

ORIGINAL ARTICLES

## Community health care workers knowledge on hypertension and diabetes in a mountainous province in Vietnam

Hoang Thi Hai Van<sup>1\*</sup>, Nguyen Phuong Hoa<sup>1</sup>, Pham Phuong Mai<sup>1</sup>, Dinh Linh Trang<sup>1</sup>

### ABSTRACT

**Objective:** This study aims to describe the knowledge of health care workers at commune health stations about hypertension and diabetes in Ha Giang province in 2019;

**Methods:** We conducted an analyze data from the suvey of pre-training course evaluation data.

**Results:** The proportion of health care workers who had good knowledge about the diagnosis and treatment target of hypertension was 60.8% and 55.9%, respectively. The proportion of health care workers who had correct answers on the diagnosis criteria of diabetes was 29.4%, and the target of HbA1C diabetes was 25.5%, and detecting kidney complications accounted for only 14.7%. Age and seniority were closely related to the level of knowledge among these health care workers. Younger health care workers (<35yrs) are likely have better knowledge on diagnostic criteria, treatment goals and medication treatment of hypertension. Health care workers who has less working time (<10 years) are likely to have better knowledge on dianostic criteria for hypertension.

**Conclusions:** The result indicated that the knowledge among health care workers at commune health stations on hypertension and diabetes were not high. Therefore, organizing continuous training courses to regularly update knowledge for old and senior health care workers at commune level is a critical intervention in improving the quality of diagnosis, treatment and management of hypertension and diabetes at the facility.

**Keywords:** Hypertension, diabetes, general practitioner, commune health stations.

## INTRODUCTION

Currently, the disease pattern in the world has changed a lot, non-communicable diseases (NCDs) dominate the disease pattern as well as the leading cause of death in the world, especially in low- and middle-income countries, including Vietnam (1). In Vietnam, non-communicable diseases account for approximately 70% of the disease burdens and are the leading cause of death, comprising of 77% of the total number of deaths nationwide (1). According to statistics of the Ministry of

Health, among non-communicable diseases in Vietnam, the rate of undiagnosed hypertension is 56.9% while this rate in diabetes is up to 69.9%. For disease management, the rate of unmanaged hypertension is 86.4% while the figure in diabetes is 71.1%, which is a big challenge for our country (1).

One of the reasons is that up to now, many commune health stations (CHS) still face many difficulties such as lack of facilities, lack of professional staff and limitations in disease management (2) ,(3).



**Corresponding author:** Hoang Thi Hai Van  
Email: [hoangthihaivan@hmu.edu.vn](mailto:hoangthihaivan@hmu.edu.vn)  
<sup>1</sup>Hanoi Medical University

Submitted: 15 February, 2022

Revised version received: 29 May, 2022

Published: 30 August, 2022

DOI: <https://doi.org/10.38148/JHDS.0604SKPT22-022>

Although many different resources are required to perform health care work, human resources determine the total quantity and quality of health care activities and services (4). Since January 2019, Ha Giang Province has issued a plan to prepare records, examine and manage health for people according to the principles of family medicine. Accordingly, the commune/ward health stations will provide all basic, comprehensive and continuous health care services for individuals, families and communities (5). This requires health workers at commune/ward health stations to have enough basic knowledge to be able to detect early, manage and treat patients, and implement prevention, including non-communicable diseases. Therefore, this study was conducted with the aim of describing the knowledge about hypertension and diabetes of doctors working at commune health stations in Ha Giang province and some related factors in order to provide evidence for planning activities to improve the capacity of doctors at the grassroot levels.

## **METHODS**

### **Study design**

We conducted an analyze data from the suvey of pre-training course evaluation data.

Data collection was implemented during the Training course on non-communicable diseases management by family medicine principle for commune health care workers (HCWs) in Ha Giang province in 2019. This is training course aims to improving capacity for all commune health care workers in Ha Giang province on non-communicable disease management.

### **Study population**

The study population comprised HCWs from the commune health stations in Ha Giang province. HCWs were included in

the study: doctors (where available) and the non-physician HCWs (nurses, midwives) who in charge of non-communicable diseases management.

### **Sample size and sampling method**

Convenience sampling was used to select all HCWs working at the commune/ward health station of Ha Giang province in charge of non-communicable disease management.

### **Data collection tools**

This was a self-administered questionnaire adapted from a case-scenario questionnaire by Administration of Science Technology and Training to assess the knowledge and experience of HCWs in order to manage hypertension and diabetes at commune level. This instrument has been standardised and used in another training courses. Data were collected between April and July 2019 by the trainer assistants under supervision of the lecturers of each training course.

This instrument collected information on the background characteristics of respondents, knowledge of HCWs regarding the prevention and control of selected NCDs including hypertension and diabetes.

### **Measurement and scoring**

The key outcome variable of this study, the knowledge of HCWs about the prevention and control of NCDs, was scored appropriately. The knowledge of healthcare workers regarding the prevention and management of selected NCDs - diabetes, hypertension - was assessed using case scenarios containing 10-item questions per each NCDs considered.

A score of 1 was assigned to each correct response, with a total score of 10 per case scenario. The composite score of knowledge of the HCWs on each NCDs was categorized into good knowledge (8–10), fair knowledge

(6–7) and poor knowledge ( $\leq 5$ ) (6) and calls for integration of management of selected NCDs with primary healthcare (PHC).

### Data analysis

Data were cleaned, coded and imported and analyzed using SPSS Statistics 20.0 software.

Calculate the frequency, percentage, mean and standard deviation (SD). The Chi-Square Test ( $\chi^2$ ) (Fisher's exact test was used instead when expected value  $< 5$ ) was used to assess differences in knowledge between categories of participants.

### Ethics approval

The pre-training evaluation survey was required for each training course to assess

the outcomes of this training course. The participants of the survey were explained about the purpose of the survey, the contents of information to be collected. Confidentiality and data security were assured when participants's name was not required.

## RESULTS

### Characteristics of the participants

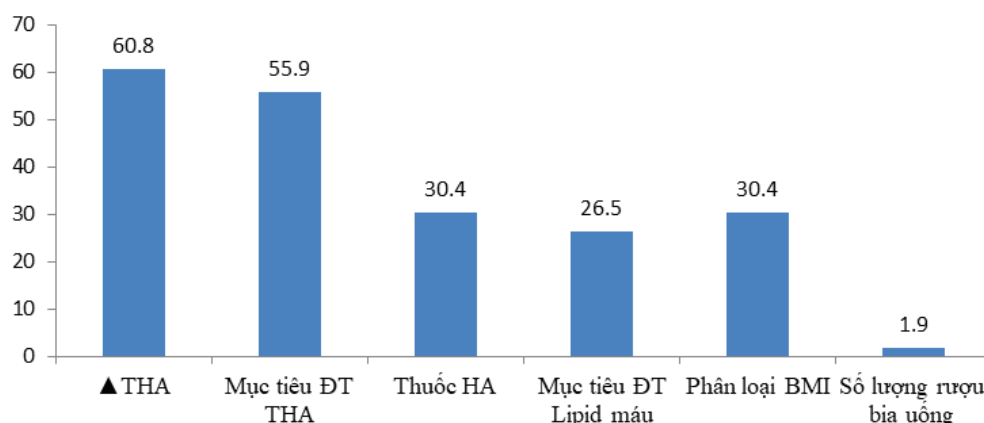
Of the 102 HCWs participated in the survey, 60.8% were male. The average age of HCWs was  $36.2 \pm 6.7$  years old, the youngest was 26 years old and the oldest was 59 years old. HCWs have an average working year of 10 years, at least 1 year and 35 years at most.

**Table 1. Characteristics of the participants**

	Characteristics	Number	Rate (%)
Age	<30 years old	14	13.7
	30 - < 35 years old	36	35.3
	35 - < 45 years old	34	33.3
	$\geq 45$ years old	18	17.7
Gender	Male	62	60.8
	Female	40	39.2
Mean age ( $\pm$ SD) year		<b><math>36.2 \pm 6.7</math></b>	
Working years	< 5 years old	28	27.5
	5 - <10 years	30	29.4
	10 - < 15 years	14	13.7
	$\geq 15$ years	30	29.4
Working years $\pm$ SD) years		<b><math>10.0 \pm 6.8</math></b>	

Figure 1 shows that the rate of correct answers about hypertension of HCWs remains low, the highest rate of correct answers reaching 60.8% belongs to the diagnostic criteria for hypertension. The knowledge of HCWs for counseling hypertension patients

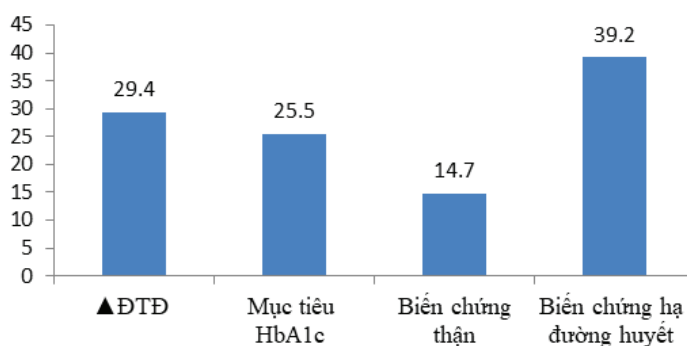
is incomplete, only 30.4% of the HCWs answered correctly about BMI classification and 1.9% about the number of alcoholic beverages (alcohol and beer) that the patient should drink if there is a need.



**Figure 1. Rate of good knowledge on hypertension and risk factors**

Figure 2 indicates that HCWs' knowledge about diabetes is very low, specifically: good knowledge of diabetes diagnostic criteria, HbA1c target in diabetes treatment, detection of kidney complications in diabetics 29.4%,

25.5% and 14.7%, respectively. There are 39.2% of HCWs knowing how to manage complications of hypoglycemia in patients with diabetes.



**Figure 2. Rate of good knowledge on diabetes**

In table 2, there was no difference in the rate of good knowledge to some questions about hypertension between male and female HCWs ( $p > 0.05$ ). The rate of good knowledge on the diagnostic criteria for hypertension was higher in the group of HCWs under 35 years old than in the group of HCWs aged 35 and over (76.0% and 46.2%;  $p < 0.05$ ). HCWs under 35 years of age also had better knowledge of hypertension treatment goals and medications to treat hypertension than HCWs aged 35 and older (66% and

46.2%, 40% and 21.2%, respectively; 40% and 21.2%, respectively), this difference is statistically significant ( $p < 0.05$ ).

The rate of good knowledge on the diagnostic criteria for hypertension was higher in the group of HCWs with less than 10 years of working experience than in the group of HCWs with 10 years of working experience or more (72.4% and 45.5%;  $p < 0.05$ ). There was no statistically significant difference in the rate of good knowledge to other questions of the hypertension group ( $p > 0.05$ ).

Table 2. Distribution of good knowledge on hypertension between genders, age groups and working time

Contents	Gender		Age group			Working time			
	Male (n=62)	Female (n=40)	p	<35 yrs (n=50)	≥35 yrs (n=52)	p	<10 yrs (n=58)	≥10 yrs (n=44)	p
Diagnostic criteria for hypertension	38 (61.3)	24 (60.0)	0.89	38 (76.0)	24 (46.2)	<b>0.002*</b>	42 (72.4)	20 (45.5)	<b>0.006*</b>
Treatment goals for hypertension	38 (61.3)	19 (47.5)	0.17	33 (66.0)	24 (46.2)	<b>0.04*</b>	36 (62.1)	21 (47.7)	0.14
Medications to treat hypertension	18 (20.9)	13 (32.5)	0.71	20 (40.0)	11 (21.2)	<b>0.03*</b>	20 (34.5)	11 (25.0)	0.3
Treatment goals for dyslipidemia	16 (25.8)	11 (27.5)	0.85	15 (30.0)	12 (23.1)	0.42	17 (29.3)	10 (22.7)	0.45
BMI classifications	17 (27.4)	14 (35.0)	0.41	16 (32.0)	15 (28.9)	0.72	18 (31.0)	13 (29.6)	0.87
Amount of alcohol to drink	1 (1.6)	1 (2.5)	0.75	1 (2.0)	1 (1.9)	0.97	1 (1.7)	1 (2.3)	0.84

\*Test when squaring

Table 3. Distribution of good knowledge on diabetes between genders, age groups and working time

Contents	Gender		Age group				Working time		
	Male (n=62)	Female (n=40)	p	<35 yrs (n=50)	≥35 yrs (n=52)	p	<10 yrs (n=58)	≥10 yrs (n=44)	p
Diagnostic criteria for diabetes	19 (30.7)	11 (27.5)	0.73	18 (36.0)	12 (23.1)	0.15	19 (32.8)	11 (25.0)	0.39
HbA1c target in diabetes treatment	18 (29.0)	8 (20.0)	0.30	14 (28.0)	12 (23.1)	0.56	14 (24.1)	12 (27.3)	0.71
Detection of renal complications in dia- betic patients	9 (14.5)	6 (15.0)	0.94	6 (12.0)	9 (17.3)	0.44	10 (17.2)	5 (11.4)	0.40
Management of hypoglycemia in diabetic patients	24 (38.7)	16 (40.0)	0.89	18 (36.0)	22 (42.3)	0.51	22 (37.9)	18 (40.9)	0.76

The results of Table 3 show that there is no relationship between a number of factors including genders, age groups and working years to correct knowledge about diabetes of commune doctors in Ha Giang Province.

## DISCUSSION

The results show that the knowledge about hypertension and diabetes among general practitioners working at commune health stations in Ha Giang Province remains low. Only 60.8% of the HCWs correctly answered the question about the diagnostic criteria for hypertension. In a study in Hanoi and Phu Tho, this rate was 74.2% (7). Notably, study results in Mongolia show that this rate is higher, reaching 68.3% - 73.4% (8) attitudes, and practices of primary care doctors in Ulaanbaatar, Mongolia using a recently developed World Hypertension League survey. The survey was administered as part of a quality assurance initiative to enhance hypertension control. A total of 577 surveys were distributed and 467 were completed (81% response rate). In another study in 2019, about 67% to 81% of physicians had correct knowledge about the diagnosis of hypertension (9). In contrast, in Saudi Arabia, results show that only 30% of doctors know exactly the definition of hypertension (9). This study also found a relationship between the age group and the working years of the HCWs with the level of knowledge. HCWs aged 35 years and older with knowledge of diagnostic criteria for hypertension were smaller than those of the younger age group (38.1% and 56.1%); This difference is statistically significant ( $p < 0.05$ ). The HCWs with more working years have correct knowledge about the diagnostic criteria for hypertension lower than the group with less working years (46.2% and 76%, respectively). This difference is

statistically significant ( $p < 0.05$ ). In this study, HCWs are working in Ha Giang Province - a mountainous province, there are many factors affecting the updating of new knowledge and recommendations in the treatment of hypertension and diabetes. Probably this can be explained that the younger HCWs with less working years, whose knowledge learned in the university has been updated, have more favorable conditions to approach to new media to update their knowledge and new guidelines of national health target programs including hypertension and diabetes.

Percentage of HCWs having good knowledge on the goal of hypertension treatment reached 55.9%, which is a relatively higher rate compared to other studies. A study in Hanoi and Phu Tho had this rate of 6.3% (7). A study in Mongolia in 2018 show that this rate was about 15.5% - 28.5% (8) attitudes, and practices of primary care doctors in Ulaanbaatar, Mongolia using a recently developed World Hypertension League survey. The survey was administered as part of a quality assurance initiative to enhance hypertension control. A total of 577 surveys were distributed and 467 were completed (81% response rate, meanwhile a similar study there in 2019 got 16% - 27% (9). However, the correct knowledge about antihypertensive drugs was only 30.4%. In this study, it was also shown that the HCWs who made the correct diagnosis also had the right knowledge about the treatment goals as well as the medications to treat hypertension.

Our study shows that the knowledge about diabetes of HCWs at commune health stations in Ha Giang Province remains very low. Part of the reason may be that currently at the commune health station, the diagnosis and management of diabetes patients is still not much and not regular, so the knowledge has not been updated. Specifically, diagnostic



criteria for diabetes, HbA1c targets in diabetes treatment are still low (only 29.4% and 25.5%). This rate is similar to some studies in Hanoi and Phu Tho, this rate is only 21.1% and one study in the Atlantic region this rate is 17% (11). However, a similar study in the West of Cameroon showed that the HCWs there had a relatively high knowledge of the diagnostic criteria for diabetes (72.7%) (12) evaluation and management in Cameroon.

**METHODS:** We carried-out a cross-sectional survey in February 2012 in the West Region of Cameroon. Using a structured pretested questionnaire, we interviewed all PCPs working in the region who were present at their working place when the investigators visited, and volunteered to be enrolled in the study.

**RESULTS:** Sixty-six PCPs were interviewed. Their ages ranged from 24 to 56 years (mean 38.3, standard deviation 9.2 years).

Our results show an alarming situation because HCWs at commune health stations play a very important role in lifestyle and diet counseling for people and patients with NCDs. However, the good knowledge of the HCWs about the number of alcoholic beverages that should not be consumed in a day and a week is extremely low, only 1.9%.

The results in this study show that it is highly necessary to conduct training courses on management of hypertension and diabetes for HCWs of commune health stations to meet practical needs in the prevention of hypertension and diabetes.

## CONCLUSION

The rate of good knowledge of HCWs about hypertension diagnosis criteria, hypertension treatment goals and medications are not high. With diabetes, the good knowledge of diagnostic criteria, HbA1c target and detection of kidney complications in diabetic

patients is particularly low, which is less than 30%. Age and number of working time are related to the correct knowledge of HCWs. Therefore, organizing continuous training courses to regularly update knowledge for old and senior HCWs is a critical intervention in improving the quality of diagnosis, treatment and management of hypertension and diabetes at the facility.

## REFERENCES

1. WHO. World health statistics 2020: monitoring health for the SDGs, sustainable development goals [Internet]. Geneva: World Health Organization; 2020. Available from: ISBN 978-92-4-000510-5
2. Bộ Y tế. BÁO CÁO CHUNG TỔNG QUAN NGÀNH Y TẾ NĂM 2016 Hướng tới mục tiêu già hoá khoẻ mạnh ở Việt Nam.
3. Oanh TTM, Phuong NK, Tuan KA. Sustainability and Resilience in the Vietnamese Health System. 2021;28.
4. team I. Quyết định 1568/QĐ-BYT ngày 27/4/2016 phê duyệt kế hoạch nhân rộng và phát triển mô hình phòng khám bác sĩ gia đình tại Việt Nam, giai đoạn 2016-2020 [Internet]. Cục quản lý khám chữa bệnh. [cited 2020 Apr 12]. Available from: <http://kcb.vn/vanban/quyet-dinh-1568qd-byt-ngay-2742016-phe-duyet-ke-hoach-nhan-rong-va-phat-trien-mo-hinh-phong-kham-bac-si-gia-dinh-tai-viet-nam-giai-doan-2016-2020>
5. Ha Giang Department of Health. TRUNG TÂM Y TẾ THÀNH PHỐ PHÁT ĐỘNG TRIỂN KHAI CHIẾN DỊCH KHÁM , LẬP HỒ SƠ QUẢN LÝ SỨC KHỎE THEO NGUYÊN LÝ Y HỌC GIA ĐÌNH [Internet]. [cited 2022 Jan 20]. Available from: <http://ytechangiang.org.vn/tin-tuc/trung-tam-y-te-thanh-pho-phat-dong-trien-khai-chien-dich-kham-lap-ho-so-quan-ly-suc-khoe-theo-nguyen-ly-y-hoc-gia-dinh.html>
6. Akinwumi AF, Esimai OA, Fajobi O, Idowu A, Esan OT, Ojo TO. Knowledge of primary healthcare workers regarding the prevention and control of non-communicable diseases in Osun State, Nigeria: A rural-urban comparison. *Afr J Prim Health Care Fam Med*. 2021 Jun 29;13(1):2873.
7. Nguyễn Phương Hoa. Thực trạng kiến thức về một số bệnh, cấp cứu thường gặp của bác sỹ đa

- khoa tuyển y tế cơ sở tại Hà Nội và Phú Thọ năm 2015.
8. Myanganbayar M, Baatarsuren U, Chen G, Bosurgi R, So G, Campbell NRC, et al. Hypertension, knowledge, attitudes, and practices of primary care physicians in Ulaanbaatar, Mongolia. *The Journal of Clinical Hypertension*. 2018;20(8):1187–92.
  9. Myanganbayar M, Baatarsuren U, Chen G, Campbell NRC, Bosurgi R, So G, et al. Hypertension knowledge, attitudes, and practices of nurses and physicians in primary care in Ulaanbaatar Mongolia. *J Clin Hypertens (Greenwich)*. 2019 Aug;21(8):1202–9.
  10. Al-Khashman AS. Screening for hypertension. Assessing the knowledge, attitudes and practice of primary health care physicians in Riyadh, Saudi Arabia. *Saudi Med J*. 2001 Dec;22(12):1096–100.
  11. Tseng E, Greer RC, O'Rourke P, Yeh HC, McGuire MM, Clark JM, et al. Survey of primary care providers' knowledge of screening for, diagnosing and managing prediabetes. *J Gen Intern Med*. 2017 Nov;32(11):1172–8.
  12. Jingi AM, Nansseu JRN, Noubiap JJN. Primary care physicians' practice regarding diabetes mellitus diagnosis, evaluation and management in the West region of Cameroon. *BMC Endocr Disord*. 2015 Apr 4;15:18.