## Title page

# Perceptions and experiences of primary healthcare providers towards interprofessional collaboration in chronic disease management in Hue, Vietnam

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**Abstract**

In Vietnam, each primary care community health center (CHC) consists of a multi-professional team with six disciplines, including a physician, assistant physician, nurse, pharmacist, midwife, and Vietnamese traditional physician, who are able to meet the majority of patient's needs at the primary care level. How they collaborate, especially in chronic disease management (CDM), is still limited described in the literature. This study aims to gain insight into the perceptions and the experiences of primary health care providers (PHCPs) towards interprofessional collaboration (IPC) in CDM in CHCs in (Hue) Vietnam. A qualitative study of descriptive phenomenology was performed using two focus groups and 15 semi-structured interviews with PHCPs from six disciplines relevant to CDM in CHCs. The data were analyzed using NVivo 12.0 with a thematic analysis method by a multiprofessional research team. From the analysis, the data were classified into three main themes: 'lack of collaborative practice', 'knowledge', and 'facilitators and barriers to IPC'. This study provided evidence of the awareness that actual collaboration in daily care is fragmentarily organized and that PHCPs try to finish their tasks within their profession. PHCPs work multiprofessionally and lack shared decision-making in patient-centered care. There is a need to develop an interprofessional education program and training to address these deficiencies in the Vietnamese context to improve interprofessional collaboration in health care.

## Introduction

The rapid change in morbidity patterns in chronic diseases is a challenge and an immense burden for the global health system (Roth, 2018). For many years, chronic diseases have been a major cause of adult illness and death around the world (Vos et al., 2020). Vietnam is a lower-middle income country with the mortality rates from chronic diseases climbing with the three top leading causes of death including stroke (21,7%), ischemic heart disease (7%), and chronic obstructive pulmonary disease (4,9%) (WHO, 2015). This steadily growing chronic disease's impact globally should be carefully considered.

With continuity, coordination, and comprehensiveness, primary health care is well suited to manage chronic diseases (Rothman & Wagner, 2003; WHO, 2018). In 1996, the Chronic Care Model was developed by Wagner et al. . It is an organizational approach to encourage high quality chronic disease care in a primary care setting (Wagner, 2019). Within the description of Wagner's chronic care model, it is mentioned that to ensure regular follow-up, care has to be provided by a care team. In chronic care, roles and distribution tasks should be defined among team members (Wagner's chronic care model), indicating that collaborative practice can improve health outcomes for people with chronic diseases (Lemieux-Charles & McGuire, 2006; Lutfiyya et al., 2019; Pascucci et al., 2021). In 2010, the WHO published a call to take action on interprofessional education and collaborative practice (WHO, 2010). This gives a good overview of the needed competencies to be developed to work in interprofessional care teams.

In Vietnam, the government also focuses on strengthening the primary health care system. A study has shown that populations may benefit most from building and strengthening primary healthcare networks of such community-based health centers (Hoa et al., 2019). Today several primary healthcare facilities are available to the community: a commune health center (CHC), a polyclinic, a family medicine clinic, a private clinic, and a pharmacist shop. The wide primary care network has contributed with more than 11.100 CHCs to provide basic and essential health services to the people throughout the country (The Vietnamese Ministry of Health, 2015a). Their main responsibilities are to provide preventive medicine; medical consultation, applying for Vietnamese traditional medicine in prevention and treatment; reproductive health: manage or follow up maternal, support delivery/labor; medications attribute; public health management; health information, education, and communication (The Vietnamese Ministry of Health, 2015a). Each commune has a CHC, which usually consists of six professions of primary health care providers (PHCPs), including a physician, an assistant physician, a nurse, a pharmacist, a Vietnamese traditional physician, and a midwife (Figure 1). Every profession has a specific education program (The Vietnamese Ministry of Health, 2018; The Vietnamese Ministry of Health and Ministry of Home Affairs, 2015a, 2015b, 2015c) (Annex 1).

According to the definition of the WHO (2010), collaborative practice, or interprofessional collaboration, happens when multiple health workers from different professional backgrounds work with patients, families, carers, and communities to deliver the highest tailored quality of care (WHO, 2010). These teams of primary care professionals can meet the majority of patients' needs, but how they collaborate, especially in CDM, is still limited in the literature. It is necessary to know how the PHCPs in Vietnam understand interprofessional collaboration and their experiences. This information could support policy-makers, educators, and community leaders to develop a clear view and implement a collaboration model in practice. Furthermore, it can help develop or adjust curricula to embed explicitly interprofessional education in existing educational programs. So, to develop interprofessional education programs and to implement interprofessional collaborative programs in the Vietnamese context, firstly insight into the needs and experiences of interprofessional collaboration has to be explored.

**Aim**

This study aims to gain insight into the perceptions and the experiences of primary healthcare providers towards interprofessional collaboration in CDM in Vietnamese commune health centers.

## Method

A qualitative method with descriptive phenomenology approach was used to investigate the perceptions and experiences of primary healthcare providers toward interprofessional collaboration in CDM (Sandelowski, 2000). We performed focus group interviews as well as semi-structured in-depth interviews. The focus group interviews were conducted to have multiple views and emotional processes within a group context and gain more information in a shorter period. While semi-structured in-depth interviews were used to explore more specific information and obtain participants' experiences, attitudes, beliefs, and feelings (Gibbs, 1997).

Focus groups were 'multi-professional' organized to better understand the communication between the attending PHCPs within the same CHC. Doing so offered us direct observations on how they collaborated in answering the questions during the interview. Both focus groups were moderated by a medical doctor and research team member (N.T.T.H.) using an interview guide to lead the discussion. Two other researchers, both medical doctors, observed (D.T.M. and N.T.C,) the participants during the interviews.

The individual interviews were performed by three interviewers, including N.T.T.H., N.T.C., and D.T.M.. There was no conflict of interest for these interviewers. All of them were trained in interviewing by the Family Medicine Center of the University of Medicine and Pharmacy, Hue University. Before conducting the research, two pilot interviews were conducted with a nurse and a pharmacist, outside the sample, in the Hue Family Medicine clinic. All three interviewers alternately changed 'observer' and 'moderate' roles. The interviews were conducted in a private room in their CHC and lasted approximately one hour.

The semi-structured interview guide was developed by the research team (M.V., J.W., G.T., N.M.T., H.V.C.) with topics derived from the framework for action on interprofessional education and collaborative practice of WHO and the Core Competencies for Interprofessional Collaborative Practice (Interprofessional Education Collaborative, 2016; WHO, 2010). A narrative approach has been used with the interview guide. The interview guide was compiled as a bilingual questionnaire in English and Vietnamese to allow supervision in data collection and analysis by non-Vietnamese directors of the study (GT and JW). The core questions asked were as follows (Annex 2):

1) *What are your experiences in collaboration toward chronic disease management?*
2) *What do you understand about interprofessional collaboration (IPC) towards chronic disease management in primary health care?*
3) *What are the facilitators and barriers to implementing IPC at the primary care level?*
4) *What is your suggestion for implementing IPC at the primary care level?*

## Data collection and participants

The study was conducted using a purposive sampling approach. A list of all operational CHCs in Thua-Thien-Hue province was provided by the Department of Health. All CHCs, which have six different disciplines, including physician, assistant physician, nurse, pharmacist, midwife, and Vietnamese traditional physician, were chosen purposely to capture the multidisciplinary team model. To obtain a sample representing the diversity of Thua-Thien-Hue province, two districts from different geographical areas (urban and rural) that had the most CHCs with a complete team were purposely selected to perform the study. To exchange experience about collaboration with other professions, it was required that PHCPs had at least one year of experience at a CHC. Within these constraints, one

CHC in each district, with one CHC in an urban and one in a rural area, was randomly chosen, involving the whole team to perform a focus group interview. The RANDBETWEEN function on Microsoft Excel was used to assign a random number to each name of CHCs in the list (Cheusheva, 2021). After that, we purposely chose the remaining CHCs, which had a complete team in two districts and were not selected for the focus group, to perform interviews. We contacted the head of the CHCs by telephone to invite individual primary PHCPs to participate in the study. The list of registered PHCPs has been checked, that PHCPs are from six different disciplines. Otherwise, we ask for more PHCPs to have enough six disciplines to participate in the study. The in-depth interviews were planned to carry out until information saturation was achieved. All focus groups and semi-structured interviews were audio recorded.

**Ethical considerations**

The study protocol was approved by the Medical Ethics Committee of the University of Medicine and Pharmacy, Hue University (number: H2019/398, 30$^{th}$ August 2019). Before the interview, participants were fully informed about the research purposes, and the process signed a consent form if they agreed to participate in the study. All gathered data of the participants have been kept confidential.

**Data analysis**

A thematic analysis (Braun & Clarke, 2006) was performed by a group of researchers from 6 different disciplines (a general practitioner (J.W.), a physiotherapist (G.T.), an instructional scientist (M.V.) from Belgium, an expert in public health (N.M.T), a scientist-educator (H.V.C.), and a medical doctor (N.T.T.H.) from Vietnam).

All focus groups and semi-structured interviews were transcribed ad verbatim in Vietnamese into Microsoft Word by two interviewers (N.T.C. and D.T.M.). After that, transcripts were checked back against the original audio recordings for accuracy by the research team member (N.T.T.H.). Two transcripts, a focus group and an interview, were translated into English and shared among the research team to discuss and develop an initial descriptive coding framework and refocus on potential themes. Subsequently, all the data in Vietnamese were entered into the Nvivo 12 software and coded, and then collated within each code by the research team (N.T.T.H.) following the previous coding framework. All the code was in English and was presented to other research team members. The codes were grouped further into potential sub-themes and themes by the Vietnamese team, then consulted with the Belgium team. Subsequently, these sub-themes and themes were reviewed and refined with the coded extracts and the entire data set by the research team. Finally, all sub-themes and themes were defined and named.

The concise checklist with 15-point criteria for good thematic analysis was utilized to report the study process and results (Braun & Clarke, 2006).

**Results**

**Participants**

A list of all 152 operational CHCs in Thua-Thien-Hue province was provided by the Department of Health. Only 36 CHCs (23,4%) have six different disciplines in eight districts. Two districts with different geographical areas, with the most CHCs having a complete team, were chosen to perform the study. In particular, there are 9 CHCs in Hue City and 6 CHCs Huong Tra district. Two CHCs with a complete team and all PHCPs with at least one year of experience at the current working CHC were

randomly chosen. These two CHCs, one in each district, were invited and confirmed to perform a focus group interview involving the whole team.

In the remaining 13 CHCs, we contacted the head of these CHCs by telephone to invite individual primary PHCPs to participate in the study. A list of 16 PHCPs from 6 disciplines was delivered. We contacted all PHCPs again by telephone to confirm the agreement to participate in the study. Finally, 15 PHCPs, representing different geographical areas within Thua-Thien-Hue province were accepted to be interviewed.

Data were collected between 5th September 2019 and 20th September 2019. In total, 27 PHCPs participated in the study (Table 1). Two multiprofessional focus groups were held with 12 PHCPs involved; each focus group included six different disciplines. In addition, 15 semi-structured in-depth interviews were performed, which included the same professions: physicians (n = 4), assistant physicians (n = 1), nurses (n = 2), pharmacists (n = 3), midwives (n = 2), Vietnamese traditional physicians (n = 3). 22 out of 27 participants were female. All participants had at least three years of working experience and had at least one year in their current CHC.

## Findings

After analysis of the results from focus groups and in-depth interviews, the perceptions and experiences of the participating PHCPs in this study have been represented in three main themes: 'lack of collaborative practice', 'knowledge', and 'facilitators and barriers to IPC'. These themes are featured content from all focus groups and individual interviews. All sub-themes and themes are presented in the thematic map (Figure 2).

### Lack of collaborative practice

*Communication*

In daily work in a CHC, PHCPs communicate face–to–face with each other, mostly in medical consultation and preventive care. The meetings were often organized monthly or weekly in a CHC to assign tasks for the upcoming week or month and discuss all possible issues. To share information quickly, they communicate via an online group chat.

> *"Sometimes, when the physician is absent, an important thing needs to be noticed. She will notice it in the group chat. Everybody will know without a face–to–face notice or call to each staff member."* (IP 11 - Pharmacist, p. 16, line 489)

During medical consultation, PHCPs usually share patient information via a medical paper notebook or a medical software tool.

> *"I usually prescribe on the patient's medical notebook. After that, the patient brings this notebook to the pharmacist. She will work on the medical software to print an official prescription. Afterward, she will follow the prescription in the notebook to instruct the patient how to use the medications."* (IP 9 - Physician, p. 8, line 222)

Many conflicts existed between PHCPs in daily work, as was described by participants. Most conflicts were opposite opinions between professions but rarely with physicians. Most participants affirmed they must follow the assignment and the judgment of physicians. These conflicts sometimes impacted the tasks and the quality of the care, such as the late provide medicine for the patients. When conflicts occur, PHCPs reported to the physician as a leader of the CHC. The physician took care of it and tried to resolve the issue. Nevertheless, in some cases, the conflicts were so severe that even the leaders

failed to resolve the problems that the troubled working relationships between colleagues sometimes maintain.

> *"We disagreed with each other's opinions many times. For example, I required them to survey the patient's house, but they just stayed in the CHC and made a call. Then the collected information was wrong because they did not follow my assignment."* (IP 2 - Physician, p. 7, line 245)

> *"When my colleagues argue, I have to reconcile the conflict, explain to both of them what they did right and what they did wrong."* (Interview – Participant 9 – Physician, p. 18, line 487)

*Roles and responsibilities*

The participants described the physician's role as the most important in performing consultation and initiating treatment. A physician usually heads the CHC, leads the team and manages all medical activities in their commune, and does the team management. Nurses' and assistant physicians' roles in CDM were described the same. In some CHCs, an assistant physician also can have physician responsibilities. The role of midwives in CDM was to follow up on maternal cases with chronic disease with essential checkups every semester. The pharmacist's role was described as managing the drug store in CHC, meaning medication and medication instructions. However, some PHCPs supposed that a nurse or a pharmacist has no role in CDM. Even some pharmacists stated they have no role in CDM, and physicians and nurses perform it.

> *"Pharmacists have no role in CDM…"* (IP 2 - Physician, p. 7, line 217)

> *"I do not know about chronic disease. The physician and the nurse perform it."* (Interview - Participant 11 - Pharmacist, p. 4, line 106)

*Teamwork*

Some PHCPs did not realize they were team members and needed to work independently.

> *"I collaborate with nobody…nothing to collaborate…"* (Interview – Participant 11 – Pharmacist, p. 1, line 15)

When PHCPs were asked about discussions between providers in making a care plan for a patient, some of them answered that they had just followed the physician's prescription and there was no need to discuss it with each other. Moreover, physicians answered that they are the only ones who can make a care plan or prescribe medicines.

> *"Physicians do their work, assistant-physicians and nurses take care of the patient following their plan."* (IP 6 - Physician, p. 1, line 27)

> *"We do not discuss decisions with others."* (IP 1 – Physician, p. 13, line 379)

Each PHCP is a manager of at least one CDM program, which is suitable mainly for their professions, such as Malnutrition control, Mental Health management, HIV/AIDS control, and Tuberculosis control.

Western and Vietnamese traditional medicine has been integrated into daily practice. These two methods are increasingly used interchangeably to treat patients with chronic diseases.

> *"We worked together to treat patients with comorbidities such as hypertension, pharyngitis, and degenerative joint disease. I treat their degenerative joint disease. The doctor handles other things. Diabetes is just treated by western medicine."* (IP 4 – Traditional assistant physician, p. 10, line 319)

> *"Usually, a patient has to see me first. When I indicate that a patient's problems could be treated by the traditional method, acupuncture is used normally. I advise the patient and refer them to a traditional Vietnamese physician here. Around 30% of patients here were treated by combined Western and Eastern medicine."* (IP 2 – Physician, p. 2, line 59)

The distance between a physician and another team member has emerged. In general, the physicians are the head of the CHC. They made plans alone and assigned tasks to the other team members. Mainly, when a decision must be made for their patients, shared decision–making was not used.

> *"Decision–making is the responsibility of the physician. We just follow it to implement."* (IP 10 – Midwife, p. 12, line 360)

> *"I am the only one who makes a decision here."* (IP 9 - Physician, p.10, line 268)

*Patient-centered care*

During the consultation, PHCPs usually do not give the patients options to choose between possible treatment methods. They rarely seek agreement from patients. Some PHCPs stated that they do not need agreement from patients. Moreover, they declare they have never heard about shared decision-making with patients.

> *"Mostly I decide what needs to be done for my patient"* (IP 9 - Physician, p. 10, line 267)

> *"Shared decision making, I have not heard. Only the physician had the responsibility to decide it because his expertise is higher than mine."* (IP 14 - Assistant Physician, p. 18, line 530)

In some exceptional cases, PHCPs went to the patient's house. The local PHCPs usually know well about the circumstances of the local patient/family.

The PHCPs referred patients to a higher level of care, such as a district hospital, if needed. Nevertheless, after that, there was no discussion about the referred patient between PHCPs and specialists at the higher level. The PHCPs said they wanted to have close contact with specialists (physicians), who directly treat their patients at a higher level, but it was difficult. Because they did not know who treated their patient and had no information on how to contact the specialists. That is why they rarely communicate with the specialists to discuss the patient's situation. They had just contacted some specialists, whom they knew, via phone in some exceptional previous cases.

> *"It is difficult to communicate with a specialist. I want it to happen. Patients usually return to me after treatment at a higher level, but I only get the information from their medical notebook, their papers."* (IP 6 - Physician, p. 5, line 127)

> *"I think the specialist who directly treats my patient has no time to discuss with me…"* (IP 4 – Traditional assistant physician, p. 4, line 109)

**Knowledge**

*Terms description*

The participating PHCPs describe collaboration as teamwork, team-based care, and interprofessional collaboration. Nevertheless, most of the participants were not able to describe all terms. 'Interprofessional collaboration' was described as coordination between different sectoral agencies or PHCPs from the same profession. Many of them did not think of different professions working together.

> *"Interprofessional teamwork is a coordination among sectoral agencies or many disciplines or many medical specialists."* (IP 4 – Traditional assistant physician, p. 1, line 14)

*The necessary*

However, they were convinced they needed to collaborate with other professionals to finish tasks more efficiently and achieve better results. Furthermore, most participants stated they are always willing to collaborate with other PHCPs.

> *"Collaboration is very important… very necessary… It is easy to take care of the patient because if only one physician does all these tasks, it probably will not be all good."* (Interview – Participant 9 – Physician, p. 2, line 29)

*The needed competences*

In addition, participants have mentioned communication skills, teamwork, and expertise, which are mainly needed for PHCPs to collaborate. Other PHCPs stated that trust and mutual respect are necessary for collaboration.

> *"Have to trust and respect each other. Otherwise it was difficult to work together... cannot finish many tasks without the respect from others."* (Interview – Participant 8 – Pharmacist, p. 22, line 696)

**Facilitators and barriers to IPC**

*Facilitators*

The first facilitator which they mentioned the most is the face–to–face communication between each other. Secondly, these face-to-face contacts were held in a small group in the CHC. This is an excellent way to collaborate in daily practice, especially working at the same place.

> *"Working in a place helped us communicate easier"* (IP 9 - Physician, p 15, line 415)

Another beneficial facilitator was that PHCPs are locals who have worked there for a long time and know the community well. They work in the CHC in their commune, where they live. That is why they knew each other well and had close contact with the patient. It also helps that the head manager is older than their staff to facilitate collaboration.

> *"Most of them are local people, so we have very close contact with the people… we update the information there very fast."* (Interview – Participant 10 – Midwife, p. 13, line 411)

Some communicational facilitators were mentioned, such as trustworthiness, respectfulness, actively working, and showing responsibility.

> *"My staff members are honest, active, have good knowledge, are solid, work responsibly, and are studious. Moreover, their house is in this commune. Share knowledge with each other. Our group chat has been going on for two years. It is beneficial. We talk together and have fun there."* (IP 6 - Physician, p. 11, line 325)

*Barriers*

Besides the facilitators, also barriers to collaboration were mentioned. Not being trained in interprofessional collaboration or offered courses about team-based care was mentioned as a shortcoming.

> *"We were not trained to implement collaboration."* (IP 9 - Physician, p. 17, line 451)

Besides, participants stated that there was no policy and mechanism to guide them on how to collaborate from the district health center, the provincial health department, or even from the Ministry of Health.

> *"It is difficult for us… No mechanism from the Department of Health, so we do not know what to do."* (IP 6 - Physician, p. 6, line 173)

The PHCPs stated that they have a low income that affects their motivation in a negative way to do extras next to their job.

> *"I think income is a big barrier... That is why we do not want to work hard anymore."* (IP 6 - Physician, p. 11, line 335)

*Suggestion*

Most PHCPs suggested that they need to be trained to collaborate well with others. They need more training courses about IPC and CDM to improve their knowledge and skills to offer more patient-centered care. Other suggestions that have been noticed by PHCPs are that the MOH should have clear policies, mechanisms, and guidelines about IPC at the primary healthcare level. In addition, reducing paperwork to have more time to discuss with each other is also suggested by participants.

> *"We need to be trained about interprofessional collaboration.... thence we will know how to collaborate to treat for patient effectively"* (IP 2 – Physician, p. 4, line 119)
>
> *"Should reduce the paperwork to have time to discuss and better do the chronic disease management program. Paperwork is too much, even increasingly. We are so stressful with that."* (IP 12 - Physician, p.18, line 543)

**Discussion**

The aim of this qualitative research was to gain insight into the perceptions and experiences of PHCPs toward interprofessional collaboration in CDM in CHCs. From the findings, three main themes according to interprofessional collaboration emerged: 'lack of collaborative practice', 'knowledge', and 'facilitators and barriers to IPC'. These themes gave us valuable information about the collaboration between PHCPs for CDM in the CHC. It seemed these teams did not work interprofessionally based on the definition from the literature. Their collaboration can be understood as more multiprofessionally.

The findings revealed that each CHC already contained more disciplines. They communicated face-to-face with each other in daily practice. From other studies, direct face-to-face contact between professionals for case discussion is more beneficial than communication via email or telephone (Franx et al., 2012; Raaijmakers et al., 2013). The opportunities for IPC may increase when professionals from different disciplines working and provide healthcare services within the same physical place (Seaton et al., 2021). Moreover, the collaboration between different professionals in developing tailored care plans for their patients is a fundamental goal in achieving more effective care (Coulter et al., 2015; Kitson et al., 2013). The results from this study confirmed that PHCPs had regular face-to-face meetings with common objectives as tasks assignment but not for developing care plans, especially for complex or chronic cases. The roles and responsibilities of PHCPs in CDM needed to be clarified. PHCPs lacked understanding about their roles and responsibilities on CDM and those of others in the team. The results in the present study also showed that the small teams regularly worked together for "sharing tasks" but did not use "shared decision-making" with the patient. This is relevant to the shared decision-making status in China, which is limited in clinical policies or implementation (Huang et al., 2015). Even though shared decision-making is increasingly advocated as the strategy for the best care in the chronic care (Alston et al., 2014). They worked independently, lacking discussion between different professions about patients' care plans. Patients and their families were not engaged as partners in care management. There was a lack of a shared plan, and strong hierarchies with physicians at the

top existed in many CHCs. Some physicians made decisions or care plans for patients alone, without discussion with anyone else in their team. Equality in voices was missing between the PHCPs. Our finding adds evidence to support the strongly hierarchical culture in East Asia with a power imbalance between physicians and other professionals, which makes nurses or other professionals hesitant to raise their voices, ideas, or concerns (Claramita & Susilo, 2014; Lee et al., 2021). Similar to the study of Tsakitzidis et al. (2017) investigating interprofessional collaboration in healthcare teams in nursing homes, we found that teams worked more as separated groups than as interprofessional teams (Tsakitzidis et al., 2017).

Indeed interprofessional team members must promote shared decision-making, equal voices, and non-hierarchical collaboration, especially when treating chronic disease (Orchard et al., 2010). Many researchers revealed that shared decision-making could improve the quality of care and patient safety (Joosten et al., 2008; Légaré et al., 2014; WHO, 2010). Katon (2010) and Chwastiak et al. (2017) indicated that primary care is patient-centered care, which means PHCP's roles change according to the patient's needs. Collaboration between PHCPs is essential to deliver integrated patient-centered care, significantly improving outcomes in patients with chronic diseases such as diabetes, anxiety, and depression (Chwastiak et al., 2017; Katon et al., 2010). Besides, the results showed that PHCPs rarely discussed with specialists at a higher level and preferred to refer patients through referral letters without any feedback reports. Health service provision remained imbalanced and lacked a link between primary and higher levels. The annual health report of the Vietnamese Ministry of Health in 2014 confirmed these findings by revealing a lack of continuing care between levels (The Vietnamese Ministry of Health, 2014). An interprofessional team should be established with specialists to manage chronic care across all settings (Carrier, 2015; Pascucci et al., 2021). The feedback and discussions between the primary care level and higher levels for cases referred upwards need to be effectively strengthened.

From the interviews, PHCPs lacked knowledge about interprofessional collaboration compared to the definition in the literature (D'amour et al., 2005; Mitchell et al., 2012; WHO, 2010) was found. That may lead to PHCPs not knowing how to collaborate with other professions effectively. Understanding these terms and distinguishing between multidisciplinary and interprofessional teamwork is essential. C.E. Johnson indicated that understanding interprofessional collaboration is essential for all practitioners (Johnson, 2017). Even so, the necessity of interprofessional collaboration was emphasized by participants that could improve the quality of care in CDM in CHCs. PHCPs proposed that communication skills, teamwork skills, expertise, and respect for the values and expertise of other professions are needed to work interprofessionally. With communication skills, PHCPs need to express their opinions competently to others by using effective communication tools. Besides, needed competencies for PHPCs to effectively collaborate in daily practice were found from the results, including understanding their own roles and those of other professions, being a manager, and working collaboratively in the best interests of the patient. These competencies are consistent with four core competencies for interprofessional collaborative practice, including values/ethics for interprofessional practice, roles/responsibilities, interprofessional communication, and teams and teamwork (Interprofessional Education Collaborative, 2016). Also, these competencies are similar to those mentioned in the personal competencies to collaborate interprofessionally, which have been used in the Interprofessional Collaboration in Healthcare program at the University of Antwerpen, including being

a communicator, lifelong learner, manager, expert, professional, health advocate, and team player (Tsakitzidis et al., 2021).

PHCPs usually worked for a long time in the CHC as a facilitator, so they knew well about each other and understood other providers' character. Besides, PHCPs were mainly locals who knew their patients well and the health commune context. It helped to control the preventive situation, manage chronic disease and implement the national target programs. PHCPs may need to keep involving local people with years of experience to move towards more effective interprofessional collaboration. However, in Vietnam, there is no explicit policy nor strategy for implementing interprofessional education and collaborative practice in preventing and controlling chronic diseases (The Vietnamese Ministry of Health, 2014, 2019). Even in the national strategy for preventing and controlling non-communicable disease period 2015 – 2025 of the Ministry of Health of Vietnam, a solution for interprofessional collaboration between PHCPs is missing (The Vietnamese Ministry of Health, 2015b). The results of our study are in line with those facts. PHCPs had not received training on teamwork skills or team-based care to collaborate with other professions interprofessionally. The poverty of policy and guidance towards interprofessional care and education negatively affects PHCPs' lack of awareness about interprofessional collaboration and the roles in CDM. Therefore, an interprofessional training program and guidelines about interprofessional collaboration are also suggested by participants to guide them on how to work more interprofessionally.

**Strengths and weaknesses**

In this qualitative study, triangulation of data was used with a focus group and individual interviews using different perspectives in data analysis, allowing us to explore the perceptions and experiences of participants toward interprofessional collaboration. Besides, 27 participants came from six different disciplines in 8 CHCs, representing different geographical areas, allowing us to collect richer information from their views. However, the results are based on collected data in a particular setting, so there is a need to further explore the transferability in other settings.

**Conclusion**

This study provides insight into the perceptions and experiences of PHCPs toward interprofessional collaboration in CDM at CHCs in Hue, Vietnam. Each CHC has a multiprofessional team with six professions, including a physician, assistant physician, nurse, pharmacist, midwife, and Vietnamese traditional physician. PHCPs daily face–to–face work together but do not work interprofessionally according to the definitions from the literature. This study provided evidence of the awareness that collaboration in usual care is fragmentarily organized. PHCPs work multiprofessionally and lack shared decision-making in patient-centered care. There is also no collaboration between primary and secondary-line health care to deliver continuing care. From the results and the literature, it becomes apparent that interprofessional collaboration needs to be enhanced in the national policy or strategy for preventing and controlling chronic diseases. Furthermore, PHCPs need more training to improve their interprofessional competencies to work more interprofessionally in CDM. Future research is needed to develop an interprofessional education program of undergraduate and postgraduate or continuing medical education courses to address these deficiencies in the Vietnamese context to improve interprofessional collaboration in health care.

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**Declaration of interest**

There was no reported potential conflict of interest by the research team.

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**References**

Alston, C., Berger, Z., Brownlee, S., Elwyn, G., Fowler Jr, F. J., Hall, L. K., Montori, V. M., Moulton, B., Paget, L., & Haviland-Shebel, B. (2014). Shared decision-making strategies for best care: patient decision aids. *NAM Perspectives*.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101.

Carrier, J. (2015). *Managing long-term conditions and chronic illness in primary care: a guide to good practice*. Routledge.

Cheusheva, S. (2021). *How to Select Random Sample in Excel* https://www.ablebits.com/office-addins-blog/2018/01/31/excel-random-selection-random-sample

Chwastiak, L. A., Jackson, S. L., Russo, J., DeKeyser, P., Kiefer, M., Belyeu, B., Mertens, K., Chew, L., & Lin, E. (2017). A collaborative care team to integrate behavioral health care and treatment of poorly-controlled type 2 diabetes in an urban safety net primary care clinic. *General hospital psychiatry*, *44*, 10-15.

Claramita, M., & Susilo, A. P. (2014). Improving communication skills in the Southeast Asian health care context. *Perspectives on medical education*, *3*(6), 474-479.

Coulter, A., Entwistle, V. A., Eccles, A., Ryan, S., Shepperd, S., & Perera, R. (2015). Personalised care planning for adults with chronic or long-term health conditions. *Cochrane database of systematic reviews*(3).

D'amour, D., Ferrada-Videla, M., San Martin Rodriguez, L., & Beaulieu, M.-D. (2005). The conceptual basis for interprofessional collaboration: Core concepts and theoretical frameworks. *Journal of Interprofessional Care*, *19*(sup1), 116-131.

Franx, G., Oud, M., De Lange, J., Wensing, M., & Grol, R. (2012). Implementing a stepped-care approach in primary care: results of a qualitative study. *Implementation Science*, *7*(1), 1-13.

Gibbs, A. (1997). Focus groups. *Social research update*, *19*(8), 1-8.

Hoa, N. T., Tam, N. M., Derese, A., Markuns, J. F., & Peersman, W. (2019). Patient experiences of primary care quality amongst different types of health care facilities in central Vietnam. *BMC health services research*, *19*(1), 1-11.

Huang, R., Gionfriddo, M. R., Zhang, L., Leppin, A. L., Ting, H. H., & Montori, V. M. (2015). Shared decision-making in the People's Republic of China: current status and future directions. *Patient preference and adherence*, 1129-1141.

Interprofessional Education Collaborative. (2016). *Core competencies for interprofessional collaborative practice: 2016 update*. Washington, DC: Interprofessional Education Collaborative.

Johnson, C. (2017). Understanding interprofessional collaboration: An essential skill for all practitioners. *OT Practice*, *22*(11), 1-8.

Joosten, E. A., DeFuentes-Merillas, L., de Weert, G. H., Sensky, T., van der Staak, C. P., & de Jong, C. A. (2008). Systematic review of the effects of shared decision-making on patient satisfaction, treatment adherence and health status. *Psychother Psychosom*, *77*(4), 219-226. https://doi.org/10.1159/000126073

Katon, W. J., Lin, E. H., Von Korff, M., Ciechanowski, P., Ludman, E. J., Young, B., Peterson, D., Rutter, C. M., McGregor, M., & McCulloch, D. (2010). Collaborative care for patients with depression and chronic illnesses. *New England Journal of Medicine*, *363*(27), 2611-2620.

Kitson, A., Marshall, A., Bassett, K., & Zeitz, K. (2013). What are the core elements of patient-centred care? A narrative review and synthesis of the literature from health policy, medicine and nursing. *Journal of advanced nursing*, *69*(1), 4-15.

Lee, S. E., Choi, J., Lee, H., Sang, S., Lee, H., & Hong, H. C. (2021). Factors influencing nurses' willingness to speak up regarding patient safety in East Asia: A systematic review. *Risk management and healthcare policy*, 1053-1063.

Légaré, F., Stacey, D., Turcotte, S., Cossi, M. J., Kryworuchko, J., Graham, I. D., Lyddiatt, A., Politi, M. C., Thomson, R., & Elwyn, G. (2014). Interventions for improving the adoption of shared decision making by healthcare professionals. *Cochrane database of systematic reviews*(9).

Lemieux-Charles, L., & McGuire, W. L. (2006). What do we know about health care team effectiveness? A review of the literature. *Medical Care Research and Review*, *63*(3), 263-300.

Lutfiyya, M. N., Chang, L. F., McGrath, C., Dana, C., & Lipsky, M. S. (2019). The state of the science of interprofessional collaborative practice: A scoping review of the patient health-related outcomes based literature published between 2010 and 2018. *PloS one*, *14*(6), e0218578.

Mitchell, P., Wynia, M., Golden, R., McNellis, B., Okun, S., Webb, C. E., Rohrbach, V., & Von Kohorn, I. (2012). Core principles & values of effective team-based health care. *NAM Perspectives*.

Orchard, C., Bainbridge, L., Bassendowski, S., Stevenson, K., Wagner, S. J., Weinberg, L., Curran, V., Di Loreto, L., & Sawatsky-Girling, B. (2010). A national interprofessional competency framework.

Pascucci, D., Sassano, M., Nurchis, M. C., Cicconi, M., Acampora, A., Park, D., Morano, C., & Damiani, G. (2021). Impact of interprofessional collaboration on chronic disease management: findings from a systematic review of clinical trial and meta-analysis. *Health Policy*, *125*(2), 191-202.

Raaijmakers, L. G., Hamers, F. J., Martens, M. K., Bagchus, C., de Vries, N. K., & Kremers, S. P. (2013). Perceived facilitators and barriers in diabetes care: a qualitative study among health care professionals in the Netherlands. *BMC family practice*, *14*(1), 1-9.

Roth, G. (2018). Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2017 (GBD 2017) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2018. *The Lancet*, *392*, 1736-1788.

Rothman, A. A., & Wagner, E. H. (2003). Chronic illness management: what is the role of primary care? *Annals of Internal Medicine*, *138*(3), 256-261.

Sandelowski, M. (2000). Whatever happened to qualitative description? *Res Nurs Health*, *23*(4), 334-340. https://doi.org/10.1002/1098-240x(200008)23:4<334::aid-nur9>3.0.co;2-g

Seaton, J., Jones, A., Johnston, C., & Francis, K. (2021). Allied health professionals' perceptions of interprofessional collaboration in primary health care: an integrative review. *Journal of Interprofessional Care*, *35*(2), 217-228.

The Vietnamese Ministry of Health. (2014). *Joint Annual Health Review: Strengthening prevention and control of non-communicable disease*.

The Vietnamese Ministry of Health. (2015a). *Circular provides guidelines for functions and responsibilities of commune health centers* (33/2015/TT-BYT ).

The Vietnamese Ministry of Health. (2015b). *National strategy for the prevention and control of non-communicable diseases, period 2015 – 2025*.

The Vietnamese Ministry of Health. (2018). *Decision provides the practice contents for Vietnamese traditional practitioner to grant practice license for medical examination and treatment by Vietnamese traditional medicine.* (2073/QD-BYT).

The Vietnamese Ministry of Health. (2019). *Project of strengthen of education and protocol training, improve professional competence for primary health care providers in commune health center, period 2019 – 2025* (1718/QD-BYT).

The Vietnamese Ministry of Health and Ministry of Home Affairs. (2015a). *Joint Circular provides for number code and professional criterial for title of physician, physician in preventive medicine, and assistant physician.* (10/2015/TTLT-BYT-BNV ).

The Vietnamese Ministry of Health and Ministry of Home Affairs. (2015b). *Joint Circular provides the regulation on number code, professional criterial of nurse, midwife, medical technician* (26/2015/TTLT-BYT-BNV).

The Vietnamese Ministry of Health and Ministry of Home Affairs. (2015c). *Joint Circular provides the regulation on number code, professional criterial of pharmacist* (27/2015/TTLT-BYT-BNV).

Tsakitzidis, G., Anthierens, S., Timmermans, O., Truijen, S., Meulemans, H., & Van Royen, P. (2017). Do not confuse multidisciplinary task management in nursing homes with interprofessional care! *Primary Health Care Research & Development*, *18*(6), 591-602.

Tsakitzidis, G., Van Olmen, J., & Van Royen, P. (2021). Training in interprofessional learning and collaboration: An evaluation of the interprofessional education program in the scale-up phase in Antwerp (Belgium). *Slovenian Journal of Public Health*, *60*(3), 176-181.

Vos, T., Lim, S. S., Abbafati, C., Abbas, K. M., Abbasi, M., Abbasifard, M., Abbasi-Kangevari, M., Abbastabar, H., Abd-Allah, F., & Abdelalim, A. (2020). Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet*, *396*(10258), 1204-1222.

Wagner, E. H. (2019). Organizing care for patients with chronic illness revisited. *The Milbank Quarterly*, *97*(3), 659.

WHO. (2010). *Framework for action on interprofessional education and collaborative practice*. World Health Organization.

WHO. (2015). *World health statistics 2015*. World Health Organization.

WHO. (2018). Continuity and coordination of care: a practice brief to support implementation of the WHO Framework on integrated people-centred health services. World Health Organization.

**Table 1:** Characteristics of participants – health professionals.

| Profession | Number of participants (female/male) | Focus group | Interview | Average age | Years of experience in current profession | Years of working at the current CHC |
|---|---|---|---|---|---|---|
| Physician | 4/2 | 2 | 4 | 55 [53 - 57] | 26 [19 - 31] | 13 [1 - 29] |
| Assistant physician | 2/1 | 2 | 1 | 38 [25 - 54] | 14 [3 - 29] | 5 [1 - 11] |
| Nurse | 4/0 | 2 | 2 | 36 [29 - 52] | 15 [6 - 32] | 14 [4 - 32] |
| Vietnamese traditional physician | 3/2 | 2 | 3 | 31 [25 - 35] | 10 [3 - 15] | 6 [2 - 12] |
| Midwife | 4/0 | 2 | 2 | 39 [32 - 49] | 17 [11 - 24] | 13 [9 - 21] |
| Pharmacist | 5/0 | 2 | 3 | 32 [24 - 51] | 10 [3 - 21] | 6 [3 - 20] |
| Total | 22/5 | 12 | 15 | | | |

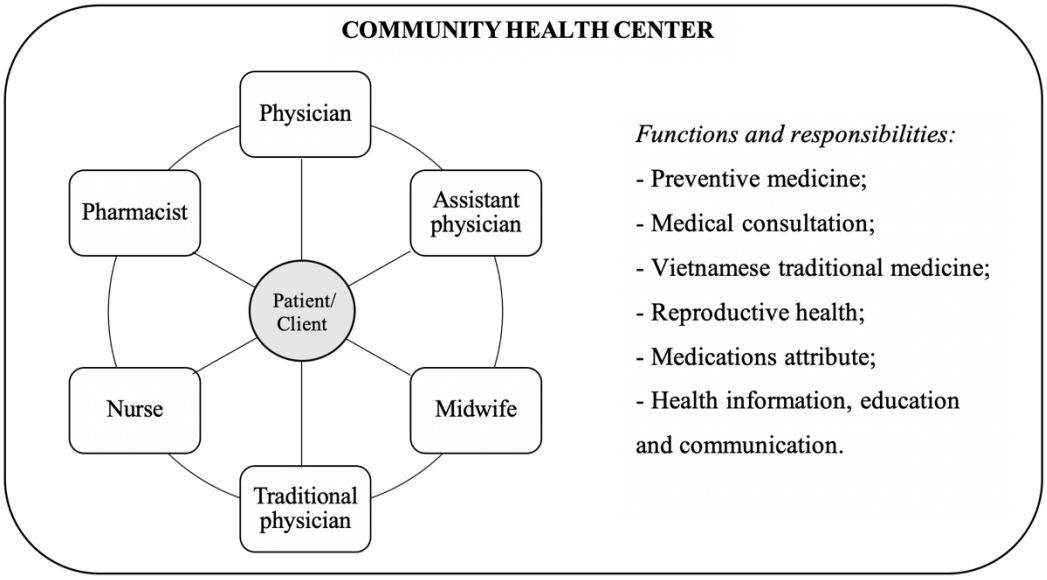


**Figure 1:** The model of a Commune Health Center.

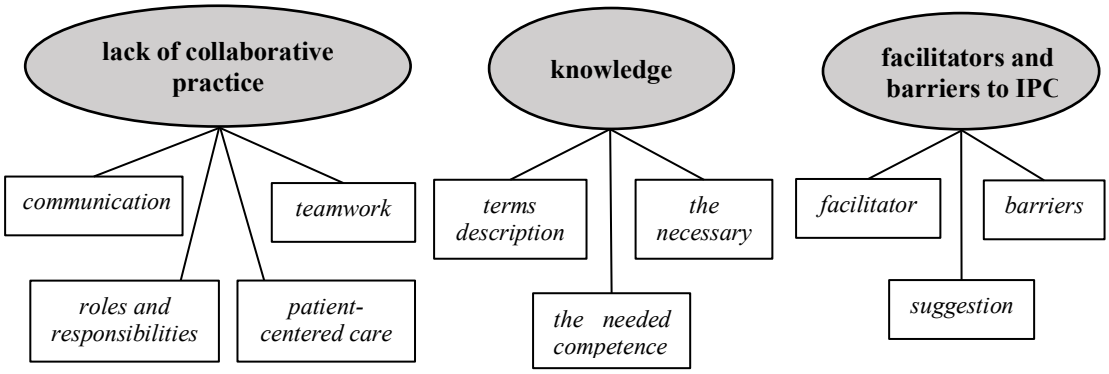


**Figure 2:** Final thematic map showing the final three main themes.