CHC leader (i.e., their supervisor) to discuss the progress
of each presented VHW’s task. According to the updates, the new tasks for the coming
month would be assigned by the supervisor with necessary instructions. Further,
regular meetings for VHWs were organized, mainly to retain and refresh their
knowledge on common conditions in these gatherings. One CHC leader shared his
experience:

> Monthly, we have a regular meeting in which we work on the expertise about
> vaccination, asthma or other topics. Through such meetings, CHWs can improve
> their knowledge to consult people...We take turns to share and exchange
> knowledge to gain a better understanding of real practice. For example, about
> communicable diseases, I, a general assistant doctor will take charge of it, while a
> midwife will be in charge of childhood nutrition. (IDI1, rural, Co Thanh)

Generally, the respondents estimated that for each VHW, the accumulated
working time ranged from one to two weeks per month. The noted regulation on the
workload was that one VHW in charge of one local ward regardless of the number of
households. Although it seemed that there was no requirement on the fixed working
hours, it was found that many participants considered the overall workload of VHWs as
heavy:

- Generally, one VHW is capable to provide services for one hundred households. But
  in many wards, there may be 500 or 600 households, so it is difficult. (IDI13,
  District Center of Preventive Medicine, NCD department)
• We do all the programs assigned to us by the community health center. If I remember it right, for only national health care programs, there are about 20. A lot! ... In general, the work is too much. We will have to work hard if there comes new program. (FGD1, rural, Nanh Hue)

There was no consensus on a universal amount of monthly financial incentive for all VHWs. The frequently reported average quota per VHW ranged from 300,000 to 400,000 Vietnam Dong (1 US$= 22,727 VN Dong), but the amount varied across settings. One respondent offered further explanations regarding the different geographical conditions: “Here, it (the VHW’s wage) is a little more than 300.000 dong. But it will be different in other wards of other provinces... For example, in the remote area like Tran Hung Dao, the monthly earning is about 550.000 dong.” (IDI8, rural, Le Loi)

Regarding the available facilities and equipment, the majority of the respondents confirmed that each VHW was provided with basic first-aid toolkit for simple operation, although the quality and quantity was considered inadequate. A few public health authorities suggested that some of the available equipment were renewable under the government support:

All instruments are included in the toolkit for VHWs...There are bandages, thermometer, stethoscope, sphygmomanometer... Some do not (have all of them). But for the first aid, when the provided instruments are consumable, they will report back to preventive district center and replace them. (IDI11, urban, Provincial Center for Preventive Medicine)

However, the grassroots-level respondents still perceived a gap in sustaining the function of those tools: “The stethoscopes have been equipped several years ago, so some may be
lost or broken, hence, the new ones should be provided to replace them.” (FGD1, rural, Nhan Hue)

3.2.2 Theme 2: The Role of VHWs in NCD-related Care

We briefly assessed the awareness and knowledge of VHW participants regarding NCDs and NCD care before asking about their role in this field. VHW respondents all understood that NCDs are not transmittable, and could name common NCDs types such as hypertension and diabetes. They also believed that NCD should be a prioritized issue because of rapid population aging. Some VHWs (6/24) revealed their nuanced knowledge by linking the disease condition to the behavioral risk factors or economic consequences.

- Most patients know their situation so they take medicine daily and avoid exercising too much. But still some do not have proper awareness. They do not get treatment timely so complications are more serious. (FGD1, rural, Nhan-Hue)

- If there is one NCD patient in a family, they have to spend money on medicine every month while that patient cannot earn anything. As a consequence, when family income is to run out, the whole family, including their children, will live in poverty. (FGD2, urban, Pha Lai)

When we asked the role and responsibilities of VHWs in NCD-related services, the respondents suggested that those services were included in the VHWs’ overall responsibilities, and the role was similar to that in general public health care. The most
commonly reported services were: health communication/education (17/37), program promotion and outreach (12/37), case monitoring and referral (12/37), blood pressure measuring (7/37) and random early detection (6/37). These services were mainly provided for high-risk population and patients diagnosed with hypertension and diabetes, despite that a few participants (1/24 in FGDs, 4/13 in IDIs) also mentioned that patients with cancer, CVDs, or mental illness such as schizophrenia were also monitored by some local VHWs. One CHC leader explained that hypertension screening became one of the main duties of CHC since a population-based program was implemented in the study site in 2013: “Previously, there were no observers, no recordings, but 3 years ago, there has been screening to check hypertension rate..., everybody is examined and the rate is quite high. That was when the worry started.” (IDI3, urban, Chi Minh)

The respondents who have undertaken such programs illustrated the delivery procedure in detail. First, prior to the screening, the VHWs had to go through the program-oriented training to be eligible service providers. Then, when hypertension screening launched in local CHCs, VHWs would first inform the community and patients about the project via invitation letters, telephone calls and home visits. During the screening, the VHWs would assist CHC leader and staff in collecting data, measuring blood pressure (if additional devices are available), distributing educational leaflets, providing additional consultation for clients on physical inactivity, unhealthy diet and smoking.
When no such community campaign was ongoing, VHWs were mainly in charge of regular case monitoring by home-based follow-up either in VHWs’ or patients’ place, or by inviting patients to meet in CHCs. During the follow-up sessions, VHWs monitored the medication adherence, provided counseling on lifestyle modification, and referred serious cases to CHCs for proper treatment:

- *We would take notes of the date of birth, name, age and disease situation, the disease record such as when they had the disease, where they go check, how the results are.*  
  (FGD3, rural, An Lac)

- *Regarding chronic NCDs, VHWs consulted patients on eating habits and lifestyle... ...They talk to CVDs patients that they should not do too much exercise, or do exercise too early in the winter or too long in the summer.*  
  (IDI1, rural, Co Thanh)

When follow-up sessions were conducted in CHCs, VHWs were able to measure blood pressure because of the availability of the equipment. Some VHWs who were trained in the hypertension program were able to randomly detect and report potential at-risk individuals via regular body-checks in CHCs, counseling inquiry calls from clients, and during daily conversations with villagers: “*When VHWs see one person who is too fat, they say something like “do you check your blood pressure regularly, I have just checked on mine and found out that … so you should check yours regularly, like once a week, you may have high blood pressure.”*”  
(IDI5, rural, An Lac)
3.2.3 Theme 3: Willingness to Expand the Current VHW Role in NCD Prevention and Control

During the FGDs and IDIs, the facilitator illustrated a potential service delivery model of engaging VHWs in offering basic care for common NCDs and risk factors. The model proposed that, upon receiving training, the services such as initial screening for people at high-risk of NCDs, health education on common NCD risk factors, case management, health counseling, and referrals would be put into the regular agenda of VHWs. The facilitator then explored the participants' attitudes towards this plan, and their beliefs on how to fit it into the current roles and responsibilities of VHWs.

All FGDs and eleven out of thirteen IDI participants endorsed the proposed concept, suggesting that the front-line VHWs would be especially advantageous to provide grassroots NCD preventive services due to their deep understanding and direct connection with the community. One CHC leader thought the proposed plan would be better than the previous vertical model: "Because CHWs directly work and communicate with the locals so it would much better than the top–to–down method." (IDI2, urban, Pha Lai) One VHW was enthusiastic about incorporating NCD care in the current role: "In general, we think that it is a good idea because we are the ones who directly take care of the locals ...... It would be much better if we – the enthusiastic ones who are also the closest to the local - pay attention to such problem so that the diseases can be identified in the very beginning." (FGD3, rural, An Lac)
One public health authority further emphasized VHWs’ central role in implementing the proposed plan:

The operation of programs, in reality, told us that the implementations of all program activities need VHW team because they are the ones who directly interact with the community.... CHCs cannot reach the residents on their own, they have to work through VHWs, and so this model is great in that it connects wards, villages and households. (IDI13, District Center of Preventive Medicine, NCD department)

In addition, the respondents believed that VHWs had the potential to perform the risk-reduction services mentioned in the proposed plan. They were confident of the capability of VHWs by linking the current proposal to previous successful experiences:

"In general, I think that it is doable. For example, once there was a program on breastfeeding, they (VHWs) successfully reached and educated every household.... Yes, I think it is feasible. There will be difficulties at the beginning, but they (VHWs) can do it." (IDI5, rural, An Lac)

### 3.2.4 Theme 4: Perceived Barriers to Expand VHW Role in NCD Prevention and Control

Despite the positive attitudes towards the idea of engaging VHWs in NCD preventive care, the respondents identified multi-level barriers for successful implementation. The most frequently mentioned challenges included the following aspects: 1) personal level: age, lack of knowledge and skills; 2) interpersonal level: unhealthy VHW-patient relationship; 3) organizational and program level: imbalanced workload and incentive, lack of high-quality training; 4) policy level: lack of policy support, guidelines, and resources. The frequency of each barrier (count/total number of "barrier" codes) is illustrated in Table 4.
Table 4. Perceived Barriers to Expand VHW Role in NCD Care

<table>
<thead>
<tr>
<th>Personal barriers</th>
<th>Interpersonal barriers</th>
<th>Organizational barriers</th>
<th>Policy level barriers</th>
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<tbody>
<tr>
<td>NCD related Knowledge and skills (28/330)</td>
<td>Unhealthy VHW-patient relationship (52/330)</td>
<td>Imbalanced workload and incentive (118/330)</td>
<td>Lack of Policy Support (35/330)</td>
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<tr>
<td>Ageing (8/330)</td>
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<td></td>
<td></td>
<td>Overload(58/330)</td>
<td>Lack of similar program and standard guideline</td>
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<td></td>
<td></td>
<td>limited Allowance(30/330)</td>
<td>Lack of transparency and government accountability</td>
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<td>No subsidy and benefits(26/330)</td>
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<td></td>
<td>Lack of high-quality training (45/330)</td>
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<tr>
<td></td>
<td></td>
<td>Ineffective organization(34/330)</td>
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<td></td>
<td></td>
<td>Inappropriate content (7/330)</td>
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**Personal Level: Knowledge and Skills, Age**

Insufficient NCD related knowledge and skills were considered as one personal barrier of VHWs. The participants did not uniformly agree that all VHWs could measure blood pressure, and this fact was justified by one administrator: "*Some CHWs can measure blood pressure, but some cannot. Not every VHW can learn that.*" (IDI12, Provincial Center of Preventive Medicine) Some VHWs admitted their incomprehensive scope of knowledge on NCDs: "*Right now, we cannot answer the question of the symptoms of diabetes, like what is the first sign of these diseases.*" (FGD2, urban, Pha Lai)

Ageing was identified as another personal level barrier. Some CHC leaders included it as a factor worsening the performance and learning ability of VHWs. "*It is hard for VHWs at their forties, fifties to learn new things.*" (IDI12, urban, Provincial Center of Preventive Medicine) "*Several VHWs even are at their seventies so they cannot perform very..."
One senior VHW did show tiredness of carrying on his current job and expectation of leisure life: “We – the old ones (VHWs) are about to retire. We want to be with our grandchildren, do some exercise in the evenings. It is much more preferable than going to every household to collect survey data, and even asking about their weights directly.” (FGD1, rural, Nhan Hue)

**Interpersonal Level: Unhealthy VHW-patient relationship**

In this study, it was perceived that the inharmonious relationship with patients was counted as one major barrier for VHWs to carry their NCD-related responsibilities. Several explanations derived from the voice of respondents are shown below.

First, the respondents reported that VHWs’ current deficient knowledge and expertise triggered the distrust from patients: “In general, the collaboration between the locals and VHWs is not close, because of the inadequate capability of VHWs. They cannot give good explanations for local residents. For example, the locals have questions on symptoms and the stage of the disease, but VHWs cannot explain very well.” (IDI8, rural, Le Loi) One participant noticed that the VHWs’ non-professional qualification would fail to meet some senior patients’ expectation, resulting in VHWs’ inabilities to finish tasks in the field of NCDs:

VHWs who finished secondary school with just 3-month-long training cannot counsel directors, retired senior officers. It is very difficult. There is one case that we advise a patient that he should come for checks because he has high blood pressure. But he said ‘You said what CHC are you in? Who are you? You think you have the right to tell me what to do?’ (IDI9, urban, Cong Hoa)
Second, the VHW interviewees found it especially difficult to provide services to those patients with inadequate awareness of disease prevention and control. One VHW mentioned the passive health seeking behavior of some potential patients as an obstacle for early detection of risk factors: “The locals are busy with loads of work, they try to work more even when they feel that there is something wrong with them......They only come to us when they have obvious symptoms, or go to see the doctor when they cannot stand it anymore, and that would be too late.” (FGD1, rural, Nhan Hue) Another VHW described that her counseling about behavioral-change education was consistently ignored by some patients:

There are still some (patients) do not have proper awareness of the disease or they do not take the treatment timely. These people, they know that they have hypertension but they don’t check regularly, so their blood pressure goes too high leading to complications. Even we advise them a lot, and give medicine to them, asking them to cut down on alcohol and stimulants but they still use it. They just never listen. (FGD1, rural, Nhan Hue)

Third, the respondents disclosed that, time conflict during home visits also catalyzed disputes between VHWs and the target subjects. It was found that the VHWs struggled to choose the appropriate visiting time to be at the patients’ convenience: “A: VHWs have to find the suitable time when they (patients) are available. B: They have to come for several times to meet patients.” (FGD3, rural, An Lac) One CHC leader further explained the difficulties for VHWs in reaching people and conducting conflict-free conversations:

“There were some cases in the past, about 4-5 people, and they even ask VHWs to leave.... It (the intervention) normally takes them 1-2 hours. Because people are busy and still have too much to
do, they do not want to have a conversation. They said you are annoying, then they go back to
cook or do something else.” (IDI4, urban, Sao Do)

Organizational Barrier: Imbalanced Workload and Incentive, Lack of High-quality Training

<table>
<thead>
<tr>
<th>Imbalanced Workload and Incentive</th>
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<tbody>
<tr>
<td>Most of the respondents noted that the current incentive mechanism was one of the dominant challenges for them to work more on additional NCD tasks because the allowance was not enough to compensate their workload.</td>
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</table>

First, there was a consensus among the participants that the current VHWs were already demotivated heavy workload. All VHWs were employed as part-time jobs while having original agricultural works. However, as home-based service was the major element of VHW-led program, the additional tasks were perceived to be unbearable: “If it is suggested that the initial screening be done...we will have to go through all the households. It would take a lot of time, especially when we are very busy on harvest season or plantation.” (FGD4, urban, Cong Hoa) Besides, given the consistently low allowance at the moment, they felt demotivated and inequitable with more workload: “With 300.000 VN Dong monthly allowances, we have worked as CHWs for long, for many years. But if more work is additionally assigned to us, we may not take it anymore.” (FGD1, rural, Nanh Hue) Further, many respondents reiterated their discontent with the absence of employment subsidies for the current and former VHWs:
● Working in the public health field, we find it quite ridiculous to not have health insurance. (FGD2A, urban, Pha Lai);

● Such people have done the job as VHWs for quite long, and then when they reached their 60, they just left, with no compensation for their contribution, for their enthusiasm. That really concerns me, because even the budget is limited, there should be other ways to support them after they leave. (IDI8, rural, Le Loi)

The interviewed policy makers largely acknowledged the impact of meager wages on the VHWs’ job performance. Meanwhile, with the increasing population density, they anticipated a potential vicious cycle of manpower shortage because the next generations were not incentivized to work as VHWs: “The allowances for VHWs are very low; to find a person to replace someone who is too old may be very difficult. So VHWs who are over the age limit will still be there (on the position), but instead of one ward, they may be in charge of two wards.” (IDI13, District Center of Preventive Medicine)

Lack of High-quality Training

The current incomprehensive training programs, especially in the field of NCD, were regarded as another major barrier. First, there was a lack of training accessibility among the VHWs. Although the regulation required VHWs to pass the qualification exam of the 6-month elementary-level training, such that they could be qualified as an eligible primary healthcare practitioner, there was no consensus among the respondents that they were all qualified. In addition, less than half of the interviewed VHWs
reported ever participated in short-term NCD program-oriented training. One CHC leader described the limited capability of some VHWs due to the training inaccessibility:

For example, within these thirteen wards, only six VHWs were invited to get trained each time, the rest will be left for the next year. Not all VHWs can attend the training programs. That would be difficult for them to have access to the expertise.... For those who cannot attend the general training, they can only count the number of cases and record them, nothing else. (IDI, rural, Co Thanh)

Other barriers regarding training organization included limited practice and retrain. One VHW indicated a gap between the theoretical knowledge learned from training and the real practice: “We may learn very well but when we actually do the job, we forget our previously learned knowledge.” (FGD2, urban, Pha Lai) They also emphasized the absence of practice and review resulted in easily-forgotten knowledge: "They (doctors) practice (with the medical devices) every day so their ability to work goes up day by day, we do not have that quite often so our knowledge goes away. (FGD2, urban, Pha Lai)

In addition, some participants also perceived that the training content was beyond the VHWs’ learning capability considering their knowledge background and age group: “The qualification is not the same. Unlike nurses, VHWs are just collaborators... They cannot understand all the topics to gain additional knowledge.” (IDI9, urban Cong Hoa)

Policy Level: Lack of policy support on similar program, the corresponding guidelines, and resources

First, the participants pointed out a lack of policy support from central authorities to formalize such a VHW-led NCD program, despite that some VHWs
already voluntarily conduct various preventive tasks. One VHW said: “Sometimes it (hypertension prevention) is not noticed by the locals because there are not any official programs about that... VHWs are actually doing it (proposed NCD risk-reduction service) by now, but it is not standardized.” (FGD3, rural, An Lac)

Some VHWs perceived that it would be difficult to implement the plan without standard guideline issued by the central level. One participant indicated that VHWs only followed the eligible guideline stated in the employment contract with CHCs: “The contract stated their general responsibilities, so they will just follow that... The NCD program has not been run so they did not know much about that. When the program is set to run, they still do what was stated in the contract.” (IDI2, urban, Pha Lai)

Primary-level leaders expressed their lack of authorities in generating new guidelines: “Government regulations for VHWs have to be strictly followed. Just doing that is hard enough. We just follow the instructions from our supervisors, so we do not create more rules for VHWs.” (IDI4, urban, Sao Do) While, VHWs further highlighted the deficiency in message transparency and government response of the current administration system:

The community health center does not inform us the data of the newly detected patients... If we detect any diseases, we just inform community health center to manage... We work for health, but do not have health insurance. We have talked about this in many training sessions, but no actions have been made on that. (FGD3, rural, An Lac)

Second, the lack of program-associated resource was noted as another barrier. The respondents uniformly perceived an inability for VHWs to perform NCD
preventive care without equipment and fund. The lack of available blood pressure
monitor was one of the typical examples. It was reported that the blood pressure
monitors in the VHWs’ tool-kits were dysfunctional and not sustainably sponsored by
the government. This issue raised a demotivating perception of non-trustworthy and
incapability among the participants:

- If VHWs just go do consulting without checking the blood pressure, measuring
  heart beats, people will not listen to them. (FGD1, rural, Nanh Hue)

- B: We are restrained in that terms as we even do not have blood pressure monitor. C:
  If we cannot practice, how can our skill be improved? (FGD2, urban, Pha Lai)

One CHC leader noted the unaffordability for renewing devices due to the
limited budget: “We can provide bandages and needles regularly but replacing other things
would be a problem. It is about 500,000 dong for a set of the blood pressure and stethoscopes.”
(IDI1, rural, Co Thanh) In turn, the VHWs had to pay out-of-pocket for maintenance:
“We have never been provided with that equipment, so we have to buy them by ourselves.”
(FGD1, rural, Nhan Hue)

One higher-level decision maker attributed the budget shortage in such
programs to lack of prioritization of prevention initiatives by authorities: “But the
difficulty here is that only when the disease happens, everything is then put under evaluation.
More care is paid on treatment rather than prevention, so it is difficult to ask for money on
prevention.” (IDI11, Provincial Health Department) He further expanded this
underfinanced issue by linking the nature of VHWs and the Communists’ devoted spirit:
“If they(VHWs) choose to do that for their community……If we just calculate everything based on money, it is not ‘working for all people’, but the Communists dedicating for the Revolution is because they are willing to sacrifice for the ideal.” (IDI11, Provincial Health Department)

3.2.5 Theme 5. Perceived Facilitators, and Suggestions to Address the Barriers

When revealing the perceived shortcomings above, the respondents actively proposed various need-based enabling factors to address those problems. The frequently mentioned facilitators were: 1) personal level facilitators: VHW experience, and their intrinsic value; 2) Interpersonal facilitators: close relationship with community and raised awareness among patients; 3) Organizational facilitators: training and incentives; 4) Policy level facilitators: policy support and sufficient resource. The frequency of each main facilitator (count/total number of "facilitator" codes) is illustrated in Table 5.

<table>
<thead>
<tr>
<th>Personal Facilitator</th>
<th>Interpersonal Facilitator</th>
<th>Organizational Facilitator</th>
<th>Policy level Facilitator</th>
</tr>
</thead>
</table>
| Capability and experience (11/316) | Close relationship with community (30/316) | Training (118/316)  
☑ Specific content (47/316)  
☑ Appropriate organization (45/316)  
☑ Balanced workload and incentives (66/316) | Policy support and associated resources (55/316)  
☑ The official guideline with clear tasks (8/316)  
☑ Grassroots empowerment (10/316)  
☑ Budget(8/316)  
☑ Equipment(28/316) |
| Being VHW: intrinsic value, fun and caring, not for money (25/316) | Raised awareness among patients (7/316) | | |
Personal Facilitators: VHW Working Experience, VHW Intrinsic Value

First, the fruitful working experience in public health field enabled VHWs participants to have a firm belief that they should effectively replicate their previous success in NCD prevention and control: "About the program on NCDs, we can do it very well because all seven of us here have been working as CHWs for quite a long time; we have been through a lot of public health programs. We like such programs because we really can do what we are assigned". (FGD3, rural, An Lac) Their supervisors also were confident about learning capability of VHW and willing to share knowledge with them: "About expertise knowledge, if we share that to CHWs, they can take it." (IDI6, urban, Ben Tam)

Second, the intrinsic satisfaction about the role of VHW was reported by many respondents as a facilitator. From their perspectives, rather than remunerations, VHWs would dedicatedly finish all the assigned tasks for the public good and their beloved job. Some VHWs described their motivation to stay in the current position is "fun" and "happiness", as they worked with surroundings to enjoy this close social relationship. They said: "We work just for fun for years, not for economic purpose because we are the closest people to villagers here." (FGD4, urban, Cong Hoa) Policy makers reiterated that VHWs' working motivation could be originated from their value of caring for the community: "VHWs said that they did it for the community good, not because of the low allowance." (IDI11, urban, Provincial Center of Preventive Medicine)
Interpersonal Facilitators: Close Relationship with Community, Raised Awareness among Patients

In this study, close relationship with community and improved awareness among patients were identified as key facilitators to establish a healthy VHW-patient relationship and to further ensure a smooth implementation of VHW-led NCD interventions. Participants believed that experienced VHWs are trusted by the community and had power to initiate behavior change activities: "VHWs here are usually old, so they are trusted. They do have their voice powerful in the ward." (IDI1, rural, Co Thanh)

When one VHW was trusted, he/she would establish extensive network within the community, which was recognized as an advantage in prevention programs: "My advantage is that I got access to most of the local families and we talk freely. That’s why we can correctly discover many diseases." (FGD1, rural, Nhan Hue)

Besides, the participants were optimistic to see the majority of patients have raised awareness of NCD and actively seek care, which allowed VHWs to timely discover suspicious cases with early symptoms: “People who do not take precautions previously are now aware of NCDs. When we met them, they started talking right away if they felt something wrong. For example ’I don’t feel so good. I got sunstroke today’ so we can anticipate that they might have risks of hypertension." (FGD3, rural, An Lac)

In addition, one respondent suggested that the health awareness and medication adherence among patients could be further enhanced by intimate VHW-patient interaction in “peer-support” activities:
So they (patients) can share experience on how you take your medicine, how I take mine, or check on their blood pressure. Many patients can do that as they have their own electronic blood pressure monitors. But the electronic one cannot give exact results as it is affected by the moisture. The best one is the inflatable one, so it would be better if VHWs can lead such events, using better machine to give the correct result, and providing helpful guidance. (IDI10, District Center of Preventive Medicine)

Organizational Facilitators: Training and Incentives

<table>
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<th>Training</th>
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<tr>
<td>One of the most reported enabling factors was the effective training programs to eliminate the gap in the NCD-related knowledge and skills among the VHWs. The respondents proposed several recommendations regarding the training content and organization.</td>
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Specific Training Content

In terms of the training design, first, some participants believed that fundamental and non-invasive training content would better fit in VHWs’ elementary academic level and learning capability. For instance, they indicated that it would be compatible for VHWs to learn the application of simple assessment tools for the early-detection of NCDs:

*A list of fundamental knowledge of any disease with 5-7 bullet points is good enough for initial detection of a health condition. For example, in diabetes (early detection), VHWs can assess based on items on the list such as tiredness, weight loss, etc. If the patients experience meet with the listed symptoms, then a referral or initial treatment plan can be drawn...Just a few bulleted points, with only 1-2 training sessions, the amount of knowledge should be like that...as we cannot compare with people who have learned for years. (FGD2, urban, Pha Lai) |

While, other respondents pointed out the necessity for VHWs to extend their knowledge and expertise under a comprehensive guideline: “The frame and route of the
entire training program should be provided as well.... like this, to show us everything in details, that would be great.” (FGD3B, rural, An Lac)

Specific components such as symptoms, risk factors, and primary prevention method were proposed to be included in the lectures: “Major chronic diseases and their causes, prevention methods... how they should be treated and eating habits, sleeping pattern, lifestyle... CHWs should be trained on early prevention and root causes of the disease.” (FGD1, rural, Nanh Hue)

In addition, CHC leaders particularly highlighted the value of reinforcing communication skills of VHWs: “They (VHWs) should be trained on communication skills, like the way to make people listen, understand, and come to be diagnosed.....For hypertension (preventive intervention), it is only when they have good speaking manner together with knowledge, people will trust them.” (IDI4, urban, Sao Do)

Appropriate Training Organization

First, the respondents reached a consensus that expanding the training accessibility should become one priority: “In order to improve the current situation, training programs should be for all VHWs.” (IDI1, rural, Co Thanh) To attain this goal, they suggested to arrange flexible training schedule and to provide convenient transportation for VHWs to adapt to local context. For instance, one VHW proposed to have training sessions in small clusters with nearby communities after the busy farming time:

Training should avoid our transplanting and harvesting season....and the training may combine (VHWs from) several wards instead of gathering all the VHWs in the District or Provincial Preventive Center. For example, one training
can be set for VHWs from Co Thanh, Van An, and Pha Lai. That would be
convenient for us, and small-sized classes (20 people) are also more effective.
(FGD2, urban, Pha Lai)

One participant further suggested providing associate compensation to engage
VHWs when it was unlikely to meet the aforementioned proposals: “If there will be a 2-3
days training, the budget to cover the cost of drinks and food, about 50.000 or 100.000 dong (per
VHW), should be provided....If the training is in the provincial health center with the distance of
20 kilometers, traveling costs should be counted.” (IDI7, rural, Hoa Tham)

Further, all the participants emphasized that arranging regular reviews and
evaluations in the training curriculum would effectively assist VHWs in retaining their
knowledge and skills:

- They should be trained and retrained so that their knowledge will not be forgotten,
and their skills will be enhanced. People will believe them if they know the disease
and can actually use tools to diagnose. (FGD1, rural, Nanh Hue);

- Without reviewing, they will forget. Doing agricultural work without practicing the
academic knowledge, they will forget. It is understandable. (IDI7, rural, Hoa Tham)

Besides, they pointed out that the provision of the essential medical equipment
and tools would facilitate the VHWs to practice and perform relevant skills:

- My idea is that if now training is implemented for such diseases, things like facilities
should be provided for direct management of our own. Blood pressure monitor or
document forms is important, as we cannot consult people without doing initial
checks and using these things. (FGD2, urban, Pha Lai)
• To sum up, equipment must be provided enough so that we can practice. (FGD3, rural, An Lac)

In addition, the participants highlighted a call for support from multi-level and multi-sectoral stakeholders. One VHW perceived that close supervision from upper-level leaders would be essential to guarantee a high-quality training output: “Now if training is going to be organized, leaders of the CHCs and the District Preventive Center should work together as well, so in case that there is anything that we do not understand, then we can ask them.” (FGD4, urban, Cong Hoa)

One CHC leaders recommended that involving potential collaborators such as the population census department in the training might ensure thorough service coverage in the implementation: “There should be lecturers to train VHWs and census takers.... When VHWs cannot identify all the patients, the demographic team can help with the screening.” (IDI4, urban, Cong Hoa)

### Balanced Workload and Incentives

As stated in the last theme, the ineffective incentive mechanism with heavy workload was regarded as a major barrier to expand the role of VHWs in the NCD prevention and control. Regarding this, the participants offered several solutions to resolve the challenge of imbalanced workload and remuneration, and in turn facilitate the working efficiency.

On one hand, the participants pointed out the need to relieve the potential overload problem because this program would assign additional duties upon VHWs’
original responsibilities. The most straightforward suggestion was to directly recruit more VHWs and redistribute the tasks to reduce workload: “More VHWs are required because the area for each VHW is too big to manage, so with more people, they can perform better…. We have proposed for several times that with big ward, there should be two VHWs managing the households, so each will only handle a reasonable number of households, they will work better.” (IDI13, District Center of Preventive Medicine, NCD department)

On the other hand, the participants uniformly agreed that additional efforts paid by VHWs needed to be justified with improved incentive mechanism. First, while most of the respondents called for an increase in the amount of monetary compensation, some had their focal points on altering the ineffective payment methods. One VHW proposed an adaptable performance-based model which was successfully implemented in other programs: “Before, there were breastfeeding programs organized by the School of Public Health, we participated and we got paid based on the number of households we reached and served...For example, 20,000 VN Dong for one visit... It is fair, because we got paid for what we did.” (FGD3, rural, An Lac)

Second, the participants reported that the provision of work-related subsidies, including transportation costs, instruments, and medical uniforms, would enhance VHWs’ motivation to work and quality of service:

- Travelling distance also increases costs for VHWs in this mountainous area, so if travelling costs are covered, that would be great. (FGD3, rural, An Lac)
It would be so convenient that hypertensive patients could be instructed to come to VHWs to have their blood pressure checked, although this can only happen if the instruments are available. (IDI1, rural, Co Thanh);

Third, the respondents also highlighted their general expectations of non-monetary benefits, including health insurance and periodical physical checks, to guarantee VHWs being physically and mentally ready to deliver additional routine services:

- For now, a few VHWs have health insurance, but others do not. I think only a health insurance of 600.000 VN Dong per year would be a great motivation for them already. (IDI1, rural, Co Thanh)
- We can work on the regular early detection, but. If there are some policies for VHWs to get health examination, and paid holidays to encourage us, we will be so happy because we have our own health problems, which need protection as well. (FGD1, rural, Nanh Hue)

Policy Facilitators: Policy support, Sufficient Resources and Empowerment

First, participants expressed a need for focused policies from central level of the health care system, to grant the official approval and support for implementing and expanding VHW-led NCD preventive programs at the local level. One VHW representative suggested including detailed implementation and evaluation plans in such a program: “In order to make the VHW-led program work, there must be a clear
administrative plan. For example, what are the specific tasks and requirements for VHWs in the service delivery; if VHWs are asked to do periodical examination, then how much wage for that should be (paid to VHWs), so that it is worth VHWs doing it...so many things to consider.”

(FGD3, rural, An Lac) Sufficient resources associated with the program such as budget and facilities were commonly included as vital enabling factors for better service provision and patient engagement:

- If the financial budget is satisfied, it would be much easier. (IDI3, urban, Chi Minh)
- If VHWs are equipped with sphygmomanometer, stethoscope and also guided on early symptoms of hypertension, they can perform the initial screening starting from the elderly, which is very convenient. (IDI2, urban, Pha Lai)

Second, the participants believed that it would be necessary to advocate primary-level engagement of VHWs in the decision-making process in order to ensure that the program could be tailored to the local context:

We should work with upper-level departments, so that local health can be focused on in the policy-making procedures. Because some VHWs and village heads remain at important positions in the ward....They have their voice power in the ward....The authority should include their voice too, so that even when the financial budget is limited but they can speak up to encourage VHWs to work better. (IDI2, urban, Pha Lai)
4. Discussions

In order to explore the potential of engaging VHWs into community-based NCD prevention and control, focus group discussions with VHWs and in-depth interviews with public health administrators were conducted in both rural and urban region in northern Vietnam. The findings revealed that VHWs have been participating in the delivery of NCD control programs, and they are currently responsible for health information, community outreach and case monitoring for pre-conditions and patients. The participants endorsed the idea of expanding VHW role by including routine early detection and health education services for high-risk people, on the condition that VHWs could be empowered by appropriate training, guide and incentives. A set of barriers and facilitators to incorporating NCD prevention and control into the current VHW role were enunciated by the participants.

4.1 Willingness to Expand VHW Role in NCD care

First, despite that NCD early detection for people at high risk was not one of the reported official responsibilities, some VHWs were already able to do that in a spontaneous and unorganized fashion. On one hand, this may partially result from the lack of standard guideline as mentioned by participants; on the other hand, this directly indicates that VHW could have the capacity and motivation to deliver such preventive services in the community.
Second, participants also shared their views on why VHWs would be more advantageous to routinely deliver NCD preventive services compared to other health care professionals. These included a series of personal and interpersonal facilitators such as deep understanding of community, care about community health, direct connection with villagers, and self-efficacy raised by previous successful working experiences in preventive health care programs. These findings align with other domestic and international studies assessing CHWs’ motivation, job satisfaction, and performance determinants, indicating that intrinsic value, community trust and knowledge are likely to be enabling factors to including VHW in the delivery of NCD-related interventions.

Third, despite the positive attitudes towards engaging VHWs in the delivery of NCD prevention and control programs, the participants perceived multi-level challenges. The most frequently mentioned barriers were imbalanced workload and incentive, followed by inadequate training, lack of policy support and resource, worsened patient-VHW relationship and VHW competence constraint.

It is understandable that the participants had expectations on the incentives and workload. As Vietnamese VHWs have their regular job, they provide health care services to the community only when they have time. Meanwhile, unlike volunteers, they still receive minimum incentives from the government. When workload increased and incentive stayed the same, they were likely to have a sense of inequity and
demotivated to work. This may also partly explain why participants mentioned that they perceived "fee-for-service" payment method as "fair". However, when participants were asked to bring facilitating factors and suggestions to address the barriers, the most frequently cited facilitators were related to training rather than remuneration. This may speak to their collective priority and willingness to use education and capacity building approach to engage VHWs in NCD care, prior to an expectation of monetary benefit. Similar findings were found among CHWs in Ghana\textsuperscript{70} and South Africa,\textsuperscript{71} who also prioritized training as means of facilitating their role in community-based health care provision.

4.2 Barriers and facilitators to Expanding the VHW Role in NCD care

4.2.1 Training

Interwoven into the response from VHWs and health administrators regarding barriers and facilitators of expanding VHW role in NCD-related care, the need for relevant knowledge and skills through context-specific education was highlighted to be utmost important to validate their roles in the communities. Indeed, evidence shows that in order to share tasks with clinicians and increase the feasibility of CHW-led health care programs, it is vital that training adheres to the competence and expectation of local CHW. One multi-site study in Bangladesh, Guatemala, Mexico, and South Africa conducting cardiovascular screening training for CHWs suggested that, using non-invasive risk assessment tool and regular workshop sessions could improve and
retain CHWs’ knowledge on cardiovascular disease. However, perceived challenges including prolonged training duration, overload, complex content, and need for supervision were reported by the CHW trainees. These findings appeared to be consistent with the participants’ perceptions in the current study. Recently, in order for the training to be in line with CHWs’ capacity, research introduced multiple approaches including simplified training content, technological supports, practice component such as role-play, and review workshops. Among these approaches, some were also endorsed by the participants in this study. This is probably because most training programs were need-based, program-oriented and context-specific. For instance, in one pilot study of Accredited Social Health Activists (ASHA) in rural India, after undertaking short-term training, local CHWs were able to using information and communication technology (ICT)/mHealth applications as navigation to conduct opportunistic CVD risk screening for the community and to offer management advice as well as referrals. The performance of CHWs regarding the successfully detected cases was equivalent compared to that of physicians; meanwhile, the acceptance of the mHealth strategy was high among CHWs and the communities. It is likely that this model could be adaptable for VHWs to build capacity and expand roles in early detection of NCDs in Vietnam context, especially among those younger VHWs. One practical concern emerged from this study is that, as it is common to have elderly VHWs in the rural Vietnam, it may be difficult to ensure that mHealth is adaptable for them. 
considering their learning ability and age. Therefore, in the design of training for VHWs in Vietnam, it is necessary to adapt successful models from other LMICs; while, more attention may need to be focused on analyzing the unique characteristic of local context and the current health care condition to ensure the training is tailored to the local need and capacity.

In the next step, quantitative surveys among more VHWs in Chi Lin and other areas of Vietnam is needed to assess their current capacity and need for NCD knowledge and skills. Community-based participatory research for NCD could also be conducted among the same cadre of survey participants, to engage VHW in context-specific training based on their needs and roles such as improving basic knowledge and awareness of NCD risk factors, strengthening communication skills, and conducting risk assessments for NCDs. Meanwhile, there is also a need to collect perspectives from community members regarding their knowledge and perspectives about NCDs for a purpose of informing the design of need-based interventions to prevent NCDs in local setting.

### 4.2.2 Workload and Incentives

Furthermore, a lack of motivating incentive model to integrate NCD prevention and control services into VHWs’ routing work could be another barrier. As the participants reported, the VHWs assist the CHCs to deliver 20 vertically implemented disease-specific national target programs (NTPs), five of which focused on NCDs. While,
as the major chronic diseases share common risk factors and co-morbidities that require long-term care, the existing top-down NCD projects have been implemented with overlapping focuses and thus are lack of integration, efficient use of resources, and continuous service availability in the community level. This may partially account for the reason of increased burden of workload among VHWs. As identified in the study and also by other research on LMICs, with heavy workload accompanied by insufficient training, infrastructure, remuneration, and career development, the work motivation and performance quality are likely to be deleteriously affected. As a result, the quantity and the quality of the available services would hardly meet the raising health care demand due to the growing burden of NCDs. This would not only jeopardize patients’ health condition and further worsen the patient-doctor relationship, but also lead to a dysfunctional health system and increased health care costs regarding access to services.

Remobilization of human resource was cited as one promising solution to address overload issue. Adding extra NCD care tasks upon the already overwhelming VHWs might not only diminish their enthusiasm, but further result in less time and efforts being put on each mission and therefore an overall lower service quality. In the light of previous successful experience of empowering female VHWs to deliver maternal and reproductive care in other LMICs, specifying the scope of work according to the field would probably be useful in relieving the burden of workload. However, despite
the updated statistics from the MOH revealed that 96% of the villages were served by VHWs in 2015. The participants, especially those from the populous regions, indicated a severe shortage of active VHWs and deficient incentive to retain the workforce. Therefore, the high coverage of VHWs alone might be inadequate to ensure the local availability of service provider. It is necessary to leverage resources for the recruitment and retention of more VHWs according to the service demand and amount of tasks.

In order to incentivize VHWs to have better performance in NCD interventions, financial remuneration such as increased amount of salary, reimbursement and subsidies were suggested to be key facilitating factors in this report as well as in other LMICs. Meanwhile, fee-for-service payment method was endorsed by some VHWs in this study. While, on the other hand, fee-for-service might potentially result in over-prescribing and deteriorated quality in care. In order to incorporate current VHW role with additional NCD prevention tasks, it is necessary to explore a motivating incentive model without sacrificing the quality of service provision. According to one case study examining incentive models for CHWs in Iran, Ethiopia, India, Bangladesh and Nepal, five main incentive approaches were used to motivate CHWs, including part-time volunteer without periodical monetary incentive, volunteer incentivized by microfinance and market activities, volunteers paid with monetary incentives, full-time CHW paid with wage, and a mixed approach of paid and unpaid volunteers. Each type of payment approach revealed strengths in line with the program focus and the
expectation on CHWs performance. For example, in Iran, CHW go through two-year training to work full-time providing multiple tasks (e.g., home visits, breastfeeding, immunization, screening and follow-up NCDs) in communities and earn monthly income. The program has led to systematic improvement in population health, while also required high level of government commitment, training expertise, supervision mechanism, and community engagement. Another example is the CHWs in Nepal working as volunteers and received minimum payment to deliver basic family health and child care such as diagnosis of vitamin A deficiency. Regular training and retrain are provided as supervision mechanism. The program also revealed success in substantial reduction of infant mortality and improved reproductive health awareness. However, the CHWs are mostly female and their major source of motivation was suggested to be intrinsic such as family love, religious belief and social recognition. Meanwhile, they still receive in-kind incentives from the government instead of monetary incentives. These cases indicate that developing an effective incentive model would require comprehensive consideration on the feasibility, expectation, input and output of multiple components including but not limited to training, policy, community support, supervision and evaluation criteria of the program.

4.2.3 Patient Engagement

Furthermore, the participants emphasized the need for patient engagement. The relationship and trust between care providers and patients are key factors to retain both
parties in chronic diseases interventions. Perceived barriers of healthy provider-patient relationship such as deficient knowledge and communicate skills of CHWs, inadequate equipment, and low awareness of NCD risks among patients were also encountered by CHWs in other countries. This may be resulted from a generally incomprehensive primary care system and a prioritized focus on acute disease in Vietnam as well as other LMICs. While, the participants also perceived motivating by observing an increasingly improved awareness among patients and communities. As primary health care delivery and capacity of diagnosis continue to improve in Vietnam, more people would be aware of the significance of NCD prevention and control, and thus may benefit further from the expanded role of VHWs in community-based NCD risk reduction and early detection activities.

In addition, consistent with other literature, the participants suggested that peer support could be one facilitating factor for better patient engagement and health outcome. In CHW-led diabetes management programs conducted in Uganda and international settings, reduced blood pressure, increased self-management capability and active care-seeking behavior were observed among patients in peer support groups. The inclusive social atmosphere could be generated among for patients who share common problems and similar experience. In turn, patients and peers are more likely to have positive attitudes towards communication and problem-solving. Therefore, in addition to capacity building and training for VHWs, policy makers and program
planners may need to further highlight the necessity for integrative social support approach, and include patients, family, and community members as a vital resource of caregivers in the implementation of VHW-led community-based NCD interventions.

4.2.4 Policy

Participants perceived lack of policy-driven program guideline and government-supported resources as fatal to expanding VHW role in NCD prevention and control. There is a perception among the VHWs and public health administrators that engaging VHWs to routinely provide NCD-related care would require extra resources, including budget, infrastructure, and manpower development; this would in turn put a higher burden upon the current financial shortage and workforce crisis. Other domestic literature also cited that the fund allocated from the government for health education, health insurance, and interventions to prevent NCDs in the community.\textsuperscript{18,43} However, the quality of NCD-related services largely depends on sufficient human resource.\textsuperscript{55} Evidence from other LMICs indicated that utilizing CHWs in non-clinical preventative health care for NCDs in the grass-root level has been recognized as one cost-saving and efficient strategy to improve the access to affordable services.\textsuperscript{56,57} Therefore, rationally shifting non-clinical NCD-related tasks from CHC clinical workers to VHWs could be one effective way to meet the national targets with reduced cost to the health system in Vietnam, especially in those resource-limited settings.
As the participants indicated, their perceived gaps in NCDs-related health care service were not due to a lack of attention and commitment to NCD prevention and control in Vietnam. Since 1998, Vietnam has established a series of national target health programs and legal documents to combat NCD and risk factor.\textsuperscript{19,20,34,54} In 2015, the national strategy for prevention and control of NCDs in the period 2015-2025 was enacted with a strong focus on multi-sectoral collaborations in community-based initiatives to prevent NCD risk factors.\textsuperscript{26}

Another policy level barrier was cited as lack of transparency and government accountability. Despite not explicitly iterated by the participants’ voice, we did observe a lack of communication and collaboration between higher-level administrators and VHWs, which could partially justify the participants’ perception. In a systematic review, Joshi et al.\textsuperscript{85} indicated that CHWs could sustainably improve access and management of NCD care with supportive health system reform and multi-sectoral collaboration. For instance, in China, a country with similar governance structure in the health system, a collaborative service delivery approach has been extensively used in the government-sponsored mental health program.\textsuperscript{66} The provincial hospital, county hospital, China’s center for Disease Control and Prevention (CDC), civil administration, mass organizations, CHCs, CHWs, and patient family build a firm network to provide community-based mental health care package including screening, diagnosis, treatment and follow-up.\textsuperscript{67} Training and tasks are tailored to care providers in each level according
to their capacity and availability of resources. By the end of 2016, 5.4 million patients were diagnosed with registration, in which 88.7% received community-based follow-up monitoring and rehabilitation. Despite that there is yet no comprehensive evaluation of the program outcome, the figure indicates that the supportive policy environment and multi-level collaboration maybe can build a foundation to improve access to care and health care capacity. It is worth mentioning that Vietnam also has realized the significance of cross-level collaboration in implementing community-based programs for chronic diseases by calling for direct coordination among provincial, district and community levels during the process of capacity building and service delivery.

However, during the data collection for the current study, we observed that compared with the CHC leaders, the policy makers from the district and provincial level showed that they were likely to only being aware of the VHWs’ presence in the community, while having less knowledge of the VHWs’ specific scope of work, and less belief in VHWs’ capability of delivering relatively complicated services such as early detection, screening, and counseling. Meanwhile, the VHWs also perceived a lack of information transparency. This gap indicated an isolated relationship between different levels of the health care system. It may be a result of the long tradition of using vertical health care implementation model, and little reinforcement being made to effectively facilitate the integrated partnership in the study sites. It is vital to have more investigations on how to promote team-work spirit, and how to engage VHWs into the team without causing
conflict of interests within the current governance structure. Interventions on raising the awareness of integration for all potential stakeholders are needed.

### 4.3 Study Strengths and Limitations

One of the strengths of this study is that, to our best knowledge, this is to the date the first qualitative research to assess the VHWs’ ability in providing prevention and control services for all major NCDs in Vietnam and to identify relevant facilitating factors and barriers. Meanwhile, the study included insights from both the service provider (i.e., VHWs) and the public health policy makers in rural and urban contexts. Therefore, it would allow a direct comparison between the voices from different representatives in the Vietnam health system within a diverse socio-economic background.

There are several limitations of this study. First, the sample collected may not adequately represent the characteristics in the target groups. When we recruited participants for the FGDs, it was often the middle-age or senior CHWs showing interests to participate in the study. It probably because the time slot for FGDs was set in working hours, which overlapped with the schedule of younger VHWs who have full-time jobs. Or, maybe they were less interested in the topic as they were not experienced as the senior VHWs. In addition, due to time conflict, the study was not able to include the perspectives from the national-level policy makers (e.g., officers in the MOH of Vietnam). The study also did not include the participation of patients. Since the
prevention and control of NCDs is a joint mission that requires the involvement of stakeholders from different sectors, it would be critical to gather insights from top-level decision makers, novice practitioners as well as service receivers. However, policy makers from provincial, district, and community levels were involved as study participants. They are quite likely to be aware of the national level policy, and their leadership and power can have strong impact to national level decision making, which can somehow mitigate this limitation. In the future, the above issues would be addressed by rescheduling the research activities according to the potential participants’ convenience, engaging policy makers from both local and national level, and by inviting patients to share their opinions in further research.

Second, respondent bias may also occur in this research. The questions in our study tools may increase the likelihood of social desirability. For instance, when being asked about the responsibilities and capability of the VHWs in the NCD prevention and control, the VHWs with inadequate knowledge and experiences of NCDs may have an impression of being evaluated, which could lead to a sense of self-abasement and reluctance of giving honest answers, especially in front of experienced VHWs. In addition, when we asked the participants about their attitudes towards the proposed plan, some participants might hypothesize that our research team was to put the plan into action soon, and thus express positive attitudes in order to meet “our expectation”.
Third, it would be difficult to generalize the findings to the other parts of the country due to the small sample size and concentrated distribution of the study sites in nine CHCs within one district. As Vietnam is a geographically diverse country with various ethnicity and cultures, there may be a variation in the perceived needs and service delivery patterns of VHWs came from different regions. However, the result of this study could be comparable to other parts of Vietnam with similar features in social-economic status and cultural background.

Fourth, the interview transcriptions were translated only once without back-translation. In order to avoid the subjectivity of the primary translator, three-rounds of independent review and cross-check of the documents was conducted by our bilingual research team members. However, as there was no on-site research team member using English as the first language, the data could still be biased in favor of the understanding and opinions of the translator and reviewers within the local linguistic habits. This issue could be addressed by using independent forward- and back-translation in the future, as the original data has been recorded.

Finally, except for the initial open coding stage, the process of data coding, organizing and interpretation were completed by the PI alone, not by independent reviewers. Therefore, the coded data was not compared for consistency and this would likely to weaken the overall trustworthiness of the findings. It is recommended to re-
code part of the original data by another coder to assess the reliability, and to use peer-debriefing to assess the validity of the coding process as well as the results.
5. Conclusions

By exploring the voices from VHWs and public health administrators in Vietnam, this study revealed that VHWs are currently responsible for health information, community outreach and case monitoring for pre-conditions and patients in NCD control programs. The participants endorsed the idea of expanding VHW role by including routine early detection and health education services for high-risk people, on the condition that VHWs could be empowered by appropriate training, guide and incentives within supportive community and policy environment. In the next step, cross-regional community-based participatory research is needed to systematically explore the capacity and needs of VHWs and all the potential stakeholders such as top-level health care authorities and local community members. Such research would provide essential references for decision makers to generate context-specific incentive mechanisms, strategic plans, and practice guidelines to better engage VHWs in the delivery of NCD prevention and control programs.
6. Appendix

A. Focus Group Discussion Guideline

| Community/Village Health Worker Focus Groups – Moderator’s Guide | Thảo luận nhóm nhân viên y tế thôn bản – Hướng dẫn cho điều phối viên |
| Notes in these parentheses are for the moderator – not to be read out loud | [Ghi chú trong ngoặc đơn chỉ dành cho điều phối viên – không cần đọc lên] |

**Consent Process**

Consent forms for focus group participants must be collected in advance or before the start of the discussions.

**Introduction**

Hello. Thank you for coming.

My name is ___________. [Moderator’s first name] and I will lead the group discussion today. This is Ms. Hongfei Long from DKU, China, who is leading this study.

You have been asked here today because of your experience as community/village health worker and control. As a communicable disease (NCD) prevention and control. As a community/village health worker you get to see and interact with patients or family members of patients who are at risk of different types of NCDs. Therefore you may have insights and opinions that doctors don’t have. As we have described in the consent form, we are not asking you to disclose any personal information or sensitive information and you don’t have to speak up and say anything if you choose not to.

Giới thiệu

Chào anh/chị! Cảm ơn vì đã tới!

Tến tới là [tên nghiên cứu viên] và tôi sẽ điều phối buổi thảo luận ngày hôm nay. Đây là bà Hongfei Long từ trường đại học Duke, Trung Quốc, chủ nhiệm đề tài nghiên cứu này.

Anh/chị được mời tới đây ngày hôm nay vì anh/chị có kinh nghiệm với chương trình môn nhân viên y tế thôn bản (YTTB). Trong vòng 60 đến 90 phút tiếp theo, anh/chị sẽ tham gia một buổi thảo luận nhóm. Những này tập hợp mọi người để cùng thảo luận về một chủ đề cụ thể và chia sẻ suy nghĩ, ý kiến, nhận định của bản thân chủ đề đó.

Là người điều hành buổi thảo luận, tôi sẽ hỏi một số câu hỏi, nhưng tôi không phải là chuyên gia trong lĩnh vực này. Tôi chỉ đơn giản là người sẽ điều phối nhóm cho những người nghiên cứu.

Trong buổi thảo luận ngày hôm nay, chúng ta sẽ thảo luận về những kinh nghiệm của anh/chị trong quá trình cung cấp các dịch vụ y tế dựa vào công đồng trong các chương trình chăm sóc sức khỏe. Chúng ta cũng sẽ tập trung vào vấn đề phòng chống bệnh không truyền nhiễm (BKTN).

Là một nhân viên y tế thôn bản (YTTB), anh/chị phải gặp và giao tiếp với bệnh nhân và gia đình của họ, những người có người mắc các loại BKTN khác nhau. Do vậy, anh/chị có thể có những hiểu biết sâu sắc và cách nhìn nhận sự việc mà bác sỹ không có. Như đã mô tả ở phiếu đăng ý tham gia nghiên cứu, chúng tôi không yêu cầu anh/chị phải tiết lộ thông tin cá nhân hay thông tin nhạy cảm cũng như anh/chị có quyền từ chối trả lời.
## Warming-up

- I’d like us to go around the room and have everyone tell us your first name and how long you have worked as a village health worker (VHW).

**FGD guide:**

### I. Roles and responsibilities as a village health worker

- What are your basic responsibilities as community health worker?
- What is the range of services you usually provide as a VHW?
  - Probe - e.g., polio vaccinations, health education, AIDs education...
  - Probe - could you tell me more about how you perform....?

- Everyone finds some parts of their job satisfying and rewarding, and everyone has some things they don’t find satisfying or rewarding. For now, let’s focus on the things you like and find satisfying and rewarding about your role as VHW. I’d like you to focus specifically on your interactions with the patients.

- Do you feel satisfied with your current
  - workload?
  - working condition?
  - income?

- And what about the working experience that you think are not so satisfying? Can you tell us about some of those situations?

  Probe - could you tell me why you feel satisfied and why not? What should be improved or corrected?

- What are the difficulties that you face in your current job as a VHW?

### II. NCDs knowledge and role

NCDs are common in Vietnam. We are trying to develop some policies to improve the access and quality of NCD prevention and control at community level.

- What do you know about NCDs?

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## Khởi động

Tớ muốn chúng ta giới thiệu tên lần lượt cũng như khoảng thời gian anh/chị làm việc ở vị trí nhân viên y tế thôn bản.

### Hướng dẫn thảo luận nhóm tập chung (FGD)

#### I. Vai trò và trách nhiệm của nhân viên y tế cộng đồng

- Là một nhân viên y tế cộng đồng, trách nhiệm cơ bản của anh/chị là gì?
  - Gọi y – vắc xin phòng bạch hầu, giáo dục sức khỏe, AIDs
  - Gọi y – Anh/chị có thể nói thêm về cách anh/chị thực hiện không?

- Mọi người ai cũng có cảm giác hài lòng hoặc chưa hài lòng về một số phần trong công việc của mình. Tạm thời, hãy tập trung vào những điều anh/chị thích và cảm thấy hài lòng khi đang giữ vị vai trò của bản thân là 1 nhân viên YTTB đặc biệt là quá trình tương tác/ sự liên hệ với bệnh nhân.

- Anh/chị có cảm thấy hài lòng với công việc hiện tại
  - Lương công việc
  - Điều kiện làm việc
  - Thu nhập

- Trong quá trình tương tác với bệnh nhân/cá nhân của công cộng, anh/chị cảm thấy điều gì chưa hài lòng và mong muốn được cải thiện? Anh/chị có thể nói rõ hơn về những tình huống đó dưới không?

- Anh/chị còn cung cấp những dịch vụ nào khác nữa?

- Những khó khăn anh/chị gặp phải khi làm việc trên công việc của một nhân viên y tế cộng đồng là gì?

#### III. Phỏng vấn và kiểm soát anh/chị

BKTN khá phổ biến tại Việt Nam. Chúng tôi đang cố gắng phát triển những chính sách mới để cải thiện sự tiếp cận và chất lượng công tác dự phòng và kiểm soát BKTN ở cấp cộng đồng.

- Anh/chị đánh giá thế nào mức độ nghiệm
• How do you think NCD affects someone’s health? Like in your community?
  ○ Probe - What about the impact on their family’s quality of life?
• How does the importance of NCD compare to other health problems that you work on in terms of how much attention it gets from doctors and health workers?

• Have you provided health care services and preventive intervention for NCDs? diabetes, cardiovascular diseases, hypertension or other related diseases?
  ○ Probe - could you tell me more about how you perform....?
• What role do you think VHWs can play in helping NCD prevention?

IV. Attitude, perceived barriers and facilitators to proposed new CHW role for NCD

Now I’d like to hear your ideas about a specific role for VHWs that is focused on NCD prevention. Some of you may be doing something like what I’m about to describe.

We are thinking about engaging VHWs to offer brief counseling and basic care for common NCDs (i.e. diabetes, hypertension) and their risk factors (i.e. physical activity, smoking cessation).

Our plan is to create a system in the community health centers that the VHWs, upon receiving training, would be responsible to conduct screening for NCDs and to deliver risk reduction interventions for common NCDs. VHWs can refer complicated cases to the doctors or nearest healthcare facilities.

Before I ask you what you think about this idea do you have any questions about what I just described?
• What do you think about this idea?
  ○ Probe - What do you like about the idea? What don’t you like?
• How confident are you if you are to trong của BKTN?
• Anh/chị đánh giá thế nào về sự ảnh hưởng của BKTN đến sức khỏe mọi người?
  ○ Gọi ý – Những ảnh hưởng của BKTN lên chất lượng cuộc sống gia đình là gì?
• Anh/chị thấy mức độ quan trọng của vấn đề BKTN như thế nào so với những vấn đề sức khỏe khác xét trên phương diện thu hút sự chú ý của bắc sĩ và nhân viên y tế?

• Anh/chị có cung cấp dịch vụ chăm sóc sức khỏe và can thiệp phòng ngừa bệnh tiêu đường, tim mạch, tăng huyết áp và những BKTN khác?
  ○ Gọi ý - Anh/chị có thể nói thêm về cách anh/chị thực hiện không?
• Anh/chị nghĩ về rõ ràng của YTTB là gì trong hỗ trợ công tác phòng chống BKTN?

IV. Phản hồi về những vai trò mới của nhân viên y tế cộng đồng trong việc phòng chống anh/chị

Bây giờ, tôi muốn lắng nghe ý kiến của anh/chị về vai trò, cụ thể của YTTB trên phương diện tập trung vào việc phòng chống BKTN. Một vài người trong số anh/chị có thể đang làm những việc giống như tôi mô tả.

Chúng ta đang bàn về sự tham gia của YTTB trong cung cấp tư vấn nhanh và chăm sóc cơ bản cho một số BKTN thông thường (tiêu đường, huyết áp cao...) và những yếu tố nguy cơ (tập thể dục, bỏ hút thuốc..) thông qua đội ngũ nhân viên y tế cộng đồng.

Dự định của chúng tôi là tạo ra một hệ thống thuốc tránh và để mang lưu YTTB, sau khi được đào tạo tập huấn, sẽ chịu trách nhiệm tiến hành sàng lọc BKTN và cung cấp các biện pháp can thiệp giảm nguy cơ cho những BKTN phổ biến. YTTB có thể chuyển các trường hợp phức tạp đến các bác sĩ hoặc cơ sở y tế gần nhất.

• Anh/chị thấy ý tưởng này như thế nào?
  ○ Gọi ý – Anh/chị thích/không thích điều gì trong ý tưởng vừa rồi?
• Anh/chị từ tin như thế nào trong việc đảm
carry out this role?
  o  Probe - Do you see yourself filling this role?
- What do you think will be the difficulties or challenge in making this work?
- What would you need to take on this role?
  o  Probe - what kind of training would you need? How much time do you need to finish this kind of training?
  o  Probe – Do you think your monthly income should increase after engaging in this program? Do you have any expectations in terms of incentives?
  o  What is an acceptable workload per day for you if you are engaged in this kind of program?
  o  What other ideas do you have to make this work?
- What do you think community members’ reaction about this program?
  o  Probe-What would be the things they like? What would be the things they don’t like?
  o  Do you think this idea will reduce health systems burden to provide NCD care?
  Does anyone have anything else that they’d like to say,..
[If so, pursue as time allows]
[If not, thank and dismiss]
I would like to thank you all for your active participation in today’s discussion.

nhân vai trò thực hiện công việc này?
  o  Gọi ý – Anh/chị có thấy mình hợp với công việc này không?
- Anh/chị nghĩ rằng những khó khăn và thách thức gì khi thực hiện ý tưởng này là gì?
- Anh/chị có yêu cầu gì để có thể thực hiện được công việc này?
  o  Gọi ý – Anh/chị có như nhu cầu gì về loại hình đào tạo tập huấn? Anh/chị cần bao nhiêu thời gian để hoàn thành việc đào tạo này?
  o  Gọi ý – Anh/chị có nghĩ rằng lương hàng tháng của anh/chị nên được tăng khi anh/chị tham gia vào chương trình này? Anh/chị có mong muốn gì về trợ cấp?
  o  Nếu anh/chị tham gia vào chương trình này, khối lượng công việc anh/chị có thể thực hiện mỗi ngày là bao nhiêu?
  o  Anh/chị có đề xuất gì trong việc thực hiện chương trình này không?
- Theo anh/chị, cộng đồng sẽ có phản ứng như thế nào về chương trình này?
  o  Gọi ý – Họ sẽ thích/không thích điều gì?
  o  Theo anh/chị, ý tưởng này sẽ giảm thiểu gánh nặng cho hệ thống y tế trong việc cung cấp các chăm sóc các BKTN?
  o  Anh/chị có câu hỏi gì ngoài những gì đã trao đổi không?

[Không có.tiếp tục nếu thời gian cho phép]
[Không, cảm ơn và ra về]
Tôi xin cảm ơn anh/chị đã tham gia trong cuộc phòng vân ngày hôm nay.
### B. In-depth Interview Guideline

**Policy Maker/ Public Health Administrator**  
**In-depth Interview – Interviewer’s Guide**  
**Note to Interviewer:**

- Notes in parentheses [ ] are for the interviewer – not to be read out loud
- Ask each question as stated in the interview guide. If the participant states that he/she does not really know the answer, write “DK” (“Don’t know”).
- Most questions request the participant to specify or explain further. Please probe appropriately to obtain the underlying reasons. Interviewers are encouraged to probe in the case of open-ended questions. Use spaces provided and the margins or the back pages of the interview guide if more space is needed.
- In some instances, a respondent may decline to answer a specific question. If so, write down “Declined,” then ask the respondent if it is okay to ask the next question. If the respondent agrees to continue, be sure to ask the next applicable question based on “Skip” instructions.

**Consent Process**

- Consent forms for in-depth interview must be collected before proceeding with the interview.

**Introduction**

Good morning Sir/Madam [or as appropriate]. Thank you very much for making time for this interview.

My name is [Interviewer’s first name] and I will be your interviewer today. I work for the researcher from the Global Health Program, Duke Kunshan University. We are interviewing policy makers and public health administrators regarding the role of village health workers in NCD prevention and control programs in Vietnam.

You have been invited today because of your experience as a policy maker or a public health administrator.

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**Hướng dẫn phỏng vấn sâu các nhà lập sách / nhà quản lý y tế công cộng**

Lưu ý cho người phỏng vấn:

- Ghi chú trong ngoặc [ ] đánh cho người phỏng vấn - không đọc cho người được phỏng vấn
- Hội nghị các câu hỏi theo trình tự đã neu trong hướng dẫn phỏng vấn. Nếu người tham gia nói rằng ảnh/cô ấy không thực sự biết câu trả lời, viết "KB" ("Không biết").
- Trong một số trường hợp, đối tượng có thể từ chối trả lời một vài câu hỏi. Nếu vậy, hãy viết "Trước", sau đó hỏi đối tượng có thể trả lời câu hỏi tiếp theo không. Nếu đối tượng đồng ý tiếp tục, hãy chắc chắn câu hỏi được đặt ra áp dụng theo hướng dẫn "Bỏ qua".

**Quy trình đồng ý tham gia:**

- Phiếu đồng ý phỏng vấn sâu phải được thu lại trước khi tiến hành các cuộc phỏng vấn.

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**Giới thiệu**

Xin chào ông/bà [hoặc xưng hô phù hợp]. Cảm ơn ông/bà đã đồng ý đánh thời gian cho cuộc phỏng vấn này.


Ông/bà được mời tham gia phỏng vấn ngày hôm nay vì ông/bà là cá nhân có bề dày kinh nghiệm với chương vị là một nhà lập sách.
In today’s interview we will talk about the role of village health workers (VHWs) in providing community-based services on different programs. We will also focus on the prevention and control of non-communicable disease (NCD), such as hypertension, diabetes, and heart diseases. As a policy maker/administrator, you have experiences for comprehensive decision making and community health management, so you may have more opinions about the role of VHWs and how to integrate them into different health care programs.

This meeting is going to last approximately 45 to 60 minutes. May I begin?

**Warming-up**
- First, I’d like to know your first name and your role in this institution/center.

**I. Overall services provided by VHWs and implementation process**
- What are the health care services currently provided by the village health workers who serve in your institution/center?
  - Probe - e.g., health education, health promotion, AIDS education, vaccination...
- How do you involve them in providing those health care services?
- What guidelines do they need to follow?
  - Probe - in your opinion, what are the most important aspects of these guidelines? What could be improved?
- What is your opinion on their general workload?
  - Probe - what tasks should be retained? what are the other things that should be changed?
- What types of training does CHWs receive in general?

-or nhà quản trị y tế công cộng.

Trong cuộc phòng vẫn ngày hôm nay, chúng ta sẽ thảo luận về vai trò của nhân viên y tế thôn bản (YTTB) trong việc cung cấp các dịch vụ công cộng trong các chương trình khác nhau. Chúng tôi cũng sẽ tập trung vào việc ngăn ngừa và kiểm soát các bệnh không truyền nhiễm (BKTN) như tăng huyết áp, tiểu đường và bệnh tim mạch. Là một nhà lãnh đạo/ nhà quản lý, ông/-binary có kinh nghiệm trong việc đưa ra quyết định mang tầm vóc và quản lý sức khỏe cộng đồng, vi vậy ông/bà có những nhận định gì về vai trò của YTTB và làm thế nào để tăng cường sự tham gia của YTTB vào các chương trình chăm sóc sức khỏe.

Cuộc nói chuyện này dự kiến sẽ kéo dài khoảng 45 đến 60 phút. Chừng ta có thể bắt đầu?

**Khởi động**
- Trước tiên, tôi muốn biết tên của ông/bà và vai trò của ông/bà trong cơ quan/ tổ chức hiện tại.

**I. Các dịch vụ được cung cấp bởi YTTB**
- Hãy kể tên các dịch vụ chăm sóc sức khỏe hiện đang được cung cấp bởi các nhân viên y tế cộng đồng trong tổ chức/trung tâm của ông/bà?
  - Gợi ý - VD: giám đốc sức khỏe, năng cao sức khỏe, giáo dục AIDS, tiêm chủng ...
- Ông bà có đề xuất gì về việc tăng cường sự góp mặt của YTTB trong cung cấp DV CSSK?
- YTTB cần phải tuân thủ những hướng dẫn/ quy trình nào?
  - Thamd dô - theo ý kiến của ông/bà, những khả cảnh quan trọng nhất trong những hướng dẫn/ quy trình này là gì? Điều gì có thể được cải thiện?
- Hãy cho biết ý kiến của ông/bà về khối lượng công việc thường ngày của YTTB?
  - Thamd dô - những công việc nào căn được duy trì và những công việc nào căn được thay đổi, cải thiện?
OK. Thank you.

### III. NCDs knowledge and VHW role

NCDs are common in Vietnam. We would like to know about your opinions on this problem and what have been done to improve the access and quality of CHW-led NCD prevention programs at community level.

- How much of a problem do you think NCD is in this district and in Vietnam?
- How does the importance of NCD compare to other health problems?
- What are the NCD-related health care services and preventive intervention currently provided by the VHWs who serve in your institution/center?
  - Probe - e.g., diabetes, cardiovascular diseases, hypertension...
- What policies/guidelines are you taking to strengthen the role of VHWs on NCDs prevention and control?
  - Probe - in your opinion, what are the most important aspects of these policies? What could be improved?
- What kind of NCD-related training programs have been established for VHWs?
  - Probe - How was VHW performance in those activities?

OK. Thank you.

### III. Response to proposed new CHW role for NCD

Now I’d like to hear your ideas about a specific role for VHWs that is focused on NCD prevention.

We are thinking about engaging VHWs to offer brief counseling and basic care for common NCDs (i.e., diabetes, hypertension) and their risk factors (i.e., physical activity, smoking cessation).

Our plan is to create a system in the community health centers that the VHWs, upon receiving training, would be

- Những loại hình đào tạo chưa yêu nào YTTB nhận được?
  Vằng. Cảm ơn ông/bà.

### III. Phòng, chống BKTN

BKTN phổ biến ở Việt Nam. Chúng tôi muốn biết về nhận định của ông/bà về vấn đề này và những giải pháp đã được thực hiện để cải thiện sự tiếp cận và chất lượng của các chương trình phòng chống BKTN dựa trên YTTB ở cấp cơ sở.
- Ông/ bà đánh giá thế nào về mức độ của vấn đề BKTN trên địa bàn quản/ huyện và tại Việt Nam?
  - Tâm quan trọng của BKTN khi so sánh với các vấn đề sức khỏe khác như thế nào?
- Hãy kể trên các dịch vụ chăm sóc sức khỏe liên quan BKTN và can thiệp phòng ngừa hiện được cung cấp bởi các YTTB trong tổ chức/trụ sở của ông/bà?
  - Gởi ý - VD: bệnh tiểu đường, bệnh tim mạch, cao huyết áp ...
- Những chính sách đã được áp dụng để tăng cường vai trò của YTTB trong dự phòng và kiểm soát BKTN?
  - Thường do - theo ý kiến của ông/bà, những khía cạnh quan trọng nhất của chính sách này là gì? Điểm nào có thể cải thiện?
- Những chương trình đào tạo, tập huấn nào liên quan đến BKTN đã được tổ chức cho nhóm YTTB?
  - Thường do - Phân họ của YTTB với các hoạt động này như thế nào?
  Vằng. Cảm ơn ông/bà.

### III. Dáp ứng với đề xuất mới về vai trò YTTB đối với BKTN

Bây giờ tôi muốn nghe ý kiến của ông/bà về vai trò của YTTB tập trung vào công tác chống BKTN. Chúng tôi muốn đề cập đến sự tham gia của YTTB trong cung cấp tư vấn nhanh và chăm sóc cơ bản cho những BKTN phổ biến (ví dụ bệnh tiểu đường, tăng huyết áp) và các yếu tố nguy cơ liên quan đến những bệnh này (ví dụ tập thể dục, bố thuốc lá).

Đựng định của chúng tôi là tạo ra một hệ
What do you think about the idea?
- Probe - what do you like about the idea? What do you think could be improved?

What do you think will be the difficulties or challenge in making this work?
- Probe - in your opinion, what can be done to address these challenges?

What kind of training would you provide for VHWs to make this work?

What do you think VHWs would react about this program?
- Probe - in your opinion, what could be the things they like? What could be the things they are not interested in?

In your opinion, what would VHWs need to take on this role?
- Probe - what factors would influence their job satisfaction and motivation?
  - E.g., equipment and supplies, workload, working condition, transportation, payment...

What do you think about assigning extra NCD prevention tasks to the currently working VHWs?
- Probe - will the workload be acceptable for them? Do you think there is a need to hire extra VHWs to specifically focus on NCD care?

what do you think are the most feasible tasks if you are to involve VHWs in NCD prevention and control programs?
- In addition to what I just described, what applications or future plans do
Do you have anything else that you’d like to say? [If so, pursue as time allows] [If not, thank and dismiss]
I would like to thank you for your participation in today’s interview.
**C. Consent Form for Focus Group Discussion Participants**

<table>
<thead>
<tr>
<th>Phiếu đồng ý tham gia thảo luận nhóm tập trung</th>
<th>Consent Form for Focus Group Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vui lòng đọc kỹ và hiểu biết kỹ câu hỏi mà anh/chị thức mắc trước khi đồng ý tham gia vào nghiên cứu này. Hãy đảm bảo rằng anh/chị hiểu rõ tất cả mọi thông tin trong giấy chấp thuận này.</td>
<td>Please read this form carefully and ask any questions you may have before agreeing to take part in the study. Please make sure that you understand all the information in this consent form.</td>
</tr>
<tr>
<td><strong>Giới thiệu về nghiên cứu</strong></td>
<td><strong>What the study is about</strong></td>
</tr>
<tr>
<td>Mục đích của nghiên cứu này là tìm hiểu nhận kiến y tế thôn bản (YTTB) nhận thức công việc của mình như thế nào, hỗ trợ giai vải trợ của bản thân trong các chương trình phòng chống bệnh không lây truyền nhiễm (BKTN) như thế nào và mức độ hài lòng của họ với điều kiện công việc. Chúng tôi hy vọng sẽ tìm hiểu được những thông tin Bộ Y tế và các nhà quản lý y tế công cộng có thể sử dụng để cải thiện điều kiện làm việc và một số yếu tố khác nhắm cải thiện và duy trì sự tham gia của nhân viên (y tế thôn bản) YTTB trong phòng ngừa và kiểm soát BKTN tại Việt Nam.</td>
<td>The purpose of this study is to learn how community health workers (CHWs) /village health workers (VHWs) view their jobs, how they consider their role in non-communicable disease prevention programs and how satisfied they are with working conditions. We hope to learn things that the Ministry of Health and other public health administrators can use to improve working conditions and other factors that would improve health worker retention in non-communicable diseases prevention and control in Vietnam.</td>
</tr>
<tr>
<td>Để tham gia nghiên cứu này, anh/chị phải từ 18 tuổi trở lên và đã làm việc ít nhất 3 tháng ở vị trí hiện tại.</td>
<td>You must be 18 years old or older, and working at least 3 months in your current working institution to take part in this study.</td>
</tr>
<tr>
<td><strong>Những việc anh/chị cần làm nếu tham gia nghiên cứu</strong></td>
<td><strong>What we will ask you to do</strong></td>
</tr>
<tr>
<td>Nếu anh/chị đồng ý tham gia nghiên cứu này, tôi sẽ tiến thành một cuộc thảo luận nhóm tập trung và cuộc thảo luận này sẽ được ghi âm lại. Cuộc thảo luận này bao gồm những câu hỏi về các dịch vụ đang cung cấp tại trạm y tế xã, thái độ và niệm tin về việc phòng ngừa BKTN ở cấp cơ sở, nhận định của anh/chị về vấn đề các nhân viên YTTB có thể hỗ trợ như thế nào để cung cấp</td>
<td>If you agree to be in this study, we will conduct a focus group discussion with you which will be audio-recorded. The discussion will include questions about the range of services that you currently deliver at the community health centers (CHCs), your attitudes and beliefs about non-communicable disease prevention at community level, your thoughts on how CHWs can be supportive to deliver non-communicable</td>
</tr>
</tbody>
</table>
### Risks and Benefits

**Risks:**

1. There could potentially be harm to your career or workplace interactions if you make a comment which is possibly offensive or otherwise bothersome to others. You will be part of a focus group involving other CHWs, who will of course hear your comments. In addition, although we will ask all members of the focus group not to talk later about comments made during the focus group session, it is always possible that some focus group participants will later describe your comments to others.

2. One or two questions in this discussion will ask about your salary expectations. Some of you may find this sensitive. If you do not feel comfortable about those questions, you are totally free to skip them.

**Benefits:**

The benefit to taking part in the study is that you will contribute to the improvement of NCD disease (NCD) programs and your recommendations for policy makers to improve the quality and access to CHW-led NCD care and control programs in Vietnam.
| Tí nh bạ | Tri | thọ | đđt | có | nh Biblical information about past or current patients, exercising the same care for patient confidentiality as you would in any other public setting. We are only interested to know the pattern of services that you have provided, challenges that you have encountered and your suggestions for improvement of similar services or programs.

There is no need for you to tell us any individual’s name, address or other identifying details.

2. The records of this study will be kept confidential.

3. All our research team members have received ethical training and will take efforts to protect the confidentiality of your

<table>
<thead>
<tr>
<th><strong>Confidentiality – Our Obligation and Yours</strong></th>
</tr>
</thead>
</table>
| 1. Please review the risks to yourself and others described above. For the purpose of protecting yourselves and your community members, our research team hopes that you understand the importance of preserving confidentiality of all comments made during the focus group. By signing this consent form, you indicate:

a. That you will keep confidential your comments and those of others in the focus group, by not discussing these comments with others after the focus group session is completed. Each member of the focus group will have signed this confidentiality form and thus will have agreed to keep confidential all comments made during the focus group session.

b. That you will avoid disclosing any confidential information about past or current patients, exercising the same care for patient confidentiality as you would in any other public setting. We are only interested to know the pattern of services that you have provided, challenges that you have encountered and your suggestions for improvement of similar services or programs.

There is no need for you to tell us any individual’s name, address or other identifying details.

2. The records of this study will be kept confidential.

3. All our research team members have received ethical training and will take efforts to protect the confidentiality of your |
<table>
<thead>
<tr>
<th>4. Tên của anh/chị sẽ được sử dụng bởi người điều hành trong buổi thảo luận thay vì họ tên đầy đủ của anh/chị. Phần tự giới thiệu trước khi bắt đầu chính thức của mỗi cuộc phòng vấn sẽ không được ghi âm, vì vậy tên của anh/chị sẽ không được nhắc đến trong băng ghi âm. Nếu bất kỳ thông tin (ví dụ, tên riêng, số điện thoại hay địa chỉ cụ thể) là thủ thỉ không chịu trách nhiệm khi sử dụng thiết bị ghi âm khi anh/chị trả lời các câu hỏi trong buổi phỏng vấn, tên sẽ được ngay lập tức mã hóa thành con số; số điện thoại và địa chỉ cụ thể sẽ được xóa trước khi tiến hành ghi băng, vì vậy sẽ không có thông tin cá nhân trong đoạn ghi băng.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Độc giả hiểu việc rò rỉ thông tin, sẽ có một danh sách mà hóa tên riêng sang dạng số trong phần ghi băng. Tách biệt với các tài liệu khác, danh sách này sẽ được lưu trữ trong một hệ thống máy tính duy nhất được bảo vệ an toàn bằng mật khẩu và không có kết nối internet. Việc truy cập vào danh sách chỉ dành cho nghiên cứu viên chính (PI). Danh sách này sẽ bị phá hủy sau quá trình ghi băng, dự kiến khoảng ba tháng từ lúc thảo luận.</td>
</tr>
<tr>
<td>6. Họ số nghiên cứu sẽ được lưu trữ ở trong một tập tin khóa và chỉ có nghiên cứu viên có quyền truy cập vào các kết quả này. Đối với bảng ghi âm của buổi thảo luận, nhóm nghiên cứu sẽ hủy bỏ sau khi băng được ghi trong khoảng thời gian dự kiến là 4 tháng từ khi tiến hành buổi thảo luận.</td>
</tr>
<tr>
<td>7. Trong bất kỳ báo cáo được công bố, thông tin của anh/chị sẽ được thay đổi và không bao gồm bất cứ thông tin nào có thể tiết lộ danh tính của anh/chị. Các thông tin riêng của anh/chị sẽ được mở tả theo các phạm trù lớn như theo khoảng tuổi, khu vực địa</td>
</tr>
</tbody>
</table>
Taking part is voluntary

Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide to take part, you are free to withdraw at any time. If you withdraw from the study, we will immediately destroy all information that links you to the focus group you were in.

Justice

After the consent form signing section, the PI will randomly select names from the signed consent forms until the desired number (6 to 8) of verified participants is achieved, so that each person will get equal chance to participate in the study; However, this random selection process also means that someone will not be included in the study if there are many potential participants in one recruitment.

If you have questions

The researchers conducting this study are Hongfei Long (the Principal Investigator), Prof. Abu Abdullah of Duke Kunshan University (DKU) and Prof. Hoang Van Minh of Hanoi School of Public Health (HSPH). Please ask any questions you have now. If you have questions later, you may contact me (Hongfei Long) at
anh/chị có câu hỏi nào sau ngày hôm nay, xin liên hệ tôi (Hongfei Long) tại địa chỉ hongfei.long@duke.edu hoặc số điện thoại 0086-15962519627. Nếu anh/chị có bất cứ thắc mắc nào liên quan đến quyền lợi của anh/chị trong nghiên cứu, vui lòng liên hệ có vấn chuyển môn GS. Abdullah tại abu.abdullah@dku.edu.cn, có vấn thực địa tại Việt Nam GS. Hoàng Văn Minh tại hoangvanminh@hmu.edu.vn hoặc Hội Đồng Đạo Đức của Đại học Duke tại https://dukekunshan.edu.cn/en/research/research-support-office/institutional-review-board, hoặc Hội Đồng Đạo Đức của trường Đại học Y tế công cộng tại http://vnhrp.hsphealth.edu.vn/index.php/vnhrp/about/contact

Anh/chị sẽ nhận được một bản sao của mẫu đơn này để lưu trữ cho hồ sơ của anh/chị.

Sự chấp thuận: Tôi đã đọc các thông tin trên đây và nhận được trả lời cho những câu hỏi của mình. Tôi đồng ý tham gia nghiên cứu này.

Chữ ký người tham gia __________________________ Ngay __________________
Họ tên người tham gia

______________________________
Nếu đồng ý tham gia, tôi chấp thuận việc ghi âm cuộc thảo luận

Chữ ký người tham gia __________________________ Ngay __________________
Họ tên người tham gia

______________________________
Chữ ký người giữ bản thỏa thuận

You will be given a copy of this form to keep for your records.

Statement of Consent: I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Your Signature

Date ________________________

Your Name (printed) ________________________________

In addition to agreeing to participate, I also consent to having the discussion audio-recorded.

Your Signature

Date ________________________

Signature of person obtaining consent __________________ Date 94
Ngày ____________
Họ tên người giữ bản thỏa thuận ____________
Ngày ____________
Bản thỏa thuận này sẽ được lưu trữ trong vòng ít nhất hai năm kể từ lúc kết thúc nghiên cứu.
*Câm ơn sự tham gia của anh/chị. Chúng tôi rất mongชวน nhàn được những đóng góp quý báu từ anh/chị.*

<table>
<thead>
<tr>
<th>_______________</th>
<th>Printed name of person obtaining consent</th>
</tr>
</thead>
<tbody>
<tr>
<td>_______________</td>
<td>Date</td>
</tr>
</tbody>
</table>

This consent form will be kept by the researcher for at least two years beyond the end of the study.
*Thank you for agreeing to participate. We are very looking forward to your valuable opinion.*
D. Consent Form for In-depth Interview Participants

<table>
<thead>
<tr>
<th>Consent Form for In-depth Interview</th>
<th>Phieu dong y tham gia phong van sau</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please read this form carefully and ask any questions you may have before agreeing to take part in the study. Please make sure that you understand all the information in this consent form.</td>
<td>Vui long doc ky bieu mau nay va hoi bat ky cau hoi ma anh/chi thach mac trước khi dong y tham gia vào nghiên cứu. Hãy đảm bảo rằng anh/chị hiểu tất cả các thông tin trong giấy chấp thuận này.</td>
</tr>
<tr>
<td><strong>What the study is about</strong></td>
<td><strong>Noi dung cua nghien cuu</strong></td>
</tr>
<tr>
<td>Switching from infectious disease, non-communicable disease (NCD) is becoming one of the leading causes of death in Vietnam. To improve the access to and the quality of community-level NCDs prevention and control services, one possible strategy is to engage village health workers (VHWs) into community-based NCDs prevention and control programs. VHWs are public health workers who live in the communities they serve and are selected by the community members. They provide counseling, preventive care and health promotion within community or households. The purpose of this study is to learn the role of VHWs in the delivery of healthcare services and how satisfied they are with working conditions. We hope to learn from your experiences and opinions about the barriers and facilitating factors for improving community health worker retention in non-communicable disease prevention and control in Vietnam. You must be 18 years old or older, and working at least 3 months in your current working</td>
<td>Thay doi tu mot hinh benh truyen Nhiem, benh khong truyen Nhiem (NCD) dang tro thanh nguyen nhan hang dau dan den tu vong tai Viet Nam. De cai thien vien tep can va chat luong cac dich vu kiem soat va du phong BKTN o cap co so, chien luc khach thi la suf dung nhung nhan vien y te thon ban (YTTB) vao cac chuong trinh kiem soat va phong chong BKTN dua vao cong dong. YTTB la nhan vien y te cong cong dang song trong cong dong va duoc lua chon boi cac thanh vien cong dong. Hot tu van, cham soc du phong va truyen thong giao duoc suc kho cho ca cong dong hoac theo ho gia dinh. Muc dich cua nghien cuu nay la tim hieu vai tro cua YTTB trong vien cung cap cac dich vu cham soc suc kho va muc do tai long cua ho voi dieu kiem lam viec. Chung toi hy vong se hoc hoi tu anh/chi nhung kinh nghiem va y kiem ve cac rao can va mot so yeu to thuan khi cho vien cai thien du tri he thong YTTB trong kiem soat va phong chong BKTN tai Viet Nam. Anh/chi phai tu 18 tuoi tro len va lam viec it</td>
</tr>
</tbody>
</table>
institution to take part in this study.

What we will ask you to do
If you agree to be in this study, we will conduct an in-depth interview with you. The interview will include questions about the range of services that are currently delivered by VHWs at the community health centers (CHCs), the current policies and actions about non-communicable disease prevention at community level, the training programs that are established for CHWs, your thoughts on how VHWs can be supportive to deliver NCD programs, and your plan for improving the quality and access to VHW-led non-communicable disease prevention and control programs in Vietnam.

One of our research team members, a trained bilingual co-investigator from Hanoi School of Public Health will be the moderator to conduct the interview and help you with the process. With your permission, we would also like to audio-record the interview.

Risks and benefits
Risk:
There could potentially be harm to your career or workplace interactions if you make a comment which is possibly offensive or otherwise bothersome to others and if it

Những gì chúng tôi sẽ yêu cầu anh/chị làm

Nếu anh/chị đồng ý tham gia nghiên cứu này, chúng tôi sẽ tiến hành một cuộc phòng vấn sau với anh/chị. Cuộc phòng vấn sẽ bao gồm các câu hỏi về các dịch vụ hiện đang cung cấp bởi YTTB tại trung tâm y tế huyện, các chính sách và hoạt động hiện hành về phòng chống BKTN ở cấp cộng đồng, các chương trình tập huấn dành cho YTTB được thiết lập cho YTTB, suy nghĩ của anh/chị về cách YTTB giúp hỗ trợ khi thực hiện các chương trình về BKTN, và đề xuất của anh/chị để nâng cao chất lượng và sự tiếp cận với các chương trình dựa vào YTTB trong kiểm soát và phòng chống BKTN tại Việt Nam.

Một trong những thành viên trong nhóm nghiên cứu của chúng tôi, nghiên cứu viên công tác đến từ Trường Đại học Y tế công cộng sẽ là người điều hành để thực hiện các cuộc phòng vấn và giúp anh/chị trong suốt quá trình thực hiện.

Với sự cho phép của anh/chị, chúng tôi cũng sẽ ghi âm cuộc phòng vấn.

Rủi ro và lợi ích
Rủi ro
Việc tham gia nghiên cứu này có thể làm ảnh hưởng đến công việc hoặc các mối quan hệ nơi làm việc của anh/chị nếu anh/chị đưa ra lời nhận xét đánh giá mang tính tiêu cực
becomes public knowledge that you made such a comment. We will protect the confidentiality of your answers, using methods described below under the subtitle “Confidentiality”, and we think it is unlikely that others will ever know what your specific responses were. However, you should be aware that no plan can provide a 100% assurance of confidentiality.

Benefits:
The benefit to taking part in the study is that you will contribute to the improvement and development of NCD care program in Vietnam.

Confidentiality
- Our Plan for Preserving Confidentiality:
All our research team members have received ethical training provided by the Medical School of Duke University and we will take efforts to protect confidentiality of your answers. The self-introduction section before the formal start of each interview will not be audio-recorded, so your names will not be in or on audiotapes. If any identifiable information (e.g., individuals’ names, telephone numbers, and specific address) is unintentionally collected via the digital-recorder when you respond to the questions in the interview, the names will be immediately encoded into numbers; the telephone numbers and specific addresses will


Lợi ích
Lợi ích của việc tham gia vào nghiên cứu này là anh/chị sẽ đóng góp vào việc cải thiện và phát triển các chương trình chăm sóc BKTN tại Việt Nam.

Bảo mật
Kế hoạch đảm bảo tính bảo mật
Tất cả các thành viên trong nhóm nghiên cứu của chúng tôi đã được tập huấn về đạo đức từ trường Y khoa Đại học Duke và chúng tôi sẽ nỗ lực để bảo mật các câu trả lời của anh/chị. Phần tự giới thiệu trước khi bắt đầu chính thức của mỗi cuộc phỏng vấn sẽ không được ghi âm, vì vậy tên của anh/chị sẽ không được nhắc đến trong bảng ghi âm. Nếu bất kỳ thông tin (ví dụ tên riêng, số điện thoại hay địa chỉ cụ thể) là thu thập không chủ đích khi sử dụng thiết bị ghi âm khi anh/chị trả lời các câu hỏi trong buổi phỏng vấn, tên sẽ được ngay lập tức mã hóa thành con số; số điện thoại
be erased before the transcription process, so that no personal information will be on or in transcripts.

In order to reduce the risk of information leakage, there will be a list linking first names to the numbers on the transcripts. Separately from any other documents, the list will be solely stored on a secure computer system with password protection and without internet connection. The access to this list will be available only to the Principal Investigator (PI). The list will be destroyed after the transcription section, which we anticipate will be within four months of the recording.

Research records will be kept in a locked file and only the researchers of this study will have access to the records.

In any report we make public we will not include information that will make it possible to identify you. The descriptions of you will involve only broad categories, such as broad age ranges, large geographical areas, etc., and your responses will reported in broad terms, so as to minimize chances that you could be identified by the response itself.

**Compensation:**
You will receive a compensation (approx. value $10) for your time to participate in the study.

Taking part is voluntary

<table>
<thead>
<tr>
<th>Vietnamese</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>và địa chỉ cư trú sẽ được xoá trước khi quá trình gõ bảng, vì vậy sẽ không có thông tin cá nhân trong đoạn gõ bảng.</td>
<td>và địa chỉ cư trú sẽ được xoá trước khi quá trình gõ bảng, vì vậy sẽ không có thông tin cá nhân trong đoạn gõ bảng.</td>
</tr>
<tr>
<td>Hồ sơ nghiên cứu sẽ được lưu giữ trong một tập tin chỉ khóa và chỉ có nghiên cứu viên có quyền truy cập vào các kết quả này.</td>
<td>Hồ sơ nghiên cứu sẽ được lưu giữ trong một tập tin chỉ khóa và chỉ có nghiên cứu viên có quyền truy cập vào các kết quả này.</td>
</tr>
<tr>
<td><strong>Hỗ trợ</strong></td>
<td><strong>Hỗ trợ</strong></td>
</tr>
<tr>
<td>Anh/chị sẽ nhận được một gói quà (khoảng $10) là chi phí hỗ trợ vì đã dành thời gian tham gia vào nghiên cứu.</td>
<td>Anh/chị sẽ nhận được một gói quà (khoảng $10) là chi phí hỗ trợ vì đã dành thời gian tham gia vào nghiên cứu.</td>
</tr>
</tbody>
</table>

Sự tham gia là tự nguyện
Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide to take part, you are free to withdraw at any time. If you withdraw from the study, we will immediately destroy all the records of your response.

Justice
After the consent form signing section, the PI will randomly select names from the signed consent forms until the desired number (n=15) of verified participants is achieved, so that each person will get equal chance to participate in the study; However, this random selection process also means that someone will not be included in the study if there are many potential participants in one recruitment.

If you have questions
The researchers conducting this study are Hongfei Long (the Principal Investigator), Prof. Abu Abdallah of Duke Kunshan University (DKU) and Prof. Hoang Van Minh of Hanoi University of Public Health (HUPH). Please ask any questions you have now. If you have questions later, you may contact me (Hongfei Long) at hongfei.long@duke.edu or at 0086-15962519627. If you have any questions or concerns regarding your rights as a subject in this study, you may contact my adviser Prof. Abdullah at


Sự công bằng
Sau khi ký giấy chấp thuận tham gia nghiên cứu, nghiên cứu viên chính sẽ lựa chọn một cách ngẫu nhiên những đối tượng đã đăng ký tham gia nghiên cứu cho đến khi đủ số lượng cần thiết (n = 15), như vậy mọi người sẽ có được cơ hội tham gia trong nghiên cứu như nhau; tuy nhiên, quá trình lựa chọn ngẫu nhiên này cũng có nghĩa là sẽ có người không được tham gia vào nghiên cứu nếu có nhiều đối tượng đủ điều kiện.

Nếu anh/chị có câu hỏi
You will be given a copy of this form to keep for your records.

**Statement of Consent:** I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Your Signature

___________________________________

Date ________________________

Your Name (printed)

______________________________________

Your institution

______________________________________

Your position

______________________________________

In addition to agreeing to participate, I also consent to having the discussion audio-recorded.

Your Signature

___________________________________

van chuyển mồn của tôi Giáo sư Abdullah tại abu.abdullah@dku.edu.cn, có vấn thắc đia của tôi i Giáo sư Hoàng Văn Minh tại hoangvanminh@hmu.edu.vn, thành viên Hội đồng đào đắc của Đại học Duke Kunshan https://dukekunshan.edu.cn/en/research/research-support-office/institutional-review-board, hoặc Hội đồng Đạo đức của Trường Đại học Y tế công cộng tại http://vnhrp.huph.edu.vn/index.php/vnhrp/about/contact

Anh/chị sẽ nhận được một bản sao mẫu phiếu đồng ý tham gia để để lưu trữ cho hồ so của anh/chị.

**Sự chấp thuận:** Tôi đã đọc các thông tin trên, và đã nhận được câu trả lời cho những câu hỏi của mình, tôi đồng ý tham gia vào nghiên cứu.

Chữ ký của người tham gia

___________________________________

ngày__________

Tên của người tham gia (in hoa)

______________________________________

Tổ chức của người tham gia

______________________________________

vị trí của người tham gia

______________________________________

Nếu đồng ý tham gia, tôi chấp thuận việc ghi âm cuộc thảo luận.

Chữ ký của người tham gia

gia____________________________

ngày________________
Date _________________________
Signature of person obtaining consent ______________
Date _________________________
Printed name of person obtaining consent __________________
Date _________________________
This consent form will be kept by the researcher for at least two years beyond the end of the study.
Thank you for agreeing to participate. We are very looking forward to your valuable opinion.

Chữ ký của người gửi bản thỏa thuận__________________
ngày ______________
Họ tên của người gửi bản thỏa thuận__________________
ngày ______________
Bản thỏa thuận này sẽ được lưu trữ trong vòng ít nhất hai năm kể từ lúc kết thúc nghiên cứu.
Cảm ơn sự tham gia của anh/chị. Chúng tôi rất mong chờ nhận được những ý kiến đóng góp quý báu từ anh/chị!
### E. FGD Participants Interview Record Form

<table>
<thead>
<tr>
<th>ID</th>
<th>Interview Date</th>
<th>Gender</th>
<th>Work Setting (Location)</th>
<th>Position</th>
<th>Age</th>
<th>work experience (Years)</th>
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<td>FGD1A</td>
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### F. IDI Participants Interview Record Form

<table>
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<tr>
<th>ID</th>
<th>Interview Date</th>
<th>Working Location (rural/urban)</th>
<th>Position</th>
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</thead>
<tbody>
<tr>
<td>IDI1</td>
<td>12 July, 2016</td>
<td>Co Thanh (rural)</td>
<td>CHC Leader</td>
</tr>
<tr>
<td>IDI2</td>
<td>13 July, 2016</td>
<td>Pha Lai (urban)</td>
<td>CHC Leader</td>
</tr>
<tr>
<td>IDI3</td>
<td>13 July, 2016</td>
<td>Chi Minh (urban)</td>
<td>CHC Leader</td>
</tr>
<tr>
<td>IDI4</td>
<td>13 July, 2016</td>
<td>Sao Do (urban)</td>
<td>CHC Leader</td>
</tr>
<tr>
<td>IDI5</td>
<td>14 July, 2016</td>
<td>An Lac (rural)</td>
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<td>IDI6</td>
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<tr>
<td>IDI7</td>
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<td>Hoa Tham (rural)</td>
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<td>IDI10</td>
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<td>Chi Linh District (urban)</td>
<td>Director, District Center for Preventive Medicine</td>
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<td>IDI11</td>
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<td>Deputy of Provincial Health Department</td>
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<td>Director, Provincial Center for Preventive Medicine, General Office</td>
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<td>Chi Lin District (urban)</td>
<td>Manager of District Center for Preventive Medicine, NCD Department</td>
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</table>
7. References

1. Duong, David B. Understanding the Service Availability for Non-Communicable Disease Prevention and Control at Public Primary Care Centers in Northern Vietnam. [Doctors]. Harvard Medical School; 2015.


26. Prime Minister of the Socialist Republic of Viet Nam. Decision No. 376/QD-TTg Decision on approving the National Strategy on prevention and control of cancer, cardiovascular diseases, diabetes, chronic obstructive pulmonary disease (COPD), asthma and other NCDs in the 2015 - 2025 period. Hanoi. 2015


48. Miles MB, Huberman AM. Qualitative data analysis: an expanded sourcebook. Thousand Oaks, Ca.: Sage; 1994


50. Thu NTH, Wilson A, McDonald F. Motivation or demotivation of health workers providing maternal health services in rural areas in Vietnam: Findings from a


53. Prime Minister of the Socialist Republic of Viet Nam. Decision on approving the NTPs for the period 2012-2015, Project 1: prevention and control of diseases dangerous to the community (cancer, hypertension, diabetes, protection of the community’s and children’s mental health, and COPD). Decision No. 1208/QĐ-TTg. Hanoi. 2012.


109. Prime Ministerial Decision No. 467/QD-TTG

