Understanding the work of Community Public Health Nurses in Fiji and the challenges they face

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Abstract

Aim: To investigate the type of work (interventions) undertaken by community public health nurses (CPHNs) in Fiji to determine if there has been a shift from a broader health promotion and primary disease prevention focus to a narrower focus on providing direct patient care.

Methods: The study used a mixed methods explanatory sequential research design, which included two phases. The first phase was a survey of 458 CPHNs working in Fiji. The survey examined the social, demographic and geographical characteristics of CPHNs (urban/peri urban, rural, rural remote/maritime), along with the interventions they performed (72 in total) covering direct patient care and health promotion and primary prevention at individual, community and system-population based levels. Additionally, it assessed the knowledge and clinical preparation of CPHNs for their current roles. Quantitative analysis techniques used were descriptive statistics, chi-square, Fisher's exact and Cramer's V tests. The second phase comprised in-depth interviews with ten CPHNs to determine the ways they undertook interventions; changes to their role within the past ten years; perspectives on the reasons for any change/s, and the challenges that can be encountered when undertaking daily tasks. Thematic analysis was used to analyse interviews.

Results: Phase 1: quantitative findings showed CPHNs undertook diverse interventions with geographical practice location often associated with the frequency of interventions. All CPHNs, irrespective of geographical practice location, performed direct patient care more than expected on a daily and weekly basis and less than expected on a quarterly basis. All CPHNs performed health promotion and primary prevention less than expected on a daily and weekly basis and more so on a quarterly basis. Phase 2: the qualitative findings revealed that CPHNs in rural and remote rural/maritime areas engaged in health promotion and primary prevention through coalition building and community organising due to isolation and physical environment. Nurses in urban/peri urban settings engaged in direct patient care interventions such as immunisation, management of NCD complications and home-based care. CPHNs reported that in the past decade there had been a shift from health promotion and primary prevention to direct patient care and attributed this to expanded roles and growing workloads, an increased focus on community-based healthcare, an increase in population size and service demands.

Conclusion: CPHNs in Fiji have experienced a shift in their role from a broader focus on health promotion and primary disease prevention to a narrower focus on providing increasingly more direct patient care.

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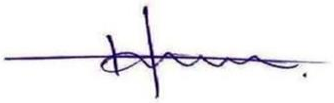
Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.



Signature

Date 30th November 2023

Ethics Approval

Ethics approval was sought from the Fiji National Research Ethics Committee, the National Health Research Committee (FHREC 14/2020) and the Massey University Human Ethics Committee (NOR 20/08) prior to commencing data collection.

List of Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care Nurse
BBA	Birth Before Arrival
BP	Blood pressure
CBG	Capillary Blood Glucose
CHW	Community Health Workers
CNMO	Chief Nursing and Midwifery Officer
CPHN	Community Public Health Nurse
CVA	Cerebral Vascular Accident
CWMH	Colonial War Memorial Hospital
DF	Diabetes Fiji
DN	District Nurse
DON	Director of Nursing
DOTS	Directly Observed Treatment Short Course
EPI	Expanded Programme on Immunization
FCS	Fiji Cancer Society
FOF	Friends of Fiji
FP	Family Planning
GDP	Gross Domestic Product
GOPD	General Outpatient Department
HBC	Home-Based Care
HBCN	Home-Based Care Nurse
HC	Health Centres
HITH	Hospital in the Home
HIV	Human Immunodeficiency Virus
IMCI	Integrated Management of Childhood Illness
IV	Intravenous
LTD	Leptospirosis Dengue and Typhoid
MCH	Maternal Child Health
MDG	Millennium Development Goals
MO	Medical Officer
MOHMS	Ministry of Health and Medical Services
MR	Measles-Rubella
MSP	Medical Services Pacific
NCD	Non-Communicable disease
NGO	Non-Government Organisations

NP	Nurse Practitioner
NS	Nursing Stations
PAP	Papanicolaou smears
PEI	Pacific Eye Institute
PEN	Package of Essential Non-Communicable Disease Interventions
PHC	Primary Health Care
PHCM	Primary Health Care Model
PHIS	Public Health Information System
PHIW	Public Health Interventions Wheel
PHN	Public Health Nurse
PIC	Pacific Island Countries
PPM	Professional Practice Model
PSA	Prostate-Specific Antigen
PSH	Permanent Secretary of Health
RHD	Rheumatic Heart Disease
SDG	Sustainable Development Goals
SOPD	Special Outpatient Department
SPC	Secretariat of the Pacific Community
SPF	Sai Prema Foundation
STEPS	Stepwise Approach to Surveillance
STI	Sexually Transmitted Infection
STK	Streptokinase
TB	Tuberculosis
TL	Team Leader
UHC	Universal Health Coverage
WHO	World Health Organization

CHAPTER 1 INTRODUCTION

More than a decade ago Pacific Islands Leaders declared the Pacific to be in a "Non-Communicable Disease Crisis". By 2020, 82% of all Fijian deaths were attributed to non-communicable diseases (NCDs), a marked increase from 50% in 1980. Most recently, of 10 countries with the highest probability of premature mortality from NCD complications, six were in the Pacific: Kiribati (51%), Federated States of Micronesia (46%), Vanuatu (40%), Solomon Islands (39%), Fiji (38%), and Papua Niugini (36%) (Anderson 2022). Little traction was gained in the management of NCDs between 2014 and 2020 despite policy and interventions targeting cardiovascular disease, chronic respiratory disease, cancers and diabetes (Low et al., 2015). Without effective management, the prevalence and severity of NCDs like cardiovascular disease, chronic respiratory disease, cancers, and diabetes increased, leading to higher rates of morbidity and mortality within the population. Additionally, an increase in NCD cases overwhelmed healthcare systems, resulting in resource shortages, longer waiting times, and potentially lower quality of care, as well as higher healthcare costs for both individuals and the system as a whole. The highest prevalence of diabetes in the world is in the Pacific nations of Tokelau, Federated States of Micronesia (FSM), Marshall Islands, Kiribati, Cook Islands and Vanuatu (Guariguata et al., 2014).

Premature deaths and disabilities from NCD have resulted in lost productivity and threaten Fiji's ability to reach Sustainable Development Goals (SDGs) along with other Pacific Island Countries (Win et al.,2022). NCDs have caused a burden of illness for Fiji, with many people experiencing lifelong disability and devastating complications (Snowdon et al., 2013 & Chand et al.,2020), from amputations, stroke, and kidney failure. Common risk factors leading to NCDs include smoking, harmful use of alcohol, unhealthy diets, and a lack of physical activity.

In addition, communicable disease (CD) outbreaks in the Pacific have led to public health concerns about waste disposal, environmental health issues, and food and water safety. Uncertain natural disasters, such as cyclones and floods, have made Pacific peoples more vulnerable to communicable disease outbreaks, worsened by the effects of climate change (Lau et al., 2016). Such disasters make worse the frequent CD outbreaks of leptospirosis, typhoid, dengue fever and meningococcal disease that plague the Pacific and place a greater burden on resource-constrained health systems, with increases in hospitalisations, suffering and death.

Community Public Health Nurses[1] (CPHNs) have traditionally played a primary role in engaging with communities to prevent disease outbreaks and implement health prevention strategies. While they also play a role in the diagnosis and treatment of patients with NCDs, the increasing prevalence of both NCDs and CDs is challenging their primary role in Fiji and the Pacific more widely. The increase in the prevalence of people living with long-term conditions, along with early discharge from hospital of patients requiring complex long-term care in the community, has changed the role and activities of CPHNs (Brookes et al., 2004; Cioffi et al., 2007; Kemp et al., 2005). High demands are placed upon these nurses to provide direct patient care, and for more than a decade this has likely been at the cost of providing health promotion and primary disease prevention (referred to in this thesis as primary prevention) activities (Coyle et al., 2010).

No research could be identified on a shift in CPHNs' work from a central primary focus on health promotion and primary prevention activities with populations, to a central focus on the direct care of individual patients. It is vital that the actual work of CPHNs in Pacific Island countries, such as Fiji, is understood. If direct patient care is being undertaken at the expense of broader public health activities, such as health promotion and primary prevention, there is a risk that this work is not being undertaken, or is being undertaken in different regions to a lesser degree. The implication of such a shift in work priorities will have consequences on the health of the population in Fiji. This study aims to investigate the type of work (interventions) undertaken by CPHNs in Fiji to determine the degree of shift from a broader health promotion and primary prevention focus to a narrower focus on providing direct patient care in the Fijian context.

These CPHNs stay with the community and work with individuals and families at not only a professional level but also a personal level. This requires the need for cultural safe practice. Cultural safety is defined as a relationship where you have institutional power; cultural safety is the moment of trust that occurs leading the client/patient/customer to not need to protect their differences from you (Ramsden, 2002). Cultural safety focuses on the patient and creates a space for them to be involved in decision-making about their own care and contributes to the achievement of positive health outcomes and experiences.

[1] For this study, the term "community public health nurse" is used as a collective term that encompasses all the nurses working as primary care providers, community nurses, community health nurses, public health nurses, primary health care nurses and general practice nurses who work as primary care providers outside the hospital setting.

Decision making has been influenced by colonial power structures with established hierarchical systems that excluded indigenous voices. Power imbalances persist in many institutions, including health services, where decision-making often does not adequately involve indigenous perspectives. The CPHNs in Fiji must demonstrate culturally safe practice as means to reducing high disease rates and poorer health outcomes in indigenous communities. Colonial power has disrupted traditional ways of life and created a disconnect between indigenous peoples and healthcare systems and resulted in a mistrust of healthcare providers and institutions. The CPHNs have a role in rebuilding trust and ensuring their, and other health workers, practice is culturally safe and respects and integrates traditional knowledge and practices. Continuous education and reflection of practices is needed to avoid perpetuating colonial biases. Decolonisation involves challenging the longstanding effects of colonial power structures and promotes policies that prioritise Indigenous health perspectives, supports self-determination, and addresses the social determinants of health. Effective nursing in a post-colonial context requires a deep understanding of cultural safety, training nurses to recognise and address biases, understand the cultural contexts of the communities they serve, and create environments where patients feel respected and safe. Finally, nurses play a crucial role in advocating for health policies that address the needs of indigenous populations, working with community leaders, participating in policy development, and ensuring culturally appropriate and effective health interventions (Low et al., 2015).

Community Public Health Nurses in context

A recent World Health Organisation (WHO) report on enhancing the role of community health nursing (CHN) for universal health coverage (WHO Press, 2017) defined CHN as follows:

> A special field of nursing that combines the skills of nursing, public health and some phases of social assistance and functions as part of the total public health programme for the promotion of health, the improvement of the conditions in the social and physical environment, rehabilitation of illness and disability (p. 5).

Community Public Health Nurses have historically been critical in providing health promotion and primary prevention to different populations, in settings such as homes, schools, villages, churches, and workplaces across the Pacific islands. They are well placed to work at the community level and can promote changes to behaviour and lifestyle to ameliorate the

complications of NCDs and CDs; but the increasing prevalence of these conditions is challenging the primary role of the CPHN in the Pacific.

Historically, CPHNs have been frontline healthcare professionals working within communities advocating for health promotion and primary prevention. In Fiji, most of their work was with maternal child health services and communicable disease prevention. The CPHNs were responsible for ensuring that children were immunised against target diseases and providing family planning services. During school and home visits, these nurses educated people on simple primary prevention interventions, such as handwashing, personal hygiene, boiling drinking water, waste disposal and environmental cleanliness. The CPHNs had dual roles, which were to provide direct care (community-based primary care) and health promotion and primary prevention (community health nursing/public health nursing) where the focus was on the community as a client. Given the dual role of CPHNs, they are responsible for implementing interventions[2] focused on the individual or family, community and the broad health system. However, the focus appears to have been changing in response to the growing burden of NCDs caused by lifestyle changes.

Community Public Health Nurses in Fiji are currently trained in NCD complication management, which includes diabetes foot care, eye care, the provision of a package of essential non-communicable disease interventions (PEN) and integrated childhood illnesses. These activities aim to provide direct care to individual patients. Their roles are becoming more specialised in providing complex care, as defined on the acute care framework. This threatens the population-based community-focused approach, which has been the responsibility of the CPHN (Brookes et al., 2004). It is not known how CPHNs ration care to ensure health promotion and primary prevention activities are not compromised by an increased demand for acute care management. Workforce planning in Fiji requires information that can profile CPHN's – demographic and educational characteristics, current knowledge and skills and the type of work undertaken. Without such data it is not possible to determine what work is undertaken and where the gaps in service provision lie. Workforce planning that addresses issues of future workforce sustainability, will also require information about the challenges CPHNs are

[2] Intervention is defined as "actions taken on behalf of individuals, families, systems, and communities to improve or protect health status".

presented with in their everyday work, and any impacts that might be experienced by patients and families, and the nurses themselves.

There is limited data on how CPHNs are dealing with their changing role in other developing Pacific Island countries and how they meet the challenges they face, working in rural and remote areas. There are no published studies identified that specifically look at CPHN roles, activities, and challenges in a Fijian context. This places greater emphasis on the need for research that highlights the primary role of the CPHN in Fiji and the Pacific.

Several researchers have reported the direct care roles of CPHNs are mostly related to the management of NCDs (Foley et al., 2005; Halcomb et al., 2008; Joyce & Piterman, 2011). Coyle et al. (2010) further reported that apart from direct care roles, CPHNs working in remote and isolated areas undertook non-nursing and administrative roles, such as teaching aboriginal health workers, cleaning buildings, doing vehicle maintenance, and animal health. However, these studies did not quantify how much of their time was attributed to health promotion and primary prevention. Moreover, these studies did not report on differences between the work of the rural and remote CPHN workforce and those working in metropolitan cities. Most of these studies used a cross-sectional survey design (Foley et al., 2005; Halcomb & Ashley, 2019; Joyce & Piterman, 2011; Lenthall et al., 2011) to investigate the demographic characteristics of the CPHN workforce. Given the urban, rural and remote geography of the Fiji Islands, it is important to have research that describes the CPHN workforce by age, educational background, and their actual work to inform future workforce planning.

Some researchers have reported that the changing roles of CPHNs are due to more people living longer with chronic, long-term conditions requiring home-based care (Brookes et al., 2004; Cioffi et al., 2007; Kemp et al., 2005). In recent years, CPHNs have experienced role expansion, role extension, and increased specialisation, which has caused confusion within this professional nursing group. Many of the changes to CPHNs' roles have been unplanned and in response to service demands (Smith, 2002). The CPHNs' work appears to developing more into a clinical focus on individuals, rather than taking a population focus on communities. Understanding how CPHNs use their time is crucial to understanding what community-based health promotion and primary prevention activities are undertaken.

While CPHNs are acknowledged as having an important role in primary prevention, Australian research contends the CPHN specialisation lacks leadership in organisational decision-making (Brookes et al., 2004; Halcomb et al., 2006). A further Australian study on community nursing reported that along with minimal involvement in organisational decision-making, CPHNs placed a greater focus on medical interventions than primary prevention (Smith, 2000). Other significant challenges faced by CPHNs working in rural and remote areas included moral distress, barriers to continuing education, and lack of a career pathway.

1.1 Significance of the Study

While there is a historic and widely held belief within the health sector that CPHNs in Fiji are providing health promotion and primary prevention, there is little evidence to support how much of this type of work is currently being undertaken. The decentralisation of health services has seen CPHNs take on new clinical activities in response to immediate need. This study will generate data about the activities undertaken by CPHNs in Fiji at individual and family, community, and systems levels of population-based practice. The current role of CPHNs in providing direct care, health promotion and primary prevention will offer insights about how time and care is being prioritised. Nurses in remote settings, islands, rural areas, peri-urban areas and urban areas work with different population sizes. Some are geographically isolated, while others are living in informal settlements (squatters). Understanding the challenges nurses face, will help to identify workforce solutions to addressing the need for direct care, health promotion and primary prevention. This study will provide data that can inform decisions about nurse workforce planning and support nurse leaders to negotiate resources for CPHN work.

1.2 Research aim and research questions

This study aims to investigate the type of work (interventions) undertaken by CPHNs in Fiji to determine the degree of shift from a broader health promotion and primary prevention focus, to a narrower focus on providing direct patient care.

Interventions include: surveillance, disease and health investigation, outreach, screening, case finding, delegated functions, case management, referral and follow-up, health teaching, counselling, consultation, collaboration, coalition building, community organising, advocacy, social marketing, policy development, and policy enforcement (refer to the full list of definitions

for public health nursing interventions on page 74; see Table 8). This study will answer the following research questions:

Phase 1

1. What are the social and demographic characteristics of CPHNs working in Fiji?
2. What types of interventions undertaken by CPHNs relate to providing direct patient care?
3. What types of interventions undertaken by CPHNs relate to providing health promotion and primary disease prevention?
4. What levels of population-based practice (individual, community, or systems) are undertaken by CPHNs in different geographical locations?
5. What are CPHNs' perceptions of their knowledge and clinical preparation for undertaking their current role?

Phase 2

6. What are the ways that CPHNs undertake interventions, either autonomously or as part of a team, at different levels of population-based practice?
7. How do CPHNs perceive their role has changed within the past ten years? What are the reasons that they perceive have contributed to this change? (Pre and Post COVID).
8. What are the greatest difficulties faced by CPHNs in Fiji in their everyday work?

1.3 Definition of Key Terms

Direct patient care: health care that provides for the physical, emotional, diagnostic or rehabilitative needs of a patient, or health care that involves examination, treatment or preparation for diagnostic tests or procedures (https://www.lawinsider.com/dictionary/direct-patient-care).

Health promotion: The World Health Organisation (WHO) defines health promotion as a process that "enables people to increase control over their health. It covers a wide range of social and environmental interventions that are designed to benefit and protect individual people's health and quality of life by addressing and preventing the root causes of ill health, not just focusing on treatment and cure" (https://www.who.int/westernpacific/about/how-we-work/programmes/health-promotion).

Primary disease prevention: "intervening before health effects occur, through measures such as vaccinations, altering risky behaviors (poor eating habits, tobacco use), and banning substances known to be associated with a disease or health condition" (http://www.enotes.com/public-healthencyclopedia/primary-prevention)

1.4 Personal Statement

Growing up in a rural village as a child has many good memories of the countless encounters, I had with the CPHN of our area. I can clearly remember the nurses involved with the school programmes – teeth brushing, handwashing, personal hygiene checks, immunisations, and at times the dental officers, who accompanied them and provided dental treatment. The CPHN was the go-to person for any cuts, injuries, or any other health problems in my village. She had a personality that made us feel cared for, which made her a respected member of the community. She was someone who would work with schoolteachers and community leaders to influence behavioural change at the population level. Living in a communal village setting with the iTaukei community, I always took part in community-led activities and had the desire to work to improve our living conditions. After completion of my primary and secondary school education, I was admitted to the Fiji School of Nursing to undertake a Diploma in Nursing where I got an opportunity to work very closely with rural and remote CPHNs. Our major student project was the implementation of community strategies to prevent scabies within my settlement. This project received government funding because it complied with all the requirements of community assessment, diagnosis, and an action plan (drawn by the health committee of the settlement), an implementation plan, monitoring strategies and measurable outcomes. We were able to treat more than 20 students who had scabies, and work closely with mothers on ensuring clothes were boiled and sun dried. The community further cleared the drainage system and constructed proper cemented footpaths and drains. After the completion of the project, I was awarded the Excellence in Community Public Health Nursing Award in 2008, which cemented my values of working with the community and implementing interventions to improve population health outcomes.

I worked as a Fijian registered nurse between 2009 and 2018 where most of my time was spent working as a CPHN at various levels including as a community nurse, non-communicable disease (NCD) project officer, foot care project officer, and later as a nursing educator. As a CPHN, I worked at the health centre level with zone nurses and district nurses. Most of my work

involved providing direct patient care and participating in village health outreach programmes. Being the only male nurse at my station, put me at the forefront of many outdoor activities, for example, accompanying clients during referrals via ambulance, or attending to clients who required long-distance travel to remote areas for home-based care. I assumed other responsibilities such as burning the used sharps, ensuring the dirty linen was sent to the laundry, and making sure that there were enough dressing supplies for the week. At times, I did non-nursing duties like painting the health centre and helping with repairs of the stock room. Indeed, I felt that the health centre was my home. We all felt like active members of the community. The village people made us feel very comfortable coming and seeing us. I had a spare key to the health centre so we could always open the facility in case of an emergency after hours and at the weekends.

During my stay in that rural community, I developed an extreme sense of belonging. I knew most of the clients by their names and the common problems they had. The community also took good care of us and made us feel safe and respected.

Most of my clients came in with complications of non-communicable diseases, such as diabetic wounds, stroke, fluid overload, pressure sores, indwelling catheters, and those on palliative care. In some cases, clients would have a lot of pain and suffering due to being in a remote and rural setting, with several challenges in accessing healthcare. These included lack of financial support, unavailability of transport, distance, and adverse weather conditions that prevented them reaching the health facility. In 2012, Fiji experienced a category four cyclone, which resulted in more than 150 evacuation centres housing more than 10,000 people, being at risk of a disease outbreak and other health-related problems. I was part of the team visiting rural and remote villages and settlements for a month as a post-disaster effort. The visits aimed to replenish medication for those living with NCDs and to teach communicable disease prevention strategies. The burden of disease and the destruction of the crops, which were a source of food and income, made things worse for my community. Being part of the post-disaster team was my first experience as a CPHN in working with the communities to restore their lives. Visiting the community that had experienced such disadvantage, made me realise the critical role we CPHNs have in the Fijian health system.

Visiting communities with a high prevalence of non-communicable diseases and the risk of communicable disease outbreaks, was a considerable challenge. Reflecting on my experience

working as a CPHN at the sub-divisional level, divisional level and later at the national level, I felt that most of my time was spent on providing direct care. This was contrary to the health promotion and primary prevention role I had envisaged I would be mostly doing, illuminating the gap between the theoretical concepts taught in schools and my actual practice. Implementing health promotion and primary prevention required community assessment, diagnosis and planning community-level interventions and their implementation, monitoring and evaluation.

In 2013, I worked with a CPHN from the Divisional Office looking after the Central and the Eastern Division as the Non-communicable Disease Prevention Officer, working very closely with the people at the grass-roots level and reporting to the national wellness centre. This programme was mainly aimed at community-level interventions and the training of CPHNs on foot care, palliative care, home-based care, and non-communicable disease management that mainly focuses on specialised care. In mid-2013, I presented the results of my first research on the descriptive analysis of diabetic amputations[3] among the rural and remote community and recommended the need to strengthen diabetes screening, improve glycemic control and provide foot care education at the community level (Kumar et al., 2014). The results and implications of this study were nationally recognised. Furthermore, Diabetes Fiji and the Ministry of Health and Medical Services received funding from the World Diabetes Foundation for a four-year national project aiming at the training of CPHNs on diabetes foot management and training of diabetic clients, to form peer support groups for glycemic control. Before the completion of the project, I was invited to teach population health at the Sangam College of Nursing, which has since rolled out its first cohort of the Bachelor of Nursing programme for Fiji. Being part of the academic team was yet another opportunity to teach health promotion and primary prevention to student nurses.

From mid-2014 until 2018, I taught community public health nursing in the Bachelor of Nursing programme and Bachelor of Nursing post-registration course to the in-service nurses at the Sangam College of Nursing and Health Care Education. I mainly taught NCD prevention and control, disease outbreak investigation, disaster management, maternal-child health, health promotion, community assessment, health promotion programme planning, project proposal

[3] Kumar, K., Snowdon, W., Ram, S., Khan, S., Cornelius, M., Tukana, I., & Reid, S. (2014). Descriptive analysis of diabetes-related amputations at the Colonial War Memorial Hospital, Fiji, 2010–2012. *Public health action*, *4*(3), 155-158. **DOI:** https://doi-org.ezproxy.massey.ac.nz/10.5588/pha.14.0026

writing, monitoring and evaluation of community projects, and nursing research until I received a scholarship to pursue my doctoral research in 2019 at Massey University in Auckland, New Zealand.

In early 2020 I went back to Fiji to undertake my data collection, but I had to modify it, due to COVID-19 lockdowns. Then, in July 2021 my wife was diagnosed with inflammatory breast cancer and after a week's hospitalisation, she was discharged home on palliative care. I took care of her for four weeks at home, with the help of my family and two young children who needed explanations to prepare them for what was coming. We could do very little with lockdowns and curfews in Fiji. It was hard to get morphine elixirs and other pain management drugs, to provide end-of-life care at home. Looking after my wife at home and providing palliative care, taught me many lessons about the difficulties of accessing care in rural remote areas, with minimal support available in Fiji. After my wife's death I worked closely with the Fiji Cancer Society (FCS), which secured funding from the Fiji Women's Fund (FWF) on developing a palliative care training manual for community health workers (CHW) in Fiji. We trained more than 60 CHWs in collaboration with the Sangam College of Nursing and Healthcare Education, who accredited the new training programme. The sudden illness of my wife cemented my aim to make a difference in the lives of Fijian people at a deep personal level. This experience helped me to understand and value the place of CPHNs in undertaking health promotion and primary prevention, which needs more attention now than ever.

1.5 Background: Fiji, the health system and administration

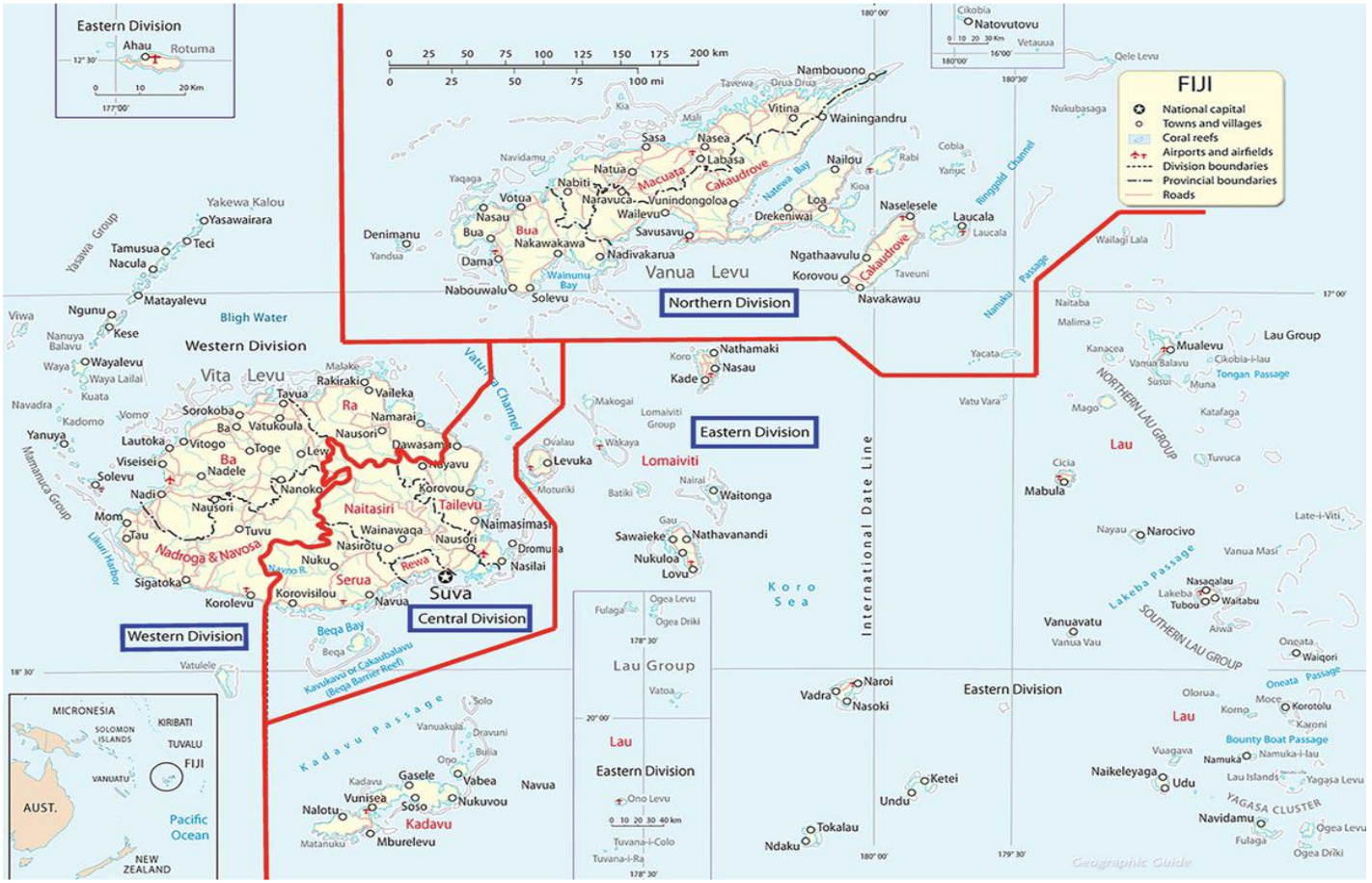
Fiji is an island country officially known as the Republic of Fiji in the South Pacific Ocean. Fiji comprises more than 330 islands of which 110 are inhabited. Most of the population resides on one of the two main islands, Viti Levu or Vanua Levu. The capital city, Suva, is located on Viti Levu. The total population of Fiji is 884,887 with 55.9% of people residing in urban areas and 44.1% in rural areas (Fiji Bureau of Statistics, 2017).

Indigenous Fijians known as iTaukei are predominantly Melanesian and form 57% of the population. Fijians of Indian descent who migrated to Fiji under British colonial rule in the 19th century comprise 38% of the population. Other ethnicities comprise the remaining 5%, which includes Rotuman, Chinese, and people of mixed ancestry (Fiji Bureau of Statistics, 2007). Life

expectancy is 68 years for males and 72 years for females in the general Fijian population (The Statistics Portal).

Health services are administered and funded by the Government of Fiji through the Ministry of Health and Medical Services (MOHMS). Most health services are provided free, except for dental and private rooms during admission to a hospital. For the administration of health services, the country is divided into four main divisions - Central, Western, Northern, and Eastern (see Figure 1). Each division is geographically divided into subdivisions, which are further divided into medical areas and districts. Fiji has a three-tier system to provide divisional, sub-divisional and area-based healthcare facilities (Graham Roberts 2011).

Figure 1 The Four Administrative Divisions[4i]



[4] From Mohammed, J., Ashton, T., & North, N. (2016). Wave upon wave: Fiji's experiments in decentralizing its health care system. *Asia Pacific Journal of Public Health*, *28*(3), 232-243.

Fiji has three base hospitals for specialist and tertiary care facilities. The Colonial War Memorial Hospital (CWMH), which is in Suva, receives clients from the Central and Eastern divisions. However, it may also receive clients from all over Fiji during special overseas team visits, such as neurosurgery, oral muscular facial surgery, open-heart surgery and other special procedures. The Lautoka Hospital receives clients from the Western Division, and the Labasa Hospital caters for the Northern Division. These divisional hospitals provide coronary care, intensive care, pediatric intensive care, neonatal intensive care, maternal intensive care, acute surgical care, acute medical care, burns care, operating theatres, postnatal and antenatal care, special outpatients, and emergency care.

The divisional hospitals also provide special tests such as angiograms, computed tomography (CT) scans, and endoscopy. All the divisions also have sexual reproductive health clinics that look after clients with sexually transmitted diseases and those with acquired immunodeficiency syndrome. There are two specialised hospitals, one for the admission of clients with psychiatric illness, and the other for the rehabilitation of clients with tuberculosis, leprosy, paralysis, stroke, and clients who require prosthetics after amputations. These divisional hospitals act as referral centres for clients with multiple complications who cannot be clinically managed at the sub-divisional hospital level.

There are 19 sub-divisional hospitals in Fiji. They have an average of 12 to 40 beds for admission and they provide outpatient services after hours and on public holidays. Maternity delivery services complement these sub-divisional hospitals in isolated populations (The Fiji Islands Health System Review, 2011). These sub-divisional hospitals have general wards for men, women, children, antenatal and postnatal, dental, radiology, and laboratory services. Subdivisions are divided geographically into medical areas and districts.

There are 86 health centres located in highly populated areas, with some centres in rural and remote areas. A medical officer manages the health centres with the help of CPHNs. A nurse practitioner (NP) mostly in remote rural areas complements health centres, which do not have doctors. Nurse Practitioners are usually experienced Fiji registered nurses and/or midwives who have completed a Postgraduate Diploma in Nursing Practice. The CPHNs based at health centres usually provide direct care that includes triage, change of dressing, repeat injection, and observation of clients who are on hydration and may require admission and assist the doctors with minor procedures. If clients need admission, these nurses contact sub-divisional

hospital nurses to facilitate admission. They also attend to all sick children under the age of five years, using the integrated management of childhood illness (IMCI) protocol. These health centre facilities provide office space for zone nurses who facilitate health promotion and wellness programmes at a population level.

The zone nurses provide health promotion and primary prevention within their geographical location, known as a catchment area. The catchment may include villages, schools, and settlements with a population size of 200 individuals on an island, to 14,000 people in an urban area. The zone nurses mainly conduct maternal child health clinics, immunisations, family planning, school visits, home visits, domiciliary care, antenatal bookings, and clinics for clients with NCDs. They visit clients who default their clinic appointments and contact trace in case of an infectious disease outbreak. They also tend to clients with severe NCD complications. For example, a client who has had a diabetic foot amputation at the tertiary hospital is discharged either to a sub-divisional hospital or sent home, where zone nurses provide wound care. These nurses can consult the medical officer available at the health centre for prescriptions or further expert care. Health centres act as the first referral point from the nursing stations (outposts), for cases that might require admission or further medical attention.

There are 99 nursing stations in Fiji providing CPH nursing services. Although CPHNs are based in both health centres and nursing stations, in many small islands and rural areas they are the only health professional available to provide clinical care. Nurses working in nursing stations are provided with housing so that they can be on-call 24/7. They are also referred to as district nurses as they are solo practitioners based in the community. Most of the nursing stations are positioned in remote settings where the nurses work very closely with community health workers (CHW) and other community leaders, such as priests, youth leaders, women's groups, village heads, chiefs and other government officials including agriculture officers, police officers, women and children welfare officers, and other civil societies.

The CPHNs represent the Ministry of Health at the community level as district nurses. Their work includes providing outpatient care, child immunisations, family planning, school visits, home visits, domiciliary care, antenatal booking and clinics for clients with NCDs and attending emergencies that may occur in their area. They deliver un-booked women who have not attended ante-natal clinics and who sometime attend to women who present fully dilated or earlier that their expected due date. These nurses follow-up with domiciliary care for bedridden

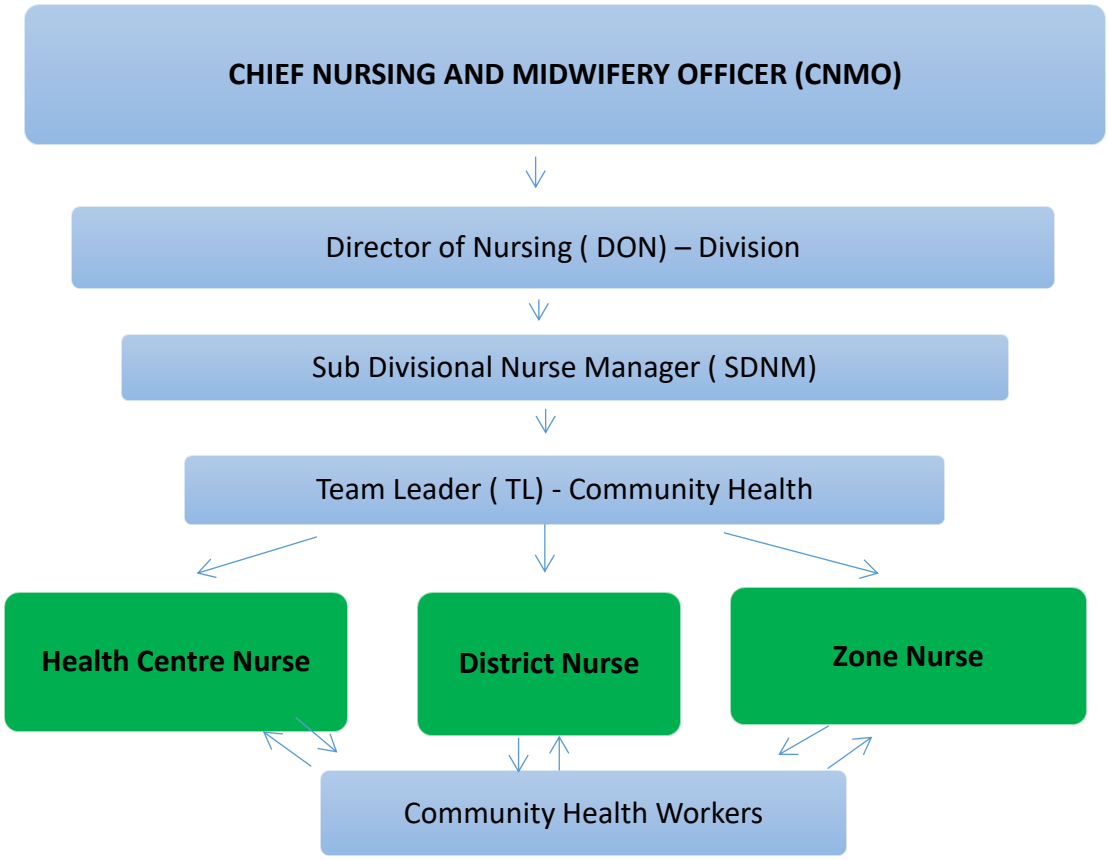
amputees or clients who have had a stroke. They are responsible for all schools, settlements, villages, and informal settlements in their respective districts or catchment area. Apart from providing direct care to clients, CPHNs are responsible for health promotion and primary prevention activities at the population health level.

1.6 CPHN Workforce in Fiji: an overview

There were approximately 3,400 nurses in Fiji employed by the Ministry of Health in 2019. Approximately 37% of these nurses work as CPHNs in the urban, peri-urban, rural and outer islands of Fiji. Most are graduates from the two nursing schools in Fiji, which graduate nurses with a 3-year Bachelor of Nursing Science degree. After graduation, it is usual to complete an 18-month internship. During this period, nurses are rostered in different wards, such as maternity, paediatrics, intensive care, medical, surgical, ear, nose and throat (ENT), plastics, orthopaedic, burns, general nursing, psychiatric nursing, and public health nursing in health centres. After completion of the internship, some are transferred out of base hospitals to the sub-divisional hospitals, health centres and nursing stations to work as CPHNs.

Community public health nurses who work in health centres, are known as health centre nurses and zone nurses. Nurses working in the nursing stations are referred to as district nurses. They are supervised by a nurse team leader who reports to the sub-divisional nurse managers (SDNM). The SDNM reports to the divisional director of nursing (DON) who finally reports to the Chief Nursing and Midwifery Officer (CNMO). The reporting structure of CPHNs in Fiji (see Figure 2) highlights study participants in green text. The CPHNs work closely with the community health workers (CHWs) demonstrating a village-based approach that aligns with the Alma Ata 1978 Declaration, which sought to achieve "Health for all". The CHWs volunteer to work with health promotion and wellness activities and assist with seeking early treatment, provide first aid in emergencies, and implement emergency preparedness plans. They also provide health-related monthly reports to the CPHNs, which are used for planning health promotion interventions.

Figure 2 The Public Health Nursing Reporting Structure



Note. Source: Developed by Author

The Chief Nursing and Midwifery Officer reports to the Permanent Secretary of Health who directs the Nursing Department. The Permanent Secretary of Health reports to the Assistant Minister for Health and the Minister for Health. The Nursing division operates in accordance with Decree No. 41 (2011). As stipulated by the Decree, there is a Nursing Council, which governs nursing registration and practice in Fiji. The Nursing Council has recently launched a Nursing Scope of Practice, which also documents the role and responsibilities of the CPHN.

The scope of practice document launched in 2018 defines the Fiji registered nurse scope of practice as:

> "The full spectrum of roles, functions, responsibilities, activities, and decision-making capacity that individuals within the profession are educated, competent, and authorised to perform. The scope of professional practice is set by legislation – professional standards such as competency standards; codes of ethics, conduct, and practice; and public need, demand, and expectation. It may, therefore, be broader than that of any individual within the profession. The actual scope of an individual practise is influenced by the context in which they practice; consumers' health needs; the level of competence, education, and qualifications; experience of the individual;

> service provider's policy, quality, and risk management; and framework and organisational culture" ("Scope of practice for registered nurses in Fiji ", 2018).

In Fiji, registered nurses work in different clinical and public health settings. The scope of practice for Fiji registered nurses has four main domains. The first domain is the management of nursing care and therapeutic environment. It elaborates on the skills of establishing a therapeutic and caring relationship, care management, application of knowledge, skills, quality, and risk management. The second domain identifies legal, ethical, and professional practice requirements. It articulates personal and professional attributes such as integrity, honesty, self-discipline, compassion, continuous professional development and accountability of nursing actions. It further outlines the knowledge of the legal and ethical framework and ethical decision-making. The third domain stipulates leadership, management, and organisational effectiveness. The focus is on teamwork, practical interpersonal skills, people development, coaching and mentorship, participation in health policy development and evaluation, programme planning and service development. ("Scope of practice for registered nurses in Fiji ", 2018). Lastly, the fourth domain of the Scope of Practice refers to nurses working in primary and public health nursing, who are referred to in this thesis as "community public health nurses'' a collective term for nurses working outside the hospital setting.

The fourth domain is divided into two parts: direct client care, health promotion and primary prevention. The first part documents the scope of managing and promoting primary healthcare to support the wellness of individuals, families, and communities. The core business of the CPHN is to be well-informed about community status, geography, demography, and epidemiology. These nurses are required to know the policies, regulations, and guidelines that relate to rural nursing and demonstrate the skills for practising as a competent rural nurse. They are expected to work effectively with individuals, families, community groups and the population as a whole. Community public health nurses must organise their daily work to encompass specific activities (e.g., outpatients' clinic/IMCI, maternal and child health (MCH)/immunisation, family planning clinic, school and home visits). They are also required to document all activities and report population health status, using the public health information system (PHIS) ("Scope of practice for registered nurses in Fiji ", 2018).

The second part articulates the primary health care role, specifically promoting primary health care to support wellness. The CPHNs are expected to use national health information and policies to participate in planning for local health services and work in partnership with other sectors to promote population and environmental health. Moreover, they are expected to conduct NCD interventions in their catchment area and refer cases for treatment. They are responsible for providing health education and other health programmes to the community. They are required to prepare communities for natural disaster interventions ("Scope of practice for registered nurses in Fiji ", 2018).

1.7 Extending and expanding CPHNs' roles

The regional committee meeting of the WHO 1957 report documented the work of CPHNs and district nurses on the Yaws Campaign and Bacillus Calmette-Guérin (BCG) vaccinations in Fiji to control CDs (WHO 1958 Regional Committee Meeting Report). Nurses were proactive in promoting immunisations, encouraging breastfeeding and monitoring child growth (see Figure 3). During visits they collected health-related data for community assessment, community diagnosis, planning population-based interventions, implementing health promotion interventions, monitoring, and evaluating these interventions. Community public health nurses were trained to combat HIV/AIDS in the early 1900s and continue to provide adolescent reproductive health services to youths and treatment for sexually transmitted infections. A WHO expert committee in 1974 reported that CPHNs even gather census data, while doing home visits (WHO Technical Report Series 1996).

Other CPHN activities not reported so far, include undertaking general physical assessments, screening for rheumatic heart disease, and health education on safe sexual practices. Apart from the traditional roles of providing primary prevention and health promotion, they also act as frontline primary care providers at the general outpatient department (GOPD). These services include repeat injections, changing dressings, diabetic foot care, minor surgical procedures, wound suturing, management of asthma cases, attending to emergencies, triaging clients before they see the medical officers, and keeping paper-based client records.

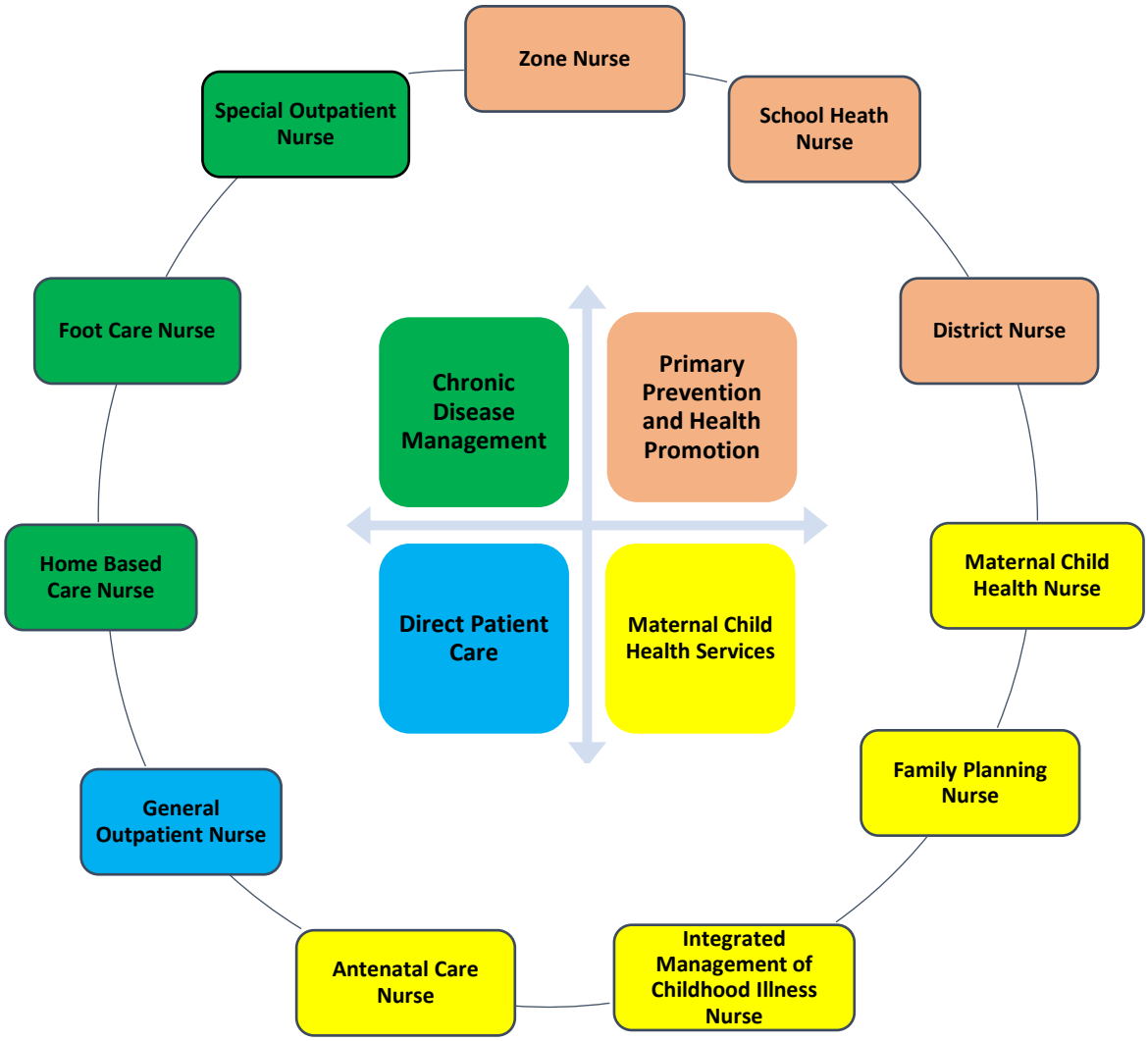
The United Nations Children's Fund (UNICEF) in 2004 introduced the Integrated Management of Childhood Illness (IMCI) programme in Fiji with CPHNs trained to assess and treat sick children under five years of age. The IMCI nurses work in partnership with medical officers to

reduce child mortality and disabilities and have made a significant contribution to improving child health in Fiji. Two other areas of CPHN role expansion and extension, are chronic disease management and childhood illnesses.

Weekly outpatient clinics provide for NCDs like diabetes, hypertension, asthma and cancer. Health Centres offer clinics more frequently if case numbers are high. Patients are assessed using the WHO Package of Essential Non-communicable Disease Interventions (PEN) Programme, introduced in 2013. A two-week training in 2014 at the Diabetes Hub in Suva saw CPHNs undertake foot care and manage more diabetes-related complications in clinics. Home-based care is only available in the central division for those who cannot attend health centres as a result of, for example, having had an amputation, stroke or requiring palliative care.

District nurses and zone nurses organise outreach programmes and shift clinics (where CPHNs set up a workstation in the village) for patients who live in rural and remote places and have difficulty visiting a nursing station. These programmes support giving immunisations to those who have previously defaulted, offering NCD disease screening, breast examination, cervical screening, village inspections, and community awareness, and general outpatient services. These visits allow nurses to see the environments within which people live and to identify social issues such as child or elder abuse or neglect, school absenteeism or substance abuse (e.g., glue sniffing). Figure 3 below illustrates the multiple roles of CPHNs.

Figure 3 The Roles of Community Public Health Nurses in Fiji



Note. Source: Developed by Author

Chapter 2 presents a narrative review of literature that focuses on the changing roles and challenges of CPHNs in Pacific Island countries.

CHAPTER 2 NARRATIVE LITERATURE REVIEW

2.1 Introduction

This chapter presents the findings of a narrative literature review that aims to synthesise evidence from the Pacific region on the changing roles of community public health nurses (CPHNs) and the challenges they face. The design of this post-positivist mixed-methods study is influenced by the ontological and epistemological perspectives in the literature. As outlined in the introduction, this thesis aims to investigate the type of work (interventions) undertaken by CPHNs in the Pacific, namely direct patient care, primary prevention and health promotion. The discussion will further identify how CPHNs perceive their role has changed over the past two decades and the challenges they face in their everyday work. This literature review aims to identify all published papers on the roles and activities of CPHNs in the Pacific region. A narrative review was chosen to enable the synthesis of all studies on this topic to limit bias, assemble information and critically appraise relevant papers (Cook et al., 1997). The following specific questions guiding the narrative review are:

1. What are the role definitions of community public health nurses working in the Pacific?
2. What are the workforce characteristics of community public health nurses working in the Pacific?
3. What are the activities undertaken by community public health nurses in the Pacific to enable direct patient care, primary prevention, and health promotion?
4. How have community public health nurses' roles and functions changed over the past two decades (2000 to 2023)?
5. What are the challenges faced by community public health nurses in the Pacific region?

2.2 Method

An online literature search was conducted on health-focused databases. Databases included CINAHL Complete, MEDLINE, PubMed, PsycINFO, Web of Science and Scopus in July 2019 and updated in July 2023 to answer the five review questions. The reference lists of the eligible articles were then searched to find additional relevant articles related to the subject. The PRISMA statement was used to guide review process and reporting.

2.2.1 Inclusion / Exclusion criteria

This review included studies that reported on public health interventions and activities by public health nurses, community health nurses, general practice nurses and primary health care nurses; qualitative studies, quantitative studies, systematic reviews, integrated reviews, and mixed-method studies; studies from 2000 until July 2023 published in peer-reviewed journals; articles with full text available in the English language; studies that were conducted in the Pacific Island countries, which includes Polynesia, Melanesia, Micronesia, Australia and New Zealand. Grey literature available from Fiji was also included in this study.

This review included practice nurses and community public health nurses working in New Zealand and Australia; although they are both developed countries in comparison with other Pacific Island countries in the region and the contexts of these two countries may differ from other developing countries, it was considered appropriate given the influence they have in the Pacific region. Both New Zealand and Australia have supported the Pacific Island countries, including Fiji, with financial and human resource aid. Fiji has graduated nurses with the revised New Zealand nursing curriculum since 1955. It was later changed to a Diploma of Nursing and further upgraded to the Advanced Diploma in Nursing in 2004 by the James Cook University of Australia. Australian Aid and New Zealand Aid programmes supported several projects to improve population health outcomes, working closely with the Ministry of Health and Medical Services. These countries also have the burden of non-communicable diseases (NCD) and the need for long-term care of clients in the community. The Pacific countries share a strong bond in terms of culture and tradition, which forms part of the health care delivery system. Given the many similarities and the availability of empirical evidence from these countries, there is a lot for the Pacific countries to learn from each other in terms of evidence-based practice on strengthening the CPHN roles.

The review excluded public health intervention implemented by any health worker other than a nurse, such as dental officers, environmental health inspectors and dieticians; studies that involved acute care and hospital-based nursing; nurses working as nurse practitioners and specialist nurses or physician assistants; study protocols, conference proceedings, reports, reviews; news items.

2.2.2 Literature search and study selection

The following search terms and phrases were used for searching published papers:

"Public Health Nurs" OR "Community Health Nurs*" OR "District Nurs*" OR "Practice Nurs*" OR "Plunket Nurs*" OR "Zone Nurs*"OR "Primary care nurs*" OR "Primary health care nurs*" OR "Public health nurs*" OR "Diabetes Specialist nurs*" OR "Long term conditions nurs*" OR "Disease state management nurs*" OR "Chronic care management nurs*" OR "Maternal child health Nurs*" OR "Family planning Nurs*" OR "Footcare nurs*" OR "Rural Nurse" OR "School Health Nurse"*

AND

Role OR job description OR work role* OR jobs OR activit* OR Challenge* OR Barrier**

AND Twenty-one Pacific Island Countries namely*:*

Fiji OR "Fiji Islands" OR Samoa* OR Vanuatu OR Tonga* OR Tuvalu* OR "Cook Islands" OR "Papua New Guinea" OR "Solomon Islands" OR Solomon* OR Tokelau OR Kiribati OR "Federated States of Micronesia" OR Nauru OR Niue OR Guam OR "Marshall Islands" OR "New Caledonia" OR "Northern Mariana Islands" OR Palau OR "American Samoa" OR Oceania OR Pacifica OR Pacific OR Polynesia* OR Micronesia* Melanesia* OR "New Zealand" OR NZ OR Australia OR Australasia*

Searches needed minor variations to work across the databases named.

2.2.3 Critical Appraisal Tools

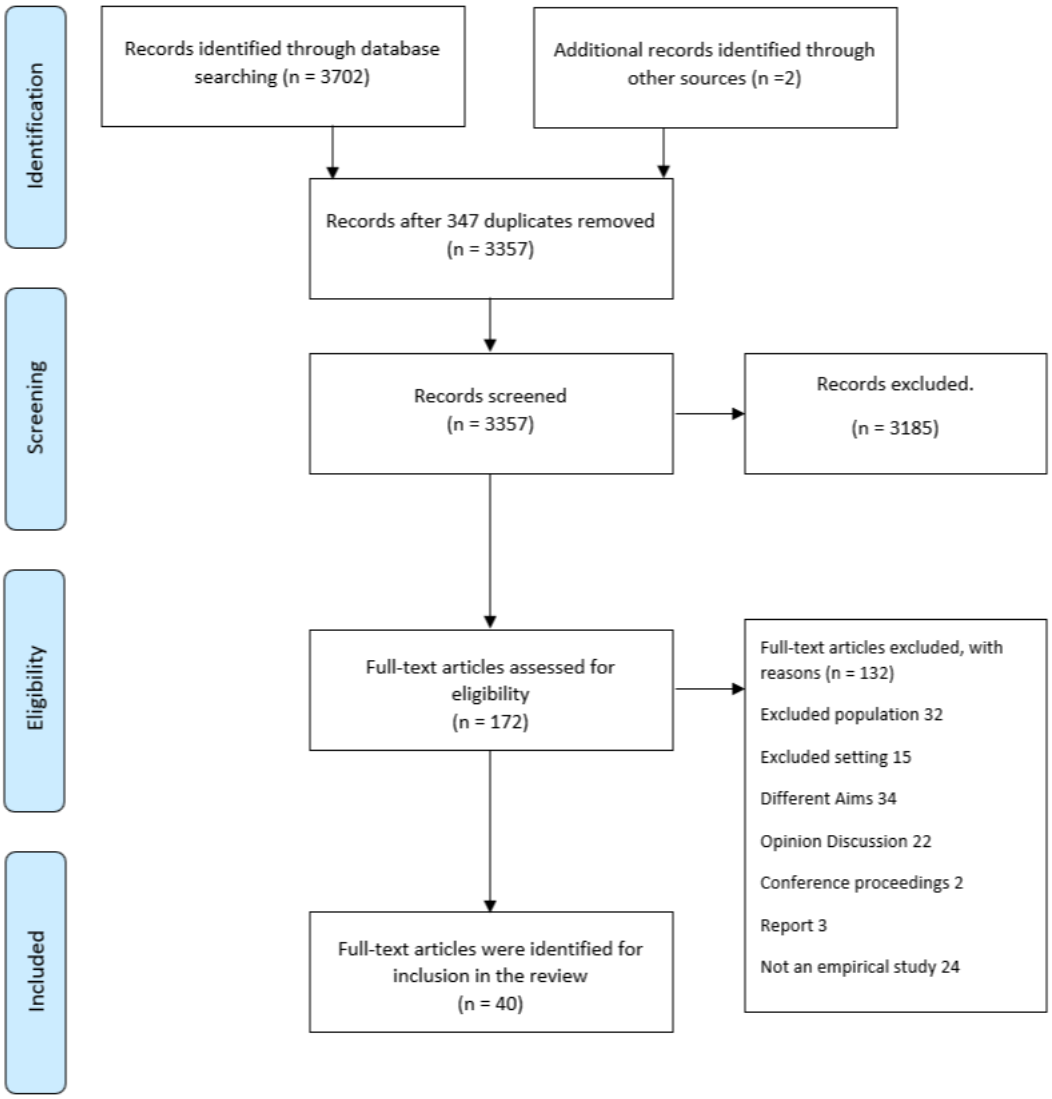
Qualitative studies and systematic reviews were assessed using the Critical Appraisal Skills Programme (CASP) checklist. The CASP qualitative appraisal checklist is a widely used tool explicitly developed for assessing the validity, relevance, and applicability or transferability of healthcare evidence (Critical Appraisal Skills Programme, 2019). Quantitative studies were assessed using the Quality Appraisal Checklist – quantitative studies reporting correlations and associations from the National Institute for Health and Care Excellence (NICE). This is a comprehensive tool that enables reviewers to appraise a study's internal and external validity, after addressing critical aspects of study design, characteristics of study participants, the definition of independent variables, outcomes assessed and methods of analyses (NICE, 2012).

Mixed methods studies and surveys, which had both qualitative and quantitative aspects, were appraised using both the CASP and NICE tools.

2.3 Results

The search resulted in 3357 papers that were screened, from which 172 full-text articles were assessed for eligibility. A total of 132 were removed as they did not meet the inclusion criteria. Forty articles were included in this narrative review, which met the criteria (See Figure 4). The 40 articles were read iteratively and results were extracted into a Microsoft Word template. The findings of these studies were thematically organised for detailed discussion. Thirty-three of the articles were from Australia, four from New Zealand, two from Fiji and one from the Solomon Islands. Twelve of the studies were quantitative, employing cross-sectional surveys, and ten were qualitative designs using in-depth interviews and focus group discussions. Seven mixed-methods studies, seven systematic reviews, two audits, and two expert commentaries were included in the review. Very few published papers from the developing Pacific Island countries were identified. Most of the studies did not meet the eligibility criteria since the majority were undertaken in hospital settings with specialist nurses. The structure of this chapter is based on the research questions that informed the analysis of the articles and presented under the following major headings: 1) role definitions and workforce characteristics of CPHNs; 2) activities undertaken by CPHNs; 3) the changing role and function of CPHNs over the past two decades (2000 to December 2023) and finally, 4) the challenges faced by CPHNs in the Pacific region.

Figure 4 PRISMA flow diagram[5]



2.3.1 Role and Workforce Characteristics of Nurses Working as CPHNs

This section will discuss the different role definitions of CPHNs and their workforce characteristics. Studies focused mainly on gender and age in comparison with the general nursing workforce. The discussion leads on to the activities performed by CPHNs and changes to their work in response to the demand for acute care; future implications in the shift in work focus are highlighted.

[5]. Flow Diagram of studies that were identified using the search terms and strategy, articles screened for eligibility included/excluded with reasons, following PRISMA guidelines Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009) Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. 151(4), 264-269.

Role definitions of nurses working outside hospital settings

There are several titles used for nurses working outside the mainstream hospital setting, who provide primary care at different levels. This nomenclature may refer to the population under their care or the practice settings within which they work. Some of these titles include: child health nurse, community health nurse, community mental health nurse, general practice nurse, generalist community nurse, primary healthcare nurse, registered nurse, rural nurse, school nurse, sexual health practice nurse, and zone nurse. A Community nurses is defined as a health professional who works closely with clients and their family, in the workplace and environment in which they live (Brookes et al., 2004). Similarly, in Australia, community nursing entails both community–based clinical care and primary health care (PHC), as well as providing health promotion, community development, health education, and disease prevention, within a framework that recognises the social, economic and environmental determinants of health (Kemp et al., 2005). Community-based nurses are also referred to as district nurses who provide direct care, such as assisting clients with activities of daily living, medication management, diabetes care, continence management, wound management, palliative care, and dementia management in people's homes (Smith, 2002). These nurses are also referred to as child and family health nurses, who have a long history of home visiting and providing care to children and at-risk populations, such as the elderly, disabled and the homeless (Shepherd, 2011). In Fiji, community-based nurses are the frontline primary healthcare providers for the Ministry of Health and Medical Services providing both preventative care and clinical services (Tanabe et al., 2019). It is clear from the definitions that community-based nurses have dual roles as direct care providers and in primary prevention/health promotion.

The emphasis of community-based nursing is to increase universal health coverage and primary health care (PHC). The care is based on the principles of social justice, accessibility, affordability, and health care for all. The New Zealand Ministry of Health in 2001 established a PHC nursing expert advisory group and defined primary health care nurse as "registered nurses with knowledge and skills in PHC practice who work independently to promote, maintain and safeguard health" (Hughes and Calder, 2006, p. 37). These writers further discussed that primary health care nursing encompasses population health, health promotion, disease prevention, wellness care, first point-of-contact care and disease management across the lifespan. Partnership with individuals, whanau (extended family), communities and populations to achieve the shared goals of health for all, is central to primary healthcare nursing (Hughes &

Calder, 2006; McKinlay et al., 2012). In 2008, a re-convened Ministry of Health Primary Health Care Nursing Expert Advisory Group presented a position statement at the Symposium 'Health for All in Aotearoa: How can we achieve the vision?' celebrating the 30th anniversary of the Alma-Ata Declaration. It stated: "PHC nurses aim to reduce inequity in the health status of the population, in particular for Māori, Pacific and other underserved populations." The Statement also contended a population health approach that addressed the determinants of health was required, and that PHC nurses would play a greater role in disease prevention when the health system was under pressure (Sheridan et al., 2008). McKinlay et al. (2012) defined PHC nurses similarly.

The terms "primary health care and primary care" are often used interchangeably, and PHC is now commonly associated with the general practice nurses providing primary care in many health systems (Halcomb et al., 2006; Henderson et al., 2014; Joyce & Piterman, 2011). However, primary care is concerned with providing the first line of care, whereas primary health care involves a broad range of health-related activities focused on health promotion, based on the principles of accessibility, appropriate technology, inter-sectoral collaboration and public participation (McMurray & Clendon, 2015). The term general practice nurse denotes a registered nurse who works alongside general practitioners with some degree of supervision, providing primary care in New Zealand and Australia (Halcomb et al., 2006). Phillips et al. (2009) identified six roles for nurses in general practice, which included patient carer, organiser, quality controller, problem solver, educator and agent of connectivity. Despite several authors' agreement on the traditional role of general practice nurses as primary care service providers, it has changed from the CPHNs' roles in some aspects. Annells (2007) stated that "although some practice nurse activities contribute to the health of a community, at present practice nursing primarily focuses on the nursing care of individuals, sometimes within a family context. Therefore, practice nursing can be classified as community-based nursing" (p. 16), where the focus is on the individual/family rather than population health.

Community-based practice has more direct care roles. Henderson et al. (2014) suggested that practice nursing roles were defined mainly as chronic disease management roles where the primary prevention and health promotion interventions were individually focused. For example, some general practice nurses specialise in gay men's health for effective screening and treatment (Snow et al., 2013). Some of these community-based nurses and general

practice nurses are known as rural nurses and are based far from the metropolitan setting, with reduced access to healthcare (Mills et al., 2010). In Fiji, community health nurses working in rural and remote areas and providing care in a designated geographical area are referred to as zone nurses. They are responsible for conducting health promotional home visits and are familiar with their zone population (Naduva, 2007). Other roles of CPHNs include maternal-child health nursing or child and family health services, provided by community and home-based nurses. They provide early detection and primary prevention for healthy child growth through general inspection, breastfeeding advice, immunisation and referral where necessary to either child protection services or more intensive targeted programmes (Fraser et al., 2016).

Unlike a hospital setting, where the ward specialty defines the job description very clearly on what expertise and competencies nurses require, such as intensive care, coronary care, medical-surgical, obstetrics, and paediatrics, this is not the same for community health nurses roles, who work as generalists. The generalist role involves various direct care roles with primary prevention and health promotion roles, all of which lack clear role definitions and inconsistent role expectations (Brookes et al., 2004). They work with various stakeholders in the community in different circumstances, such as disease outbreak investigation, case detections, follow-up care and disaster preparedness. The generalist roles of CPHNs mean that they are considered to be the 'front line workers' pre-and post-disaster as they are well versed with the vulnerable individuals in the community. Their familiarity with the community makes them a group on which governments and communities depend for protection, advice, and assistance in times of disaster (Rokkas et al., 2014).

To summarise, the terms public health nursing and community health nursing, have traditionally had a relatively broader focus on population health, that includes schoolchildren, older adults, youth groups, and village and religious organisations with social and political influence. On the contrary, community-based nursing focuses on providing primary care to the clients and the family. With such complexities in the changing nature of CPHN work, it is worth reflecting on the workforce characteristics and the different activities they undertake for proactive strategic workforce planning. Understanding these characteristics is essential for proactive strategic workforce planning.

Workforce characteristics

By understanding the characteristics of the workforce, planning for recruitment and retention of nurses working in primary care settings is possible. Factors that need investigation include age, qualification, experience (clinical and community-based), and the difference between rural, remote, and urban areas. In a survey of 222 nurses working in a general practice setting in Australia, Foley et al. (2005), identified that 84.7 % were likely to be registered nurses and 52.3% had worked less than five full-time equivalent years in a general practice environment, while 64.4% indicated that they worked with one other nurse. In this study, 58.6% of the participants were from rural and remote areas of Australia. The study did not report on the gender of nurses in urban and rural areas. The study utilised a convenience sampling of participants for a telephone survey, meaning selection bias towards those who did have a telephone could have been introduced.

A postal survey of 284 Australian practice nurses reported that 86% were middle-aged, female and hospital-trained nurses with few formal postgraduate qualifications (Halcomb et al., 2008). While the Australian Institute of Health & Welfare (2003) reported the average age of an Australian nurse was 42.2 years, Halcomb et al. (2008) reported the mean age of Australian general practice nurses was slightly older at 45.8 years. The authors stated 63% had a hospital nursing certificate as the highest qualification and 44% were employed in rural and remote areas. Moreover, the participants had worked as nurses for an average of 20.8 years, and spent an average of 7.7 years as general practice nurses. The study identified a need for these nurses to access short courses on chronic disease management (Halcomb et al., 2007).

The characteristics of the remote nursing workforce in another Australian study found that 89% were female with 40% of the nurses 50 years of age or older compared to 33% nationally. In remote areas fewer registered nurses held midwifery qualifications (55%). Of those who were child health nurses (39%) only 5% held a postgraduate qualification in remote health practice (Lenthall et al., 2011). This study highlighted the importance of understanding the characteristics of the rural and remote workforce in order to plan for appropriate future education and training.

No published studies were found on the workforce characteristics of nurses working in a primary care setting in the Pacific Island countries. This is essential data for strategic workforce

planning, with regard to recruitment, retention, and retirement of staff. Additionally, there is little information about the generalist and specialist roles of CPHNs working in primary care settings nor data of the population densities. It is vital to ascertain the qualifications of these nurses to ensure maximum human resource utilisation and to predict educational and training needs with the changing burden of disease. Nurses engage in many administrative and non-nursing activities, some of which can be undertaken by other disciplines. By quantifying the activities of CPHNs to assess the time spent on direct care, primary prevention and health promotion, the gap in unmet service provision can be assessed and decisions made about the future role of CPHNs and the approach to resourcing care.

2.3.2 Activities of community public health nurses

The CPHNs perform many activities within the provision of direct client care, primary prevention and health promotion. A small number of studies quantified the work of CPHNs using survey methods and activity logs and included a wide variety of activities. An integrated review of registered nurses working in the remote and isolated areas of Queensland, the Northern Territory, South Australia and Western Australia, looked at the impact of the burden of disease on nursing practice (Coyle et al., (2010). This review reported clinical duties as "providing care in an emergency, antenatal and midwifery, infant health, child and adolescent health, women's health, men's health, mental health and aged care" (p. 240). The authors further stated that nurses working in isolated areas assisted with palliative care and chemotherapy. These nurses provided health education and implemented health promotion, which is their core role, but argued that this was often compromised by the increasing demand for medical care. Apart from clinical activities, there were administrative tasks, such as stock management, keeping client records and non-nursing workload, which included training health workers, cleaning, building and vehicle maintenance (Coyle et al., 2010).

Another study of 252 Australian community mental health facilities by Happell et al. (2013) found that most of their time was spent on providing clinical care (78%), followed by clinical organisation (12%), mental health administration (6%) and integration activities (4%). The study concluded that there was no significant difference between metropolitan rural and remote areas in terms of care provided, nursing activities and the time spent on clients.

Community public health nurses have various direct care responsibilities. Foley et al. (2005) studied the current responsibilities of 222 Australian general practice nurses. The authors identified the core roles as: liaising with other health professionals and community organisations, monitoring vital signs, wound care management, minor procedures, monitoring and assessing sick patients, emergency procedures, clinical data entry, removal of sutures, stock management, triage, providing oxygen/nebuliser therapy, communicating test results, cold chain monitoring, injection and medication administration, reception duties, updating policies and procedures, pulmonary assessment, immunisation, sterilisation and cardiac assessment. As with the findings of Happell et al. (2013), Foley et al. reported no difference in the workforce characteristics of nurses in metropolitan areas and those working in rural and remote areas. In addition, there was no difference in the core roles performed by nurses working in metropolitan and rural remote areas. However, this study did not identify the health promotion and primary prevention roles of these nurses, which was a significant limitation.

A systematic review was conducted to identify the profile of the community nurses in Australia, where published records were searched between 2010 and 2020 (Blay et al., 2022). The activities carried out by primary and community nurses were described and classified into six distinct nursing workforce categories. These categories are: administration (involving general and administrative tasks), direct care (activities directly linked to patient care), indirect care (activities indirectly related to patient care), communication (involving interactions with other health professionals, patients, or carers), documentation (updating or completing nursing or unit-related documentation through any medium), and other (comprising of activities not previously identified). The authors found that the majority of identified activities were direct care (n=39), followed by administration (n=6), communication (n=5), indirect care (n=5), other (n=5) and documentation (n=3). Wound care was the nursing activity most frequently identified. They noted a lack of research into the work of community nurses by state and territory governments, despite the investment in services tailored to meet population needs and the growing popularity of hospital-in-the-home programmes that relied on community nurses (Blay et al., 2022).

Joyce and Piterman (2011) studied 50 Australian general practice nurses, and 5253 patient encounters. The study collected data on patient characteristics, the reasons for consultations, and the treatments provided. The results showed that 37.2% of the patients were above the

age of 65, and 57.1% were females in the study population. The authors found approximately 30% of the encounters involved advice-giving. While the reasons for encounters were often unspecified, the rate per 100 encounters was highest with immunisations, which occurred at a rate of 22.5 per 100 encounters, followed by medical examinations (20.7 per 100 encounters) followed by skin-related problems (20%), wound dressings (15.8%), diagnostic tests (10.6%) and cardiovascular problems (11.0%). The study concluded the generalist nature of practice nurses work saw them engage with a wide range of clients and clinical conditions and have a substantive role in the provision of direct care.

Previous studies have reported the activities undertaken by CPHNs on chronic disease management. Halcomb et al. (2008) conducted a sequential mixed-methods study relating to 284 Australian general practice nurses' work roles in the context of chronic disease management. This study identified that nearly all participants undertook activities, including applying/changing dressings, preparing equipment for the general practitioner (GP), assisting the GP with minor surgery, phone assessment/triage, taking an electrocardiogram (ECG), immunisation/vaccination, medication administration, using a respiratory peak flow meter and venepuncture. The participants indicated that they required further education and training in advanced practice skills that included comprehensive health assessment, advanced physical examination, medication titration and diagnostics testing. However, a limitation of this study was the convenience sampling method, which was utilised due to the lack of a reliable general practice nurses' register. The availability of a reliable register from the Nursing Council at the state level, could have enabled random sampling that would have been representative of the target population. Given the sampling method, the authors were not able to calculate the survey response rate.

A qualitative descriptive study of three district nurses working with people with spinal cord injuries in New Zealand, revealed three major themes in the activities nurses performed. The first theme was *a task-based role* where district nurses visited spinal patients for two or three hours to complete tasks such as bladder washouts, catheter changes, bowel management and pressure injury management. The second theme was *complex roles*, such as working with community services where they acted as a "go-between" advocating for people with spinal injuries with mental health providers and general practitioners. The final theme was *barriers to providing care,* as patients with spinal cord injury needed "a lot to achieve in one visit" and

“juggling” workloads to meet all patients’ needs. Other barriers discussed, included failure to reactivate district nursing services on discharge at times and having no education for nurses and support staff on caring for people with spinal cord injuries (Rina Pijpker & Jill Wilkinson, 2019).

A comparison of two surveys with general practice nurses in Australia by Halcomb et al. (2014), undertaken in 2003-2004 with 284 participants and in 2009-2010 with 235 participants, found that significantly more participants in the second study were following-up pathology results, conducting physical assessment, and disease-specific health education, indicating individualised care. This demand for individualised care was likely attributed to the increase in chronic conditions. Other studies on the most common activities by community nurses caring for clients with chronic and complex conditions involved wound care, a direct care activity or an assessment. The study also reports that 77% of the services provided were to clients over 60 years of age (Cioffi et al., 2007). The burden of chronic disease was also affecting the work of nurses in the rural and remote areas and negatively affecting their traditional roles of primary prevention and health promotion. With demanding acute care needs, it is essential to explore how community nurses feel about the shift of their traditional roles, to providing direct care related to chronic disease management.

A large and growing body of literature has investigated the activities undertaken by practice nurses and their appropriateness for these tasks. A quantitative survey of 284 Australian general practice nurses by Halcomb et al. (2008) identified the task currently undertaken, its appropriateness and whether they required additional education and training to perform these tasks. This study looked at three factors, of which the first two were items related to direct clinical care, and the third factor was on systems and processes requiring role expansion. The first factor, was core clinical care. The second factor encompassed advanced practice skills that included auroscopic/ophthalmoscopic examination, assessment against guidelines, antenatal/postnatal checks, assessment of baby/infant development, stethoscopic examination of heart and lungs, cervical smears or breast examination, ordering diagnostic testing and titration of medications. The third factor focused on expanded nursing skills, including primary care health assessment, education about illness prevention, follow-up of diagnostic test results, undertaking quality assurance audits, counselling intervention, education regarding vascular risk factors, conducting research projects and organising case

conferences. The results of this study revealed that there was no significant relationship between the three factors and the level of education, clinical experience, remoteness or the size of the practice. This suggested that intrinsic factors did not have any effect on nurses' work. Their work was impacted by extrinsic factors, such as the health system, political context, and the funding model. Tasks that were often not undertaken by participants reported that they needed more education and training in those fields. This was probably due to a lack of knowledge and appropriate skills, as many of these tasks were not performed frequently (Halcomb et al., 2008). The major limitation of this quantitative survey was that it did not explore how the participants viewed role expansion and extension and since it was a survey, the authors were not able to calculate the time which was spent on each task. Moreover, nurses balanced the surge of demanding acute care, with health promotion and primary prevention roles.

The CPHNs working in remote areas also struggled with providing primary health care. A qualitative constructivist grounded theory study was undertaken on the delivery of primary health care in remote communities from the perspective of nurses. One key finding was the inability to provide primary health care. This was dependent on several conditions, which included the level of clinical knowledge and skill, the availability of resources, an understanding of the social world and cultural differences, and a lack of understanding about the conditions that impact the ability to provide primary health care (McCullough et al., 2020). It was further identified that nurses described their role as a 'co-ordinators of care', enabling access to health services in the remote setting. During the outreach programmes of medical specialists or allied health teams, the nurses organised appointments for community members who would benefit from these outreach visits (McCullough et al., 2020).

Other activities undertaken by CPHNs include maternal-child health, with nursing care focusing on babies, children, and supporting parents with unsettled and crying babies, toddlers' behaviours, breastfeeding, assessment measures, appropriate referrals to other services and taking care of mothers' emotional well-being (Shepherd, 2011). These nurses provided family planning and sexual health advice. The increasing demand for direct care and the multiple activities required when proving direct care, has resulted in a change in the roles of CPHNs. These changing roles will now be discussed.

2.3.3 The changing role of community public health nurses

Traditionally, primary care nurses have played a critical role in primary prevention and health promotion. The CPHNs played an important role in the Healthy Islands Vision. The "Healthy Islands" initiative, introduced in 1995 by health ministers from the Western Pacific region, has been a cornerstone of health promotion efforts in Fiji and neighbouring islands. Galea, Powis, and Tamplin (2000) describe this initiative as a model for integrating health promotion into community settings. The initiative focuses on local ownership, cultural relevance, and intersectoral collaboration (Galea, Powis, & Tamplin, 2000). The success of the "Healthy Islands" initiative relies heavily on community engagement and local leadership, which aligns with the role of CPHNs who are integral in fostering these elements at the grassroots level.

Rapaport (1996) further elaborates on the "Healthy Islands" initiative as an ecological model of health promotion, highlighting its holistic approach that integrates health with environmental sustainability and community well-being (Rapaport, 1996). This approach emphasises the role of community involvement and cultural relevance, which are crucial in the work of CPHNs in Fiji. By addressing broader social and environmental determinants of health, the initiative offers a comprehensive framework for community-based health interventions, which is not clear at the different intervention level of practice. The World Health Organization (WHO, 2018) report on the “Healthy Islands” vision underscores the foundational role of primary healthcare in improving health outcomes across Pacific Island nations (World Health Organization, 2018). The report highlights the need for robust primary healthcare systems to address significant health challenges and emphasises the importance of integrating primary healthcare with other sectors. The CPHNs are pivotal in delivering primary healthcare services, particularly in remote areas, and their work supports the broader goals of the “Healthy Islands” initiative by providing comprehensive, community-based care. However, Martin, Snowdon, Moadsiri, Volavola, and Bell (2023) analysed the success factors and challenges faced by health promotion programmes under the Pacific “Healthy Islands” Vision. Their study identifies strong community engagement and cultural relevance as key to the success of these programmes (Martin, Snowdon, Moadsiri, Volavola, & Bell, 2023). However, challenges such as limited financial resources and varying levels of political commitment are significant barriers. The CPHNs in Fiji face these challenges directly and must navigate them to effectively deliver health promotion and disease prevention services.

Salahuddin and Palutturi (2021) conducted a systematic review of the "Healthy Island" concept, emphasising its development and application across various island settings (Salahuddin & Palutturi, 2021). They highlighted the importance of community participation, leadership, and cross-sectoral collaboration. These elements are essential for the success of health promotion initiatives in Fiji, where CPHNs play a critical role in implementing and adapting these initiatives to local contexts.

A study involving 54 Australian general practice nurses, examined their role in health promotion, which revealed that most of their work was “downstream”. This included disease prevention, primary prevention, secondary prevention, tertiary prevention, communication, health information for all literacy levels, social marketing, and behaviour change campaigns, which were at the individual levels. However, these nurses aspired to work “upstream”, which involved infrastructure and system change, public health policy, regulation and legislation, health services re-orientation, organisational change, and intersectoral collaboration. Understanding primary prevention and health promotion roles at different levels, such as individual/family, community and systems is critical for policy development and healthcare reforms (Keleher & Parker, 2013). The authors strongly suggested the need for research on the educational needs, understanding the scope of practice, roles, and responsibilities of nurses in prevention and health promotion in the primary care setting. Therefore, it is essential firstly, to identify how CPHNs are spending their time at the individual/family, community, and systems levels on various public health interventions and secondly, to understand the various changes that have taken place with CPHNs’ roles in the Fijian context over the past 20 years.

Prior to discussing the more recent changing roles of CPHNs, it is crucial to understand how the current practice has developed since the year 2000. An Australian Royal District Nursing Service survey by Smith (2000), highlighted the changing face of community and district nursing. This study described examples of clients who required community nurses to provide direct care for the management of pulmonary tuberculosis or direct supervision of oral medications, advanced wound healing devices, and insulin administration in the community. Moreover, Smith emphasised the scarcity of hospital beds that often resulted in the early discharge of clients who required home-based care. The community nurses were also providing palliative care, including narcotic analgesia (Smith, 2002), which suggested an increasing demand for care at home. Similarly, the Pacific Island countries have a double burden of communicable and non-

communicable diseases, with resource-constrained health systems where acute care spills into the community contributing to the role change of the CPHNs. McCullough et al. (2020) reported that primary health care tasks needed additional time and resources in comparison to tasks focused solely on acute care. Nurses had to adjust to the amount of primary health care they could offer, based on their available capacity.

Considerable literature has been published on the changing role of primary care nurses and the number experiencing role conflict (Brookes et al., 2004). The rise in non-communicable disease has an impact on the work of community nursing, where care is provided at home and the growing number of clients with complex needs and high survival rates (Cioffi et al., 2007). Clients with non-communicable disease complications in the community require complex nursing care, which is mainly direct care activities. These activities include daily changes of dressing for diabetic wounds, catheter change, regular clinical assessment, complications management, care of long intravenous lines, home visits for those bedridden and other specialised care needs. The acute care demand raises questions on how to balance direct care roles, primary prevention and health promotion, which is happening in an ad hoc manner (Smith, 2002). As cited in (Brookes et al., 2004), Prenesti and Tatum (1994) noted the changes made by the Victorian State Government, where the focus of community health nurses changed from preventative focus to more hands-on clinical work, which used to be 20-30% but increased to 70% with direct care. Smith (2000) further argued that current policies support the transfer of care to the community to reduce hospitalisation costs at the expense of primary prevention and health promotion. There is consistency in the view of these authors with regard to the urgency of understanding the current role of CPHNs, to determine if it is shifting from its key purpose - primary prevention and health promotion. The change of activities and roles of CPHNs is a phenomenon poorly understood in the Fijian context, creating a knowledge gap in the current literature, which this study aims to fill.

Understanding the role change of CPHNs requires an examination of the activities that were previously undertaken by this group of nurses. A mixed-method study by Kemp et al. (2005) examined the congruence between community nurses' perceptions and the realities of change in their work from 1995 until 2000 in Australia. The authors used the community health client administrative data, occasions of service data, and staffing numbers (1998 – 2001) and interviewed 14 community nurses. The study reported the changes in community nursing in

Australia from 1995 until 2000 and identified that a large number of adult clients required a "shorter, more intensive clinically focused service for a long time", p.?. This meant that a lot of community nursing time was devoted to caring for acute cases that were discharged from the hospitals. The study further reported no increase in CPHN staffing numbers and the expansion of their acute care roles, at the expense of their holistic primary care focus. Without increasing the community health nursing resources, primary prevention and health promotion roles were compromised. These findings were supported by Phillips et al. (2009) who used a mixed methods research design with observations, photographs and interviews of more than 25 practises to describe the changing role of general practice nurses in Australia (New South Wales and Victoria),. The results indicated that 43.5% of the observed nurse time was spent in clinical activities. These activities included vaccinations, patient education, wound management, chronic disease monitoring and support, cervical smears, tests such as spirometry and electrocardiogram, assisting with procedures, health assessment, and triage. A similar phenomenon to that previously discussed, may occur in Fiji, with a high number of acute cases, discharged from the hospital early and requiring ongoing care from the CPHN. Given the burden of communicable and non-communicable diseases in Fiji, evidence on community interventions implemented by CPHNs, will undoubtedly strengthen the primary prevention and health promotion efforts. This shift of work from hospitals to the community requires further investigation to assess the implications of such practice for planning future healthcare needs. At present, there is no empirical evidence on how CPHNs spend their time and which interventions they prioritise in terms of the service provision at different practice levels (individual/family, community and systems-level) in terms of health promotion and primary prevention.

Community public health nurses can make a significant contribution to primary prevention and health promotion efforts, as they are positioned within the community setting where they can influence behaviour change. A recent study of 950 primary care nurses using an online survey, examined the current roles and task satisfaction, which reflected that more activities related to health promotion and chronic disease management are undertaken now than before. Nurses prefer to spend the same or less time on administration roles and more time on health promotion, client education and patient assessment and feel that they were not using their skills to the full capacity (Halcomb & Ashley, 2019). This study has implications for the introduction of new administrative and nursing roles, such as enrolled nurses who can perform

administrative tasks, such as client registration, triage, data collection, and reporting. Some of these can be performed by administrative staff and free up the enrolled nurse to perform some of the noncomplex activities performed by CPHNs. This will free CPHNs to perform more complex procedures and health promotion activities, where their knowledge and skills can be fully utilised.

The findings of Halcomb and Ashely (2019) support those of Roden et al. (2015) who in a sequential mixed-methods study in Australia, looked at the health promotion role of 149 rural and remote community nurses and urban nurses' health promotion roles and functions,. The authors concluded that rural and remote nurses had a more positive attitude towards health promotion and its clinical implementation. In contrast, the urban nurses focused on individuals rather than groups, which was attributed to time constraints. These findings are relevant although a limitation of this study is that it only examined health promotion roles and did not consider direct care roles. Quantifying CPHN work in rural and urban areas may help us understand how nurses prioritise or ration care and maintain the balance between direct clinical care roles and health promotion activities. Roden et al. recommended the use of observation on workload to minimise the bias of relying on the nurses' perception of their roles, factors that were considered in the research design of this thesis.

2.3.4 Challenges faced by Community Public Health Nurses

This section will discuss the different challenges faced by CPHNs concerning role expansion, role extension, and specialisation. Working alone in rural, remote areas can be very challenging, especially with the increased burden of chronic illness and inadequate resources concerning communication, transportation, and electricity. These challenges can be further aggravated by poor leadership and lack of support from doctors for clinical decision-making in more complex cases. This section concludes with a discussion highlighting several challenges CPHNs face with role expansion, continuing professional education, career pathways, availability of ongoing education and training delivery, cost and time.

Role expansion, extension, and specialisation

An expanded role refers to the enlargement of the nurse's roles within the boundaries of nurse education and theory, within the scope of practice whereas the extended roles imply performing activities that were previously assumed by physicians, which require further

training as they are not within the nursing scope of practice (Magennis et al., 1999). Halcomb et al. (2006) reviewed literature on the evolution of practice nursing in Australia and stated that "role expansion entails nurses taking their initiatives and making independent decisions based on experience and education rather than relying on medical delegation of tasks, which occurs with role extension" (p.378). Halcomb et al. (2008), in a mixed-method study exploring the cardiovascular disease management role of 284 practice nurses in Australia, identified numerous barriers to role expansion. Using a postal survey and telephone interviews, the barriers they highlighted, included legal implications, lack of space, appropriateness of the current role, general practitioner attitude, lack of opportunity, lack of training, inability to prescribe, patient's perception, underdeveloped clinical skills, lack of job description, lack of clinical confidence, lack of confidence to approach GP, and finally lack of desire. These authors also identified facilitators, which included collaboration with GPs, education and training, opportunity to deliver primary health care, high job satisfaction, positive consumer feedback, autonomy of practice, active contribution to management, potential to shape role, new and exciting roles, less restrictive management, improved hours and better employment conditions. A limitation of this study was the convenience sampling method, which could have introduced response bias. The interview data were collected via telephone, which might have limited the discussion. Similarly, another survey conducted among New Zealand primary healthcare nurses, revealed that practice nurses have experienced a significant expansion in their role in managing individuals with diabetes, over the past decade. This expansion has been evidenced by an increase in the number of foot examinations conducted and the provision of recommended foot-care education. The study found a positive correlation between improved foot care management and nurses who attended diabetes education within the last five years (Daly et al., 2020). However, both these studies identified the role of training and education as facilitators of role extension, indicating the critical role educational institutions have in terms of curriculum development for CPHN postgraduate programmes.

The unavailability of postgraduate university courses for CPHNs in the area of population-based nursing, is concerning in terms of gaining a professional identity in the discipline. Halcomb et al. (2006) highlighted the shortage of university programmes for primary care nurses that have substantially contributed to the lack of role development. An Australian national audit of 38 undergraduate nursing programmes revealed the lack of primary health care, health promotion and prevention content, at different levels of nurse training. The audit also pointed out unclear

competencies required for CPHNs (Keleher et al., 2010). The lack of uniformity further leads to unclear career pathways for CPHNs (McKinlay et al., 2012). This illuminates the need for educational institutions to understand the service demand and develop programmes for CPHNs with appropriate knowledge and skills needed for practice in community settings.

Role extension, where CPHNs assume some of the doctors' roles, can be beneficial for those providing care to rural and remote clients working as solo practitioners. Brookes et al. (2004) argue that community health nurses are well equipped with skills and training to educate, support and facilitate early treatment and referral of clients. They further state that since CPHNs' focus is on the individual, family and the community, this role is more conducive to implementing community-level interventions. On the other hand, specialised nursing roles in the community setting are in the acute care framework, which is a threat to the loss of the CPHN focus, which is mainly population-based interventions. This notion of CPHNs loss of focus is a serious concern for countries, which are struggling with a shortage of health professionals and increased healthcare demand. The burden of NCD and the re-emergence of communicable disease, has contributed to acute care demand, such as integrated management of childhood illness, the package of essential non-communicable disease management, diabetic foot care, eye care and other acute care services, which CPHNs are trained to provide. In the future, these nurses may completely shift from their primary prevention and health promotion roles. Therefore, it is essential to identify what types of interventions undertaken by CPHNs relate to providing direct patient care, primary prevention and health promotion, something this thesis aims to do.

Working in isolated rural and remote areas

Working from a rural and remote setting can be very challenging in terms of distance to the leading health facility and the population. Rural and remote settings have health facilities that are managed by nurses, who are usually the sole healthcare providers, or a small team. Working as a sole CPHN requires a range of clinical expertise and cultural competency skills for acceptance in the community, which is critical in providing care (Coyle et al., 2010). A qualitative study, including 26 Australian rural and regional child and family health nurses, identified several physical barriers to their work. These included distance to travel, rough geography, rough terrains, the need for gumboots to walk in the rain, and to look out for dangerous dogs, which were a safety concern for nurses' home visiting (Fraser et al., 2016). The authors

discussed the possibility of nurses walking into dangerous situations, as referrals did not provide sufficient details, for example referring violent clients. When aware, CPHNs worked in pairs to support and protect each other.

A qualitative study of 24 nurses working in rural remote Australia revealed that nurses felt that their clinical knowledge and skills were inadequate, for the advanced and generalist scope of practice required in remote contexts, particularly when working independently. Remote area nursing demands unique knowledge and skills compared to other nursing settings. This study emphasised the notion that remote area nursing is a specialist-generalist role, highlighting the necessity for further investigation into the educational and support requirements of remote nurses (McCullough et al., 2022). The authors recommended conducting additional research to clearly define the contemporary scope of practice for remote area nurses, distinguishing their role from that of nurse practitioners.

Having inadequately trained staff to work independently can place pressure on nurses working in rural and remote settings. A qualitative study of 21 child health nurses in the Solomon Islands highlighted that most of them worked alone, with no backup support from physicians or experienced nurses (Colquhoun et al., 2012). These nurses also performed an administrative role and other public health duties. Nurses working in rural and remote areas must be able to contact doctors or senior nurses for advice and instructions while dealing with complex cases. This emphasises the need for this thesis to identify how rural and remote nurses experience back-up support from experts; thus, this study needed to highlight the challenges faced by CPHNs in Fiji in their everyday work.

Being the only health professional in the area places more demand on the range of activities CPHNs must perform as a generalist nurse. The generalist role of rural nurses increases as the population declines and the more remote they are located, the more their generalist role is needed (Brookes et al., 2004; Mills et al., 2010). Some of the significant factors affecting the work of a rural and remote nurse are the distance from the main hospital, the size, and composition of the team, the working conditions, size and ethnicity of the community (Mills et al., 2010). Often in Pacific Island countries, nurses work in isolation where they manage nursing stations by themselves, being on call "twenty-four seven" (24/7). As the challenges Fijian nurses face while working in these isolated areas are unknown, it is vital that this thesis identifies some of these challenges.

Leadership and support

Leadership plays a crucial role in workforce development policies and the job description of CPHN's, determining the activities they undertake and the impact of those activities. Asante, Roberts, and Hall (2011) provide an in-depth analysis of the strengths and challenges within Fiji's health leadership and management. Their study emphasizes the need for enhanced capacity in strategic planning, financial management, and human resource management. The authors argue that targeted training programmes are essential for improving these areas and recommend a national strategy to strengthen leadership at all levels. This would improve service coordination and foster collaboration among government, educational institutions, and international partners (Asante, Roberts, & Hall, 2011). Effective leadership is crucial for the sustainability and effectiveness of health interventions, including those led by CPHNs.

The critical literature review by Brookes et al. (2004) identified the lack of authority of CPHNs in organisational decision-making and suggested the need for active participation through research and policy decision-making to highlight the contribution they make to both the nursing profession and the health care system. Similar sentiments were echoed by Halcomb et al. (2006), suggesting the need for evidence-based primary care driven by leadership from the academic, research and policy perspective. The absence of CPHN leadership and effective planning indicates that despite the expectations of promoting services to fulfil the needs of the community in terms of health issues and socio-economic needs, community nurses were expected to deal with clients with acute-care needs (Kemp et al., 2005).

McKinlay et al. (2012) conducted a mixed-methods study using two focus group discussions, and a survey of 31 New Zealand CPHNs, which revealed that CPHNs wanted to develop leadership skills to overcome their powerlessness and feeling professionally undervalued. The lack of a postgraduate programme in Fiji means that little opportunity is available for CPHNs to develop their knowledge and skills in research and policy, hence they have limited opportunities to contribute to policy development. This notion is supported by Smith (2000) who suggested that CPHNs are seen as less influential than medical doctors and those in health administration or with political interest and therefore have little influence on the allocation of resources and policy decisions. The authors further suggested that the limited involvement of CPHNs in decision-making, means there is a greater focus on medical interventions rather than primary prevention (Smith, 2000).

Leadership plays an important part when new roles and activities are introduced to CPHNs. Smith (2000) interviewed 40 generalist community nurses in Victoria Australia to determine changes that occurred in their practice in the five years from 1992 to 1997, which had implications on policy and service delivery by community nurses. A central theme that emerged from this study was moral distress. The author highlighted that economic strategies could limit a primary healthcare focus. They found current reporting of the community nursing activities did not allow nurses to report on the complexity of their work and the work undertaken "out of hours". Although unfunded and unrecorded, CPHNs continued to provide care as they felt it was morally unacceptable not to (Smith, 2000). It is clear that the work of CPHNs continues to be unrecognised and undervalued in terms of the overall contribution made to health service delivery. The authors feared that CPHNs, in comparison with those providing clinically based care, were undervalued. These findings have implications for CPHNs in rural and remote areas in Fiji. Currently, there is no empirical evidence on their work, how it has changed over years, their perception of these changes and the impact on health services in Fiji. It is important for this thesis to identify challenges related to the service demand by illuminating CPHNs' work and the ethical conflicts they face when providing care at the community level.

2.3.5 Community public health nurses' continuing professional development needs

Continuous professional development (CPD) is the key to a knowledgeable and skilful nursing workforce. This is achievable through organised, structured courses with competencies for working at the community and systems level. This was recognised by New Zealand nursing leaders who identified the need for a national strategy for the workforce and national competencies for primary health care nurses, with postgraduate funding for appropriate training and education to achieve these (McKinlay et al., 2012). Since that time, there has been ongoing in-service training for CPHNs, predominantly focusing on new knowledge and upskilling. McKinlay et al. (2012), in a study exploring the development needs of 31 New Zealand primary health care nurses, found the critical educational needs were: leadership skills, computerised database management skills, patient education approaches, advanced assessment, evidence-based practice documentation, report writing, and political and strategic engagement. They also identified that the needs of experienced primary care nurses may differ from novice primary care nurses who have different challenges. They further acknowledged it was difficult for CPHNs to meet with other subspecialties in a public health forum due to the

nature of their employment arrangement (McKinlay et al., 2012). The inability of CPHNs to meet as a team prohibited them from voicing their concerns as a group at a governance level.

The value of a knowledgeable and skilful workforce is also evident in Australia. A survey of 222 general practice nurses in Australia identified that 94.9% had been involved in some form of professional development in the past two years of which 51.4 % were assessed through in-service conferences, study days, workshops, or seminars (Foley et al., 2005). Other sources of professional development included professional associations (8.9%) and general practice network meetings (7.7%). There were no significant differences between the types of professional development of urban and rural general practice nurses. Moreover, Halcomb et al. (2006) has reported that Australian general practice nurses have taken short courses on cervical smears, immunisation, and breast examination. This review further identified that a lack of programmes on primary care nursing has had an impact on the role development of practice nurses. Although components of programmes, such as advanced physical assessment, principles of evidence-based practice, critical analysis, primary health care, research skills, and models of collaborative care delivery are included in current nursing education programmes, they were not part of earlier hospital-based syllabuses where many primary health nurses graduated. A descriptive cross-sectional online survey of 104 Australian general practice nurses involved in mental health, reported that participants were open to enrolling in educational programmes aimed at enhancing their expertise, abilities, and proficiency in mental health care. The respondents expressed their observations of a growing trend of individuals seeking help for mental health concerns at GP clinics (Halcomb et al., 2022).

A survey of 54 Australian primary care nurses' perceptions of their current and potential roles in health promotion in general practice settings concluded that there was a need for education and training to expose them to the different levels of health promotion. This would inspire them to incorporate health promotion activities into their current role (Keleher & Parker, 2013). This study has implications for a country like Fiji, which does not have a postgraduate CPH nursing programmes, meaning this thesis can provide insights into different professional and clinical practice needs that will enable course development relevant in the Fijian context.

Despite the recognised need for CPHNs to have continuous professional development (CPD), there are several challenges faced by nurses in accessing education. A survey of 3562 primary care nurses in New Zealand (46% response rate) identified the difficulties associated with

accessing education were: lack of time, financial problems, lack of relief staff to cover workloads and geographical isolation. Half of the study participants felt the employer did not offer a clinical career pathway (Hughes & Calder, 2006). Similar findings were reported by Cumming et al. (2012) in a qualitative survey exploring the experience of 34 primary care nurses' palliative care roles in Australia. This study aimed to determine how personally and professionally equipped primary care nurses were, for the provision of palliative care. This included their experience with palliative care services, experience, training, educational needs access and barriers to education. Only 44% of participants reported that they felt equipped to work with palliative care clients. Most reported that they needed additional educational preparedness, and that online learning and face-to-face teaching methods were the most practical ways of accessing education, including seminars, conferences, and postgraduate studies. The study identified the most common barriers to education were isolation (76%), no backfill available (56%), workload constraints (44%), budget constraints (44%), not a priority (24%), home/family commitments (18%), no management support (12%), no education at workplace (9%), lack of transport (9%), no technology (6%) and not knowing where to access education (6%). This study provided valuable insights into obstacles faced by primary care nurses through in-depth interviews that need consideration when developing training plans and modes of course delivery. However, this study had a small sample size (n=34), with a focus on palliative care only. Moreover, researcher bias could have been introduced with the researcher completing the interview and also working with the participants. Given the interviewer's prior knowledge of palliative care services may have meant missed opportunities to prompt different participant responses.

Remote and rural CPHNs reported similar challenges as those of CPHNs in other studies. A qualitative interpretative phenomenological study on the experiences of primary health care nurses advancing their careers in remote Western Australia identified three key challenges. Firstly, these nurses faced the challenge of managing their professional responsibilities, while also fulfilling family care obligations in a remote location without extended family support. They attempted to strike a balance between advancing their careers and maintaining a fulfilling family life, but found limited career advancement opportunities in their local setting. Secondly, obtaining professional development opportunities in remote settings proved to be difficult. Participants struggled to find time during their working hours and family commitments to

engage in such activities. Lastly, these nurses felt unsupported by their workplace colleagues and received limited backing from their employers (Kagi et al., 2023).

The types and degree of barriers to CPD differ between geographical and cultural settings. Colquhoun et al. (2012) in a qualitative study, including 21 child health nurses in the Solomon Islands, used semi-structured interviews that identified issues, such as costly overseas travel: courses lacking relevance to the Solomon context, and the absence of nurses from their workplace and families for the duration of the study period. These barriers are recognised by Halcomb et al. (2007) who purport that online delivery of courses is more suitable for CPHNs working in isolated geographical locations. Considering the barriers to CPD identified in the previous studies and illustrating the importance of keeping up to date with knowledge and skills, it also emphasises the need for this study to identify whether the CPHN training and education needs of CPHNs in Fiji are being met, and if they are not, determine what barriers they face and possible solutions to improve CPD.

Working as an independent CPHN at health centres and nursing stations requires a certain level of competency. Similar to Fiji's situation, Brookes et al. (2004) in a literature review of CPHNs' roles in Australia, showed they did not offer any additional preparation for registered nurses to work as CPHNs, unlike other countries that require a year's preparation before working as district nurses. The authors further argue that there was a variation in terms of the length of training and the activities CPHNs perform. Countries like Canada, Finland and Norway, offer a four-year baccalaureate programme for nurses to qualify as public health nurses whereas countries like Australia and the United Kingdom employ enrolled nurses for attending to personal hygiene and simple activities. The findings of this critical literature review have implications for the educational preparation of CPHNs in terms of the knowledge and skills they require, to provide adequate direct care, health promotion and primary prevention. As no literature exists on the educational preparedness of Fijian CPHNs, this study has also drawn on CPHNs' perceptions of their undergraduate educational preparedness to provide care. Unlike countries that have a four-year programme, Fiji is following the Australian model where registered nurses work as CPHNs. Fiji does not have an enrolled nurse workforce to work with CPHNs. This may indicate the need for workforce restructure with more clarity of CPHN roles and activities at an individual/family, community, and systems level. This study will provide insights into the current roles of CPHNs in Fiji that will assist policymakers in workforce planning

and development. In Fiji, CPHNs have a dual role in providing direct care and primary prevention. It is therefore essential to understand the different interventions CPHNs implement at individual/family, community and the systems level and more importantly, primary prevention and health promotion roles in the Fijian context. The Fijian health system involves ensuring that healthcare services are delivered in a manner that respects the cultural identities and practices of Fiji's diverse population ensuring care is culturally safe. This concept is particularly important in a multicultural society like Fiji, where the health system must cater to indigenous Fijians, Indo-Fijians, and other ethnic groups.

Cultural safety has emerged as a crucial concept in nursing, particularly in contexts where healthcare disparities exist among marginalized and indigenous communities. Papps and Ramsden's (1996) seminal work, Cultural Safety in Nursing: The New Zealand Experience, provides a foundational understanding of cultural safety within the New Zealand healthcare system. The authors describe cultural safety as an approach that extends beyond mere cultural awareness and sensitivity, aiming to ensure that nursing care respects and responds to the cultural identities of patients, especially those from marginalised or indigenous backgrounds. This approach was developed in response to the significant healthcare disparities experienced by Māori and emphasises the need for healthcare professionals to address power imbalances, systemic racism, and the historical contexts that impact indigenous peoples (Papps & Ramsden, 1996).

Cultural safety is particularly important in nursing practice for indigenous communities because it fosters an environment where patients feel respected, valued, and safe to express their cultural identities. By addressing the legacy of colonisation and systemic inequities, cultural safety helps build trust between healthcare providers and patients, which is essential for effective and equitable healthcare delivery. This approach contributes to creating patient-centered care that is truly respectful and responsive to diverse cultural needs, promoting more equitable health outcomes (Papps & Ramsden, 1996). Ramsden argues that integrating cultural safety into nursing education is vital for preparing nurses to provide equitable care, particularly for patients from diverse and indigenous backgrounds. The emphasis on self-awareness, critical reflection, and understanding the socio-political context of healthcare enhances the ability of nurses to deliver culturally responsive care and reduce health disparities (Ramsden, 2002).

In recent work, Sheridan, Jansen, Harwood, Love, and Kenealy (2024) discuss the ongoing need for equitable healthcare outcomes for Māori, particularly within primary care settings. “Hauora Māori–Māori Health: A Right to Equal Outcomes in Primary Care” argues that despite advancements in healthcare, Māori continue to face disparities in health outcomes compared to non-Māori populations that are avoidable and amenable to early intervention. The authors emphasise the importance of addressing systemic barriers, including socio-economic factors and institutional biases, to achieve equity in primary care. They advocate for reforms that align with Māori health models and values, contending that culturally safe care is essential to achieving equitable outcomes. This article calls for increased investment in culturally safe services and the integration of Māori perspectives into healthcare policies and practices to ensure equal access and benefit for Māori patients (Sheridan et al., 2024).These findings are very relevant to the Fijian setting if healthcare outcomes are to be improved.

In summary, cultural safety represents the necessary and significant advancement of nursing education and practice to achieve improvements in the approach to care for patients and families, and of other marginalised communities. It encompasses a broad understanding of healthcare that includes cultural, spiritual, emotional, and social well-being in an attempt to create a more equitable and responsive healthcare system. The integration of cultural safety principles into nursing education and practice is crucial for improving health outcomes and ensuring that all patients receive care that respects their cultural identities, preferences, and needs.

2.4 Limitations

This narrative review was limited by a small number of papers from Pacific and not including grey literature. There were limitations of source studies, especially those with unclear target audience, denominator, response rate and self-reports.

2.5 Summary

A key finding of this narrative review, is that CPHNs’ roles and activities have changed over the last 20 years, with this change accelerating in the last decade. The main reason for this change relates to the demand for acute care from the community. This demand has been fuelled by an increase in early discharges from the hospitals due to larger rates of admission. For CPHNs, the consequence of this has been greater confusion and ambiguity amongst the community, with

respect to their primary prevention and health promotion roles. Further exacerbating this confusion has been the changes to CPHNs' roles in terms of expansion, extension and specialisation. A lack of leadership and mentorship, especially for CPHNs working in isolated rural areas, has led to increased challenges in providing primary prevention and health promotion. This group of nurses largely comprise of women who are under pressure to provide direct care, health promotion and primary prevention at individual/family, community and systems level. These CPHNs have to prioritise and ration care, which often results in moral distress.

It is clear from the narrative review that there is considerable demand for CPHNs to provide direct patient care, and this may be at the cost of providing broader health promotion and prevention activities. Because CPHNs' roles have changed so significantly in recent years, it is essential to understand more about their workforce characteristics, their actual work and the challenges they face in meeting the needs of individuals, communities and populations. To gain a greater understanding, this study will investigate the type of interventions or activities undertaken by CPHNs in Fiji and determine the priority nurses place on specific interventions. Findings from this study will enable us to understand better the time spent on health promotion, primary prevention, disease prevention and disease management. These findings will assist in the production of strategies needed to address any gaps identified in work not currently undertaken, but necessary to meet the population health needs of Fijian people.

The next chapter outlines different frameworks that have been used in this study. The discussion will provide insights on how frameworks support the categorisation of CPHNs' work, data collection and analysis.

CHAPTER 3 THEORETICAL FOUNDATIONS

3.1 Theoretical Foundations

This chapter will discuss the theoretical foundations of the study. A theoretical model can offer a framework to understand behaviour and actions or activities, supporting the researcher to frame the research question, collect and analyse data, and interpret research findings. Theoretical foundations offer the researcher a lens or standpoint that can guide the many stages of the project and assist the researcher in explaining the results of the study (Creswell & Plano Clark, 2011). This study aims to investigate the type of interventions undertaken by CPHNs in Fiji concerning direct patient care, health promotion and primary prevention and at the levels of an individual or family, community, or systems. Hence theoretical models in the disciplines of nursing were identified within the systematic literature review, including primary health care, public health nursing and community health nursing. In addition, textbooks on community public health nursing and Google searches were supplementary sources used to identify relevant theories. Nursing theoretical models focusing on individual patient's direct care or work context, or hospital settings; sick patients were excluded. A model for the current study needed to assist in understanding and analysing the roles of nurses working outside of hospitals undertaking primary prevention and interventions at different population-based levels of practice. Such interventions including: health promotion, direct care, disease screening, disease outbreak investigation, case management, community development and advocacy were considered important to understand CPHNs' interventions at individual and family, community, and system levels. A comprehensive model was sought that would assist in the research design to answer the study questions. Along with the models that were identified in the narrative review, the researcher used a set of key terms sourced from relevant frameworks that are discussed in the next section.

3.2 Methods for Theoretical Model Selection

Theoretical models eligible for inclusion in this study had to meet the following conditions to be considered. They needed to describe and categorise disease prevention, health promotion and direct client care concepts in a primary care setting thereby explaining the activities and interventions of CPHNs at individual and/or family, community and systems levels. A clear use

of terms and a visual representation of the model was also required. The search terms were identified during the narrative literature review and with the input from the librarian.

The following search terms were used in Scopus and Web of Science to identify relevant theoretical models.

> *"Public Health Nurs*" OR "Community Health Nurs*" OR "District Nurs*" OR "Practice Nurs*" OR "Plunket Nurs*" OR "Zone Nurs*" OR "Primary care nurs*" OR "Primary health care nurs*" OR "Public health nurs*" OR "rural nurs*" OR "remote nurs*"* **AND** *"conceptual framework" OR "conceptual model" OR "theoretical framework" OR "theoretical model" OR framework OR theory OR "theoretical lens" OR lens OR worldview OR model OR perspective.*

The search was limited to documents from 1990 until 2019 written in the English language. In total, 1936 papers were identified from which 17 theoretical models were accessed for applicability in the Fijian context. The results of this search identified several models or frameworks. Some were specific to a population, setting or circumstance, such as older adults, schoolchildren, family caregiving, workplace health, end-of-life care, environmental health, hurricane preparedness, cultural safety, shared decision-making, or career. Other theories included: social exchange theory within maternal child health, home visits, the practice partnership model, and mentoring partnership models. Intervention-specific models, such as smoking cessation, quality improvement, skills and clinical practice aspects of CPHNs' work were also identified. While not all theoretical models of frameworks may have been located, those that were identified offer a sufficiently wide range of information relevant to the current study. These included the:

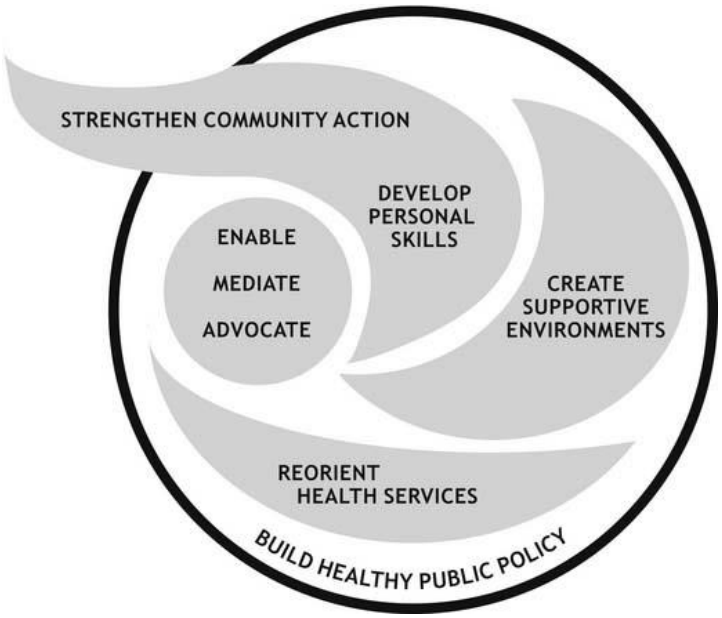
- Health Promotion Ottawa Charter
- The Community Empowerment Continuum Model
- National Wellness Framework – Fiji
- Professional Practise Model to promote population health and equity
- Public Health Intervention Wheel Model
- New Zealand: The Primary Health Care Model

3.3 Health Promotion and Community Empowerment Frameworks

3.3.1 Health Promotion Ottawa Charter

The Ottawa Charter for Health Promotion was a landmark document launched on 21st November 1986 as part of the first international conference on health promotion. The Ottawa Charter (World Health Organisation, 1986) defined "health promotion as the process of enabling people to increase control over, and to improve their health". The values and principles of this Charter are reflected in primary healthcare concepts and principles, which have been widely incorporated into health promotion and primary prevention work in the decades since its development. It provides an overarching framework for health promotion actions in five key focus areas with three basic strategies. The first strategy for the charter is to advocate using a combination of individual and social actions to gain political commitment and policy support, and to develop social systems that support health. The second strategy is to mediate by bringing together different actors from private and government organisations to promote and protect health. The third strategy enables people to work in partnership with other individuals so that they are empowered to make healthy choices to achieve good health. The five action areas for health promotion include building healthy public policy, creating supportive environments, strengthening community action, developing personal skills, and reorienting health care (World Health Organisation, 2014) (See Figure 5).

Figure 5 The Ottawa Charter for Health Promotion[6]



This framework can be instrumental in establishing the broad roles and activities of CPHNs regarding primary disease prevention and health promotion activities. It can be used to identify areas of challenge that may be experienced, such as lack of resources (health services), health promotion knowledge and skills (personal skills). This model also advocates for the reorientation of health services to ensure that health services focus on health promotion, which requires going beyond curative services. This model is widely used to teach health promotion in Fiji to student nurses and has been instrumental in the development of strategic documents on health promotion, wellness and NCD prevention and management in Fiji. This framework has previously been used by other Pacific researchers to understand the CPHN health promotion role.

The Ottawa charter framework guided a study by Roden et al. (2015), who reported on Australian rural and remote (n=49) and urban community nurses (n=100) about their health promotion role and functions. This study used a sequential mixed methods design with urban and rural community nurses who filled out a survey questionnaire, which assessed their contribution to the five action areas of the Ottawa Charter for health promotion followed by ten qualitative interviews. The authors found that rural and remote nurses were more positive towards health promotion, whereas urban nurses had a narrow focus on health promotion.

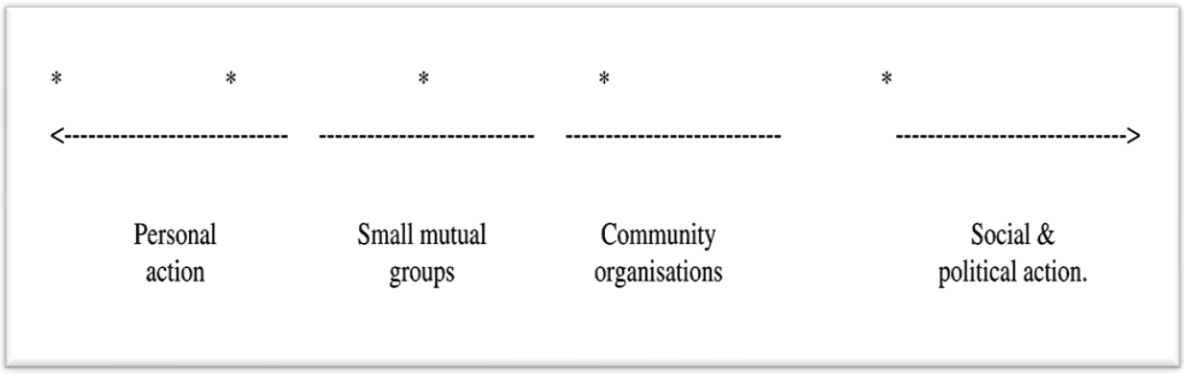
[6] Source: World Health Organization 1986 The Ottawa Charter for Health Promotion. WHO, Geneva. Online. Available: www.who.org [accessed 23 September 2019]

They further identified the need for more education and resourcing for CPHNs to understand health promotion concepts. Overall, nurses advocated for the development of personal skills more than any other action, which has been recognised as an initial step in empowering positive change. Recognising the increasing need for individualised care in every encounter does not limit health promotion being incorporated within the encounter. However, this framework is very broad and does not specify community public health interventions, which is a requirement for the current study.

3.3.2 The Community Empowerment Continuum Model

The Community Empowerment as a Continuum Model (see Figure 6) defines various levels of empowerment for personal actions, small mutual groups, community organisations, and partnerships. This leads to progressing social and political level action (Laverack, 2010). Personal actions and small group actions can be very significant in the Fijian context where people live in communal settings, with leadership from the village heads and chiefs influencing behaviour change.

Figure 6 The Community Empowerment as a Continuum Model.



Community public health nurses work very closely with village health workers and the members of the community. They are well-positioned to enable, advocate and mediate for primary prevention and health promotion at the individual and family, organisational and community levels. These organisations and communities can advocate for policy changes, the development of legislation and changes in social norms (Labonté & Laverack, 2008). Examples of such initiatives in Fiji include: smoke-free village halls, smoke-free markets, health-promoting schools, school canteen guidelines, baby-friendly hospitals, and village health worker programmes (Snowdon et al., 2013). The Community Empowerment as a Continuum model

can be used to explain the different activities CPHNs undertake at different population-based levels and in social and political contexts. These health promotion strategies are in line with the Fiji National Wellness framework, which is outlined in the next section. However, this model did not outline the activities of CPHNs that this study required.

3.3.3 National Wellness Framework – Fiji

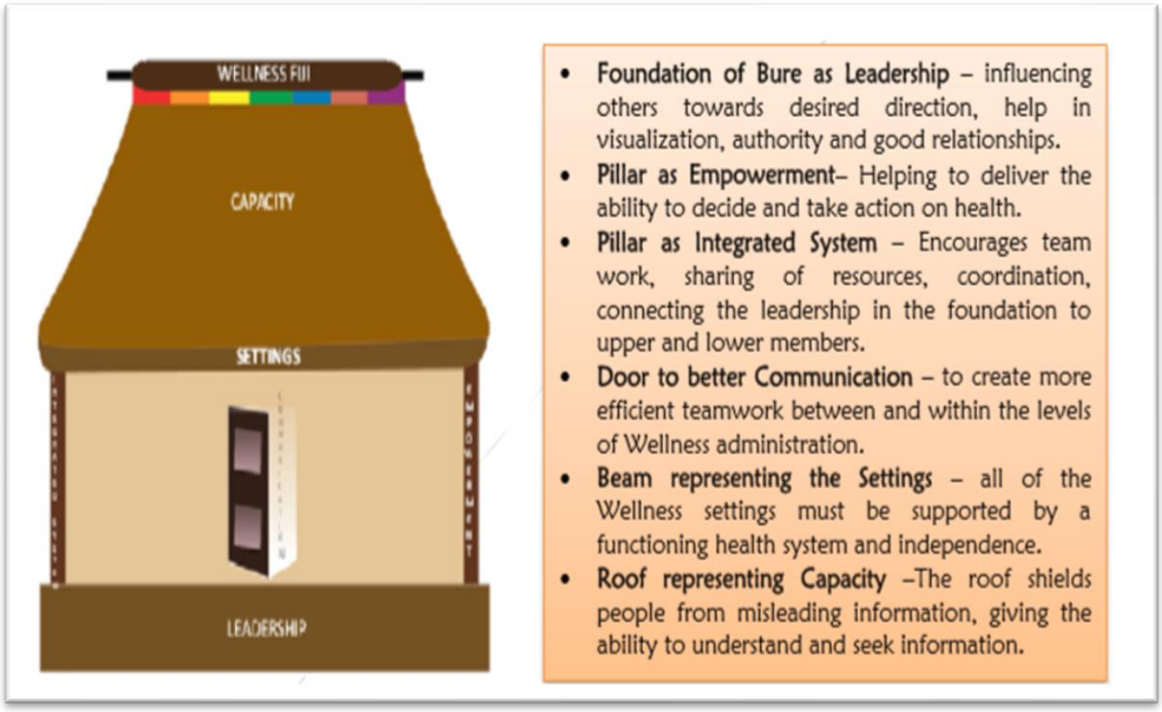
Fiji developed a national wellness framework in 2015 titled, 'Wellness Fiji Conceptual Framework' based on the Bure[7] Model. (See Figure 7 below). This framework was developed by the National Wellness Centre to provide leadership for wellness activities in various settings in Fiji. (National Wellness Policy for Fiji, 2015). The foundational principles of this model are similar to the Ottawa Charter for Health Promotion framework. The foundation represents leadership, influence, and advocacy for wellness. There are two pillars - empowerment and integrated systems. The first pillar recognises personal empowerment at an individual and family level, intending to influence small groups and the community as described in the empowerment as a continuum model. This enables people to decide and take action at family, community, and organisational levels. The second pillar is the integrated system, which supports promoting partnerships among government, non-government, and civil societies to lobby government support mainly to influence healthy public policy. The Bure (see Figure 7) has a door for improving communication at different health administration levels - national, divisional, sub-divisional, medical areas, and district levels. The beam[8] represents the different settings/institutions, such as schools, markets, workplaces, settlements, churches, cities, and towns; these settings/institutions supported by the Fiji health system. The roof denotes capacity and shields people from misleading information.

This framework involves several actors from a health professional perspective, promoting wellness in different settings. Limitations of this model include little attention to community involvement and does not measure and assess interventions. This model provides a framework for all health professionals but does not recognise accountability at the level of implementation or attribute responsibility for activities; it does not monitor teamwork or provide information. Developed in the Fijian context, the values of this model (leadership, empowerment, communication, teamwork, and capacity building) were considered for their applicability within

[7]Bure is the Fijian word for a hut or house.
[8] A roof beam is a load-bearing member that is integral to the strength of the building.

the current study. However, this study required a more comprehensive model with a clearer focus on CPHNs and their work at the population level. One such theory is proposed by the Professional Practise Model to promote population health and equity. This model has an in-depth focus on the interventions undertaken by CPHNs with populations, which will be discussed in the next section.

Figure 7 The Bure conceptual framework for wellness in Fiji.

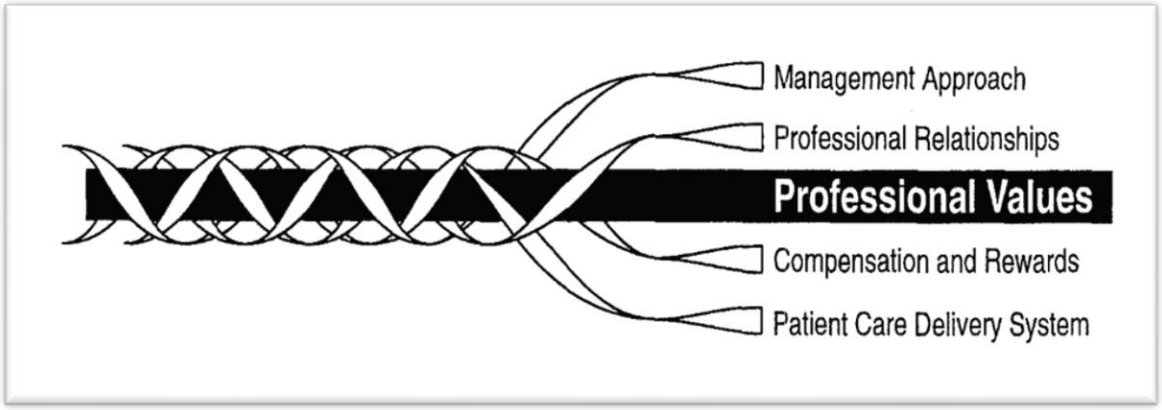


3.4 Community Public Health Nursing Interventions

3.4.1 Professional Practise Model to promote population health and equity

The Professional Practice Model (PPM) has been widely used in nursing, and more recently in Canada with Canadian public health nurses (PHNs) (Cusack et al. 2017). The authors developed a professional practice model to promote population health and equity with PHNs. Canadian experts recognised the mismatch between the daily activities and the ideal practice of PHNs, whose skills were under-utilised and largely invisible (Cusack et al., 2017). Hoffart and Woods (1996) defined the professional practice model as "a system (structure, process, and values) that supports registered nurse control over the delivery of nursing care and the environment in which care is delivered" (p.354). The PPM has five components (See Figure 8) namely: management approach, professional relationships, professional values, compensation and rewards, and patient care delivery system.

Figure 8 Professional Practice Model elements

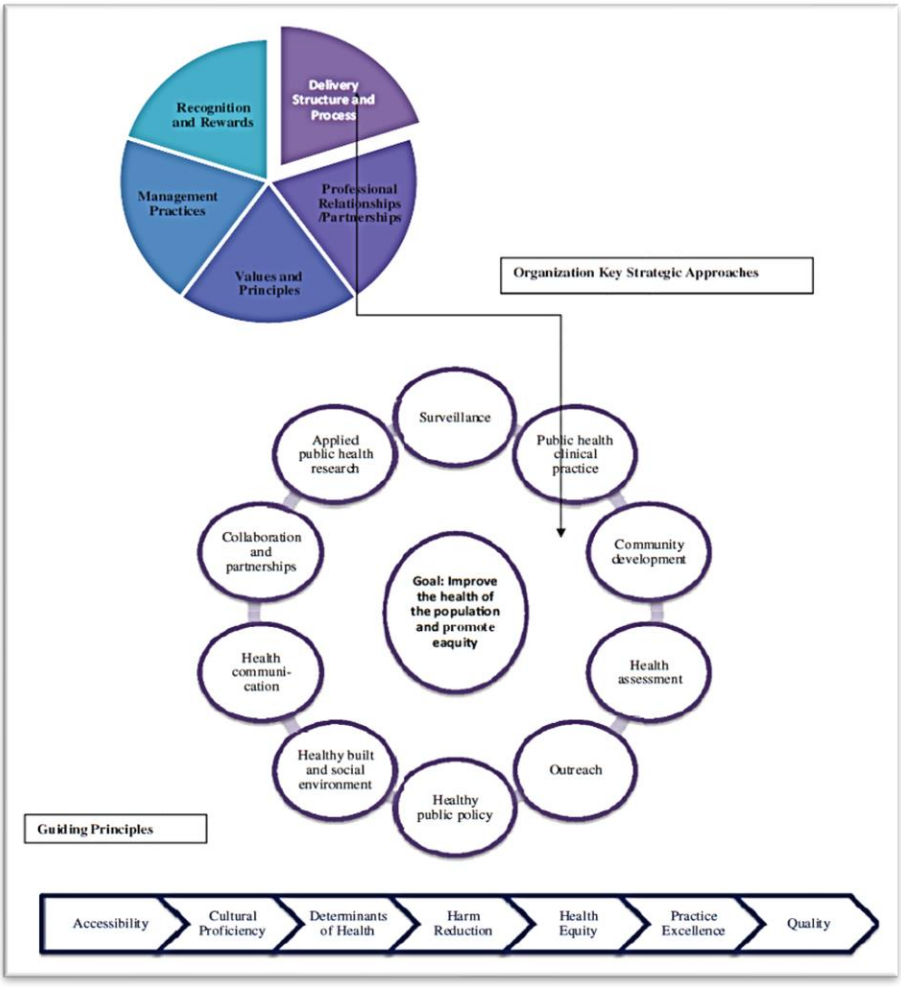


The Canadian study was a participatory action project undertaken with the health authorities, including nursing practice council representatives (n= 7), council members (n= 9), and PHNs (n=128) in the health authority, aimed to develop an equity-focused model that would support the full scope of PHN practice. Data were collected through working group meetings, discussions, field notes and semi-structured interviews. The semi-structured interview guide explored the perception of practice, gaps, and opportunities for role development (Cusack et al., 2017).

The findings of this study identified the PPM as being relevant in the public health nursing context at the broader systems level. Public health nursing leadership for population health promotion was identified as causing confusion in understanding the PHN role. The authors discussed the early discharge of postpartum clients; participants felt that their work had become an extension of a hospital service and they were providing community care rather than promoting community health and thereby eroding population-level interventions (Cusack et al., 2017). The PPM created a common language to explain the work of PHNs. The PPM clarified the PHN role and created a shared organisational vision by recognising foundational public health concepts, such as equity, determinants of health and cultural proficiency (Cusack et al., 2017). Delivery structure and process outline autonomous PHN practice and demonstrate the broad PHN roles in the community. These ten critical strategic approaches were identified as: health assessment, community development, public health clinical practice, outreach, healthy public policy, healthy built and social environment, health communication, collaboration and partnership, applied public health research, and surveillance (See Figure 9 below). The principles and values of this model are guided by accessibility, cultural proficiency,

determinants of health, harm reduction, health equity, practise excellence, and quality. Adaption of organisational structures and processes by other groups, such as managers, medical officers, and directors sought to work collaboratively with public health nurses. Working together meant acceptance and advocacy for PHNs by others (Cusack et al., 2017). This model also recognised the rewards and contribution a PHN made to the health system. The findings have assisted PHNs to shift their practice and influence systems by defining their role as population-based and equity-focused. The participants acknowledged their work at an individual level, in population health promotion, and their role in addressing the determinants of health (Cusack et al., 2017). This is consistent with the Community Empowerment Continuum Model, which advocates empowering individuals who will influence small groups, organisations, and the community at the population health level. The concept of health equity, required clarification from the PHNs, which had to be translated into actions by the PHNs.

Figure 9 Professional Practice Model to promote population health and equity.



The PHNs developed this model from Canadian public health documents and reflections from their practice. The PPM provides a common language and a framework that can be used to understand the roles of CPHNs. Erickson and Ditomassi (2011) confirmed the value of expressing nurses' contribution to client care, increasing role clarity within complex organisations and providing a framework to assist with changes. The framework can be used to understand the roles and activities of CPHNs in the Fijian context, which is a significant human resource investment. A drawback is that their model does not account for different levels of population-based practice. It lists ten fundamental approaches as part of service delivery but does not categorise them at different practice levels (individual/family, population and system). This model failed to provide clear definitions of the approaches to assess their applicability to the Fijian context. A similar and more comprehensive model was proposed by Keller et al. (1998) known as the Public Health Intervention Wheel Model.

3.4.2 Public Health Intervention Wheel Model

The Public Health Intervention Wheel Model incorporates all the activities of PHNs at the individual/family level, community level and systems level. The development of the model started in 1994 with a literature search on public health intervention, and the contribution of over 200 public health nurses from the Minnesota Department of Health working in different practice settings, who provided data on their actual work. An expert public health nursing panel refined this data and the 17 core interventions, which were later verified with 275 practising public health nurses at a series of four workshops. Interventions are defined by Keller et al. (1998) as *"actions taken on behalf of individuals, families, systems, and communities to improve or protect health status"*.

All interventions use a population-based approach, which considers interventions at three levels of practice. Practice levels are represented by the three inner circles - individual focused, community focused and systems focused. The interventions can be directed to individuals and families or the at-risk population (Keller et al., 1998) (see Figure 10). All 17 interventions are further colour-coded and sub-divided into five related interventions (Table 1) and are clearly defined in Table 2 (Keller et al., 2004).

Figure 10 The Public Health Intervention Wheel

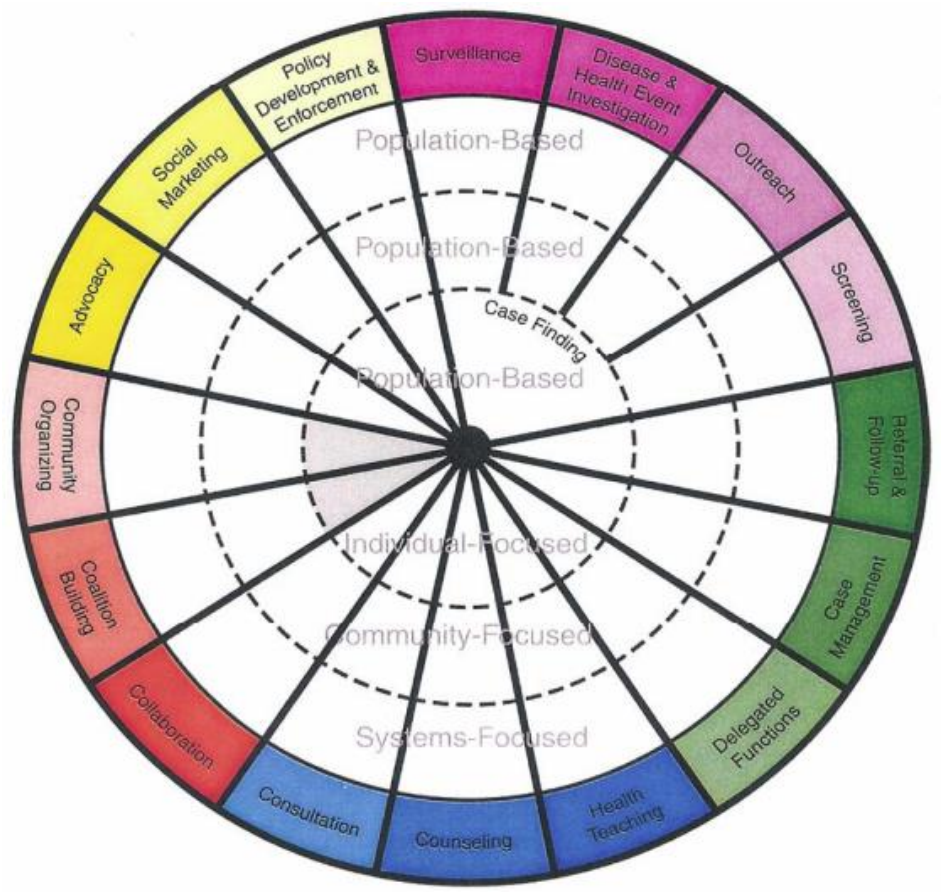


Table 1 Group of related Interventions

Red	Surveillance, disease and health investigation, outreach, screening, case finding (individual level)
Green	Delegated functions, case management, referral, and follow-up
Blue	Health teaching, counselling, consultation
Orange	Collaboration, coalition building and community organising
Yellow	Advocacy, social marketing, policy development and enforcement

Table 2 Public Health Interventions with Definitions9

Public health intervention	Definition
Surveillance	Describes and monitors health events through ongoing and systematic collection, analysis, and interpretation of health data for planning, implementing, and evaluating public health interventions [adapted from MMWR, 1988]. *(Public Health Information System PHIS in Fiji)*
Disease and other health event investigation	Systematically gathers and analyses data regarding threats to the health of populations, ascertains the source of the threat, identifies cases and others at risk, and determines control measures. (*Disease outbreak investigation)*
Outreach	Locates populations of interest or populations at risk and provides information about the nature of the concern, what can be done about it, and how services can be obtained.
Screening	Identifies individuals with unrecognised health risk factors or asymptomatic disease conditions in populations.
Case finding	Locates individuals and families with identified risk factors and connects them with resources.
Referral and follow-up	Assists individuals, families, groups, organisations, and/or communities to identify and access the necessary resources to prevent or resolve problems or concerns.
Case management	Optimises self-care capabilities of individuals and families and the capacity of systems and communities to coordinate and provide services.
Delegated functions	Direct care tasks a registered professional nurse carries out under the authority of a healthcare practitioner as allowed by law. Delegated functions also include any direct care tasks registered professional nurse entrusts to other appropriate personnel to perform.
Health teaching	Communicates facts, ideas, and skills that change the knowledge, attitudes, values, beliefs, behaviours, and practices of individuals, families, systems, and/ or communities. Counselling establishes an interpersonal relationship with a community, a system, and a family or individual intended to increase or enhance their capacity for self-care and coping.
Counselling	Engages the community, a system, and a family or individual at an emotional level.
Consultation	Seeks information and generates optional solutions to perceived problems or issues through interactive problem-solving with a community, system, family or individual. The community, system, and family or individual select and act on the option best meeting the circumstances.

[9] Source: Keller, L. O., Strohschein, S., Lia-Hoagberg, B., & Schaffer, M. A. (2004). Population-based public health interventions: practice-based and evidence-supported. Part I. *Public Health Nursing*, *21*(5), 453-468. https://onlinelibrary.wiley.com/doi/full/10.1111/j.0737-1209.2004.21509.x?sid=nlm%3Apubmed

Public health intervention	Definition
Collaboration	Commits two or more persons or organisations to achieve a common goal through enhancing the capacity of one or more of the members to promote and protect health [adapted from Henneman, Lee, and Cohen's "Collaboration: A Concept Analysis" in J. Advanced Nursing Vol 211995:103–109][10].
Coalition building	Promotes and develops alliances among organisations or constituencies for a common purpose. It builds linkages, solves problems, and/or enhances local leadership to address health concerns.
Community organising	Helps community groups to identify common problems or goals, mobilise resources, and develop and implement strategies for reaching the goals they collectively have set [adapted from Minkler, M (Ed) Community Organizing and Community Building for Health (New Brunswick, NJ: Rutgers University Press) 1997;30][11].
Advocacy	Pleads someone's cause or acts on someone's behalf, with a focus on developing the community, system, and individual or family's capacity to plead their own cause or act on their own behalf.
Social marketing	Utilises commercial marketing principles and technologies for programmes designed to influence the knowledge, attitudes, values, beliefs, behaviours, and practices of the population of interest.
Policy development	Places health issues on decision-makers' agendas, acquire a plan of resolution, and determines needed resources. Policy development results in laws, rules and regulations, ordinances, and policies.
Policy enforcement	Compels others to comply with the laws, rules, regulations, ordinances, and policies created in conjunction with policy development.

All interventions are classified into three different practice levels except for *case finding*, which is only undertaken at the individual level, and *community organising* and *coalition building*, which are only undertaken at community and system levels. Table 3 outlines the focus of CPHN work at the three different practice levels, which are all equally crucial for advocating for behaviour change in the community.

[10] Henneman, E., Lee, J., & Cohen, J. (1995). Collaboration: A concept analysis. Journal of Advanced Nursing, 21, 103–109.

[11] Fisher, R. (1997). Social action community organisation: Proliferation, persistence, roots, and prospects. In M. Minkler (Ed.), Community organising and community building for health (pp. 53–67). New Brunswick, NJ: Rutgers University Press.

Table 3 Three levels of public health practice[12]

Levels of	Focus	Aim
Population-based, individual-focused intervention	On individuals alone or who may be part of a family or group.	Changes knowledge, attitude, beliefs, practices, and behaviours of individuals.
Population-based, community-focused intervention	On the entire population or a target group.	Changes community norms, community attitudes, community awareness, community practices, and community behaviour.
Population-based systems-focused intervention	On the systems that influence health.	Changes in organisations, policies, laws, and power structures, which often have a long-lasting impact

Labonté and Laverack (2008), when discussing health promotion in action sees community empowerment supporting the concept of working at an individual level as a continuum model. They suggest all forms of social and political activism that change the conditions of people's lives inevitably start with actions of discrete individuals. Moreover, there is work done at the community level, which requires community assessment, screening of schoolchildren, and working with organisations within the community. Lastly, work is undertaken by CPHNs at systems levels, advocating for healthy public policies and the introduction of laws that would promote and protect health. This is consistent with Ottawa Charter for Health Promotion action areas on developing healthy public policies. Most interventions can be implemented by CPHNs at all three levels. As practice settings can vary, such as schools, clinics, and homes, the Public Health Intervention Wheel clearly defines all the interventions, with relevant examples providing a common language for assessing the work of CPHNs, including the work of community, public health, and primary health care nurses in other countries (Sheridan, 2006).

The current study required a model or framework as a structure to support the analysis of data on the roles of nurses working in primary care, outside of hospital settings. Such work focuses on primary prevention and interventions undertaken at various population-based levels of practice (individual, community, and systems). Given the specific type of interventions being investigated, the Public Health Intervention Wheel Model was selected as the most appropriate

[12] Source: This table has been developed from one described in Keller, L. O., Strohschein, S., Lia-Hoagberg, B., & Schaffer, M. J. P. H. N. (1998). Population-based public health nursing interventions: A model from practice. *15*(3), 207-215. https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1525-1446.1998.tb00341.x

framework for the current study because it had been tested in different countries across thousands of nurses working in primary care settings. There is no other model or framework that has been used successfully in this way across interventions and levels of population-based practice. The strengths and limitations of the model are well documented and there is considerable literature surrounding its use in a similar context. The Public Health Intervention Wheel provided a framework for the analysis of data that would answer the two research questions by quantifying the work of CPHNs. The model guided the classification of the data collected and aided identification of CPHNs' actual work in Fiji. It did not preclude new interventions to be recognised and accommodated diverse interventions in the different Fiji district primary care settings.

3.4.3 New Zealand: The Primary Health Care Model

The Public Health Intervention Wheel was the framework for analysis of data in a New Zealand study to determine the work of primary health care nurses in integrated care initiatives across the country (Sheridan, 2006). The aim of the study was to determine the practice of nurses employed in integrated care projects in New Zealand from late 1999 to early 2001.

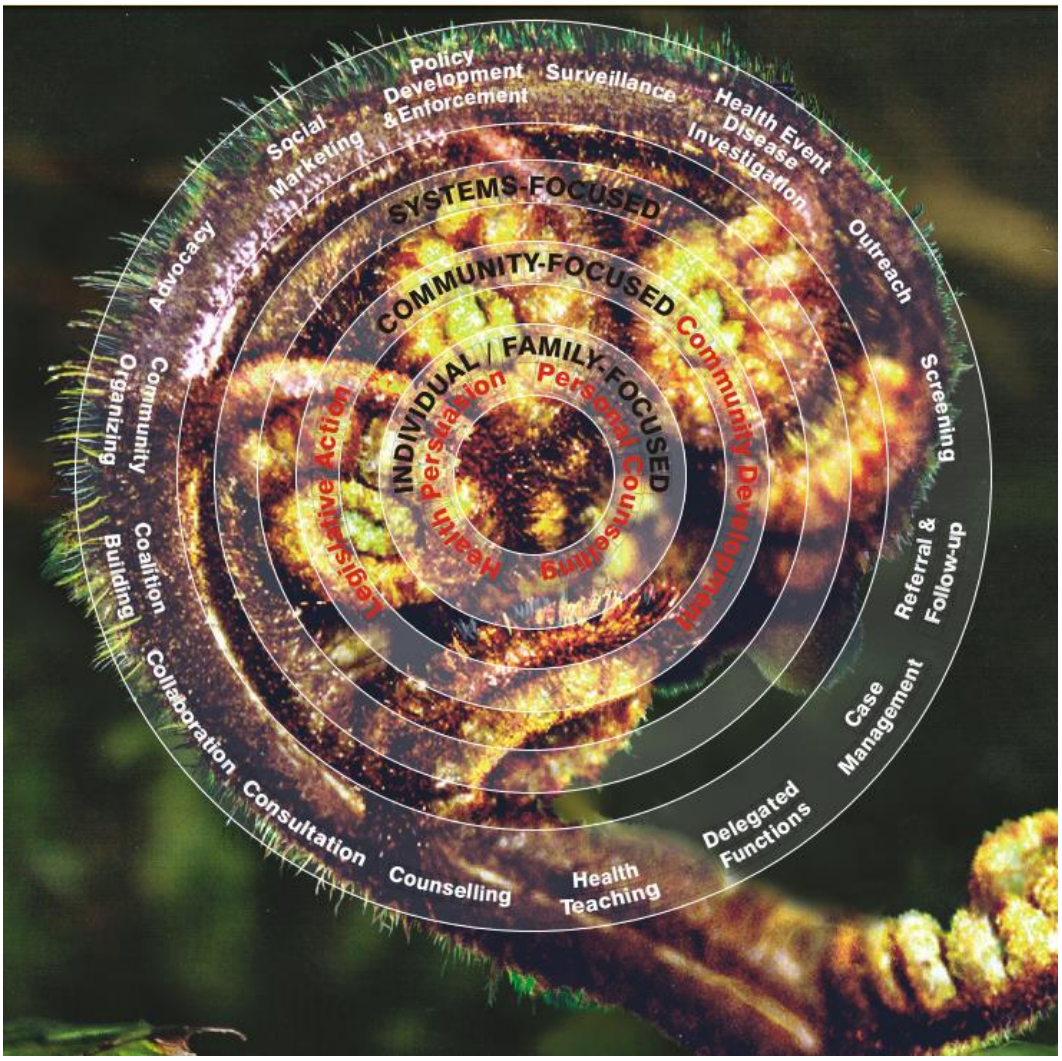
This study identified a strong association between nurses' practice in projects and strategies used in integrated care, such as information sharing, guideline development and promotion, case management, and projects with an ethnic focus, low-income focus, chronic condition focus, and well-health focus. The study further identified that while nurses performed interventions most frequently at the individual practice level, they were also strongly associated with the small proportion of interventions that were undertaken at the community level. Most nursing interventions demonstrated the value of health persuasion in health promotion, demonstrating a paternalist and individualistic perspective. In two interventions, coalition building and community development, in which nurses were involved, both reflected the concepts of negotiation, partnership, and empowerment in health promotion (Sheridan, 2006).

This study provided a comprehensive Primary Health Care Model (PHCM) with elements from the Intervention Wheel (Keller et al., 1998) shown in Figure 10. These elements formed the foundation of the PHCI model that incorporated components from Beattie's theory of health promotion (see Figure 11). Health persuasion and personal counselling were situated in the

'individual-focused' ring as they represent strategies focused on individuals. The 'community-focused' ring included legislative action and community development, representing strategies focused on communities or groups. At a systems-focused level of practice, all four strategies of health promotion were relevant (Sheridan, 2006).

This model complements the "Whare Tapa Wha" model, a framework that conveys a Māori viewpoint on health, and "empowerment tracks", which systematically embedded community empowerment goals within the expected project, into this framework. The PHCM was located inside a pikopiko frond, a natural fern that represents growth and renewal and, in this case, symbolises the creation of a new framework through the revival of two well-known models (Sheridan, 2006).

Figure 11 The Primary Health Care Model



In the current study, the purpose is to determine CPHN nurses' actual work and the interventions they undertake. While this was also the purpose of the New Zealand study by Sheridan (2006), the author constructed a new model, the Primary Health Care Model, that in addition to assessing interventions at different population-based levels, also included domains that could measure the values and beliefs that underpinned 'primary care nurses' practice. This dimension within the PHCI Model is not required in the current study.

3.5 Summary

The Ottawa Charter for Health Promotion, the Empowerment Continuum Model and the National Wellness Framework of Fiji, align with the work of CPHNs in primary prevention and health promotion. The primary purpose of this thesis is to investigate the type of interventions undertaken by CPHNs in Fiji which also includes providing direct patient care.

From the models and frameworks identified, the Public Health Intervention Wheel Model has been adopted as the framework to answer two of the research questions: 1) *what types of interventions undertaken by community public health nurses relate to providing direct patient care*? and 2) *what types of interventions undertaken by community public health nurses relate to providing primary prevention and health promotion?* The Public Health Intervention Wheel Model also supported the type of data collected by likely identifying the actual work of CPHNs in Fiji and supporting the analysis and interpretation of the study findings.

Having presented the theoretical models considered for this thesis and the rationale for using the Public Health Intervention Wheel Model as the theoretical model for this study, the next chapter will discuss the research methodology.

CHAPTER 4 RESEARCH METHODOLOGY

4.1 Introduction

The previous chapter presented the Public Health Intervention Wheel Model as the theoretical framework to guide this study. This chapter will discuss the research paradigms, study design and the methods chosen to investigate the type of interventions undertaken by CPHNs in Fiji and their role in direct patient care, health promotion disease and primary prevention. The post-positivist explanatory sequential mixed methods research design chosen for this study, is informed by the ontological and epistemological perspectives in the literature. This study aimed to investigate the type of work (interventions) undertaken by CPHNs in Fiji to determine if there has been a shift from a broader disease prevention and health promotion focus to a narrower focus on providing direct patient care and seeks to answer the following research questions:

1. What are the social and demographic characteristics of CPHNs working in Fiji?
2. What types of interventions undertaken by CPHNs relate to providing direct patient care?
3. What types of interventions undertaken by CPHNs relate to providing disease prevention and health promotion?
4. What levels of population-based practice (individual, community, or systems-based) are undertaken by CPHNs in different geographical locations for each type of intervention?
5. What are CPHNs' perceptions about their knowledge and clinical preparation for undertaking their current role?
6. What are the ways that CPHNs undertake interventions, either autonomously or as part of a team, at different levels of population-based practice?
7. How do community public health nurses perceive their role has changed within the past ten years? What are the reasons that they perceive have contributed to this change? (Pre and Post COVID)
8. What are the greatest difficulties faced by CPHNs nurses in Fiji in their everyday work?

This chapter is divided into three main parts. First, the philosophical stance the researcher took for the post-positive mixed-methods approach is presented. Different types of mixed-methods studies are discussed as is the justification for using a sequential mixed-methods research design. The second part of the chapter describes the sequence of data collection methods used,

beginning with a cross-sectional survey, followed by in-depth interviews. The final part of the chapter includes data analysis, ethical issues, and strategies for ensuring a robust study.

4.2 Research Paradigm

The quality of research can be measured by the clarity of the philosophical underpinning and the methodology used by the researcher, which forms the foundation of the study (Creswell & Plano Clark, 2011). It is, therefore, essential to explain the research paradigm or the worldview that the researcher uses for the study. A paradigm is a "set of generalisations, beliefs and values of a community of specialists" (Khun 1970 as cited by Creswell & Plano Clark, 2011) (p. 39). After considering the ontological and epistemological issues presented in the narrative review, the paradigm used for this study is post-positivism, an approach that allows the researcher to more completely answer research questions by collecting both quantitative and qualitative data.

Post-positivism stems from the positivist paradigm, which uses scientific, objective (quantitative) methods of research to answer questions (Schneider & Whitehead, 2013). Positivists believe that there is one single reality where the researcher and the phenomenon studied are separate. In this view, some facts can be proven, and reality is the same for everyone. For example, a patient's weight is the same regardless of who measures it. Studies are undertaken with objectivity and methodologies are experimental; they can be experimental with hypotheses (Oliver, 2010).

Post-positivism is rooted in the philosophical assumptions of the positivist view; however, its proponents argue that not everything can be explained by the scientific approach of positivism and its quantitative and solely objective observations. Giddings and Grant (2006) noted that it was the limitations of positivism's ideological and practical designs and strategies that led to the development of post-positivism in the 1960s. Two well-known physicists, namely Heisenberg (1901 – 1976) and Niels Bohr (1885 – 1962) challenged some of the positivist assumptions. Bohr disputed the ontology of positivism on how the very nature of things are seen in reality (Crotty 1998). Heisenberg also came up with the principle of uncertainty, suggesting that it was not possible to determine the position and momentum of subatomic particles with accuracy (Crotty, 1998). He challenged the epistemological position of positivism,

in which reality is only what is observed through the senses, thus contesting the notion that observer and observed are independent.

Karl Popper, Thomas Khun and Paul Feyeabend further disputed the principles of positivism in support of post-positivism worldviews in the 1960s and 1970s. Thomas Khun (1922 – 1996) disputed the impartial, valid, unopposed findings of the scientists working with objectivity. Crotty (1998) viewed scientific investigations as a human affair with "human interests, values, fallibility, and human foibles – all playing a part" (p.36). With such a critique, a moderate form of positivism emerged known as post-positivism (Giddings & Grant, 2006; Teddlie & Tashakkori, 2009). Giddings and Grant, (2006) supported the notion that post-positivism is a shift within the positivist paradigm and thus retains the key philosophical assumptions of positivism, but in a changed or moderate form. Ryan (2006) stated that "post-positivist research emphasises the struggle for meaning and the construction of new meaning and knowledge" (p.24). Appreciating the post-positivists' philosophical assumptions in which this study is located, enables this study to use a mixed-methods research design, which is justified, in the next section.

4.3 A Mixed Methods Research Design

This study was designed using a post-positivist lens, and a mixed-methods research design as defined by Cresswell and Plano Clark (2011) incorporating data from a survey and in-depth interviews with CPHNs. A mixed methods research design was deemed appropriate, allowing the researcher to use the strengths of both quantitative and qualitative methods to generate meaningful, rich data to answer the research questions. Cresswell and Plano Clark defined a mixed methods research design as a method that concentrates on gathering, examining, and combining quantitative and qualitative data in a single study or set of studies. Its main argument is that combining quantitative and qualitative methods yields a better grasp of study issues than using either method by itself. The authors further provided the core characteristics of a mixed-methods research design for clarity as one which: "collects both qualitative and quantitative data; integrates both qualitative and quantitative data; gives importance to both forms of data; utilises these procedures in a single study or in multiple phases; and frames the study procedures within the philosophical worldviews, which further guides the research design that directs the plan of the study" (p.5).

There are several advantages to utilising a mixed methods research design, including that the approach offers the researcher the ability to use the strengths of both quantitative and qualitative approaches in one study. In addition to this, a mixed methods research design also allows the researcher to collect comprehensive empirical records on a subject. These strengths were supported by Giddings and Grant (2006) who describe a mixed methods research design as allowing a broader focus of data collection. This provides a wide scope of findings on a phenomenon, offering insights into complex social phenomena, highlighting the shortcomings in each method used and allowing researchers to compensate for them.

Using a mixed-methods research design, however does have some limitations, One of the biggest challenges is the need for extensive data collection and researcher time to analyse both quantitative and qualitative data and be familiar with both methods of data collection and analysis (Creswell and Plano Clark 2011, Fusch, Fusch et al. 2018). To overcome these challenges, the data collection in this study was planned in two stages with follow-up mechanisms to ensure timely collection of data.

A key part of designing a mixed-methods research design study involves deciding the level of interaction between the quantitative and the qualitative strands. Creswell and Plano Clark (2011) provide three essential criteria to inform this decision, namely, priority, timing and mixing. Priority refers to the importance of quantitative and qualitative questions; timing refers to the implementation of data collection; while mixing refers to the approach that is used for combining the quantitative and qualitative aspects. Cresswell and Plano Clark refer to this stage as a point of interface. They conceptualise four different stages of mixing, which include: 1) merging the two data sets, 2) connecting from the analysis of one set of data to the collection of the second set of data, 3) embedding one form of data within a larger design or procedure, and 4) using a theoretical framework to bind together the data sets. Based on the level of interaction, Cresswell and Plano Clark provide a number of different approaches to mixed methods research designs. The approach most appropriate for this study was an explanatory sequential design. The authors contend this approach occurs in two separate interactive phases. This design starts with the collection and analysis of quantitative data, which has the priority for addressing the study questions. The first phase of quantitative data collection then informs the second phase of qualitative data collection.

4.4 Explanatory Sequential Mixed Methods Design

The explanatory sequential mixed methods design was chosen as the most suitable design for this study because it seeks to explain the quantitative data using qualitative methods. This design was used in the study because it is simple to use while providing rich data. The design enables researchers to utilise two phases of data collection and data analysis with the final report presented in two phases, thereby providing clarity for the reader (Creswell and Plano Clark 2011). Although this is a straightforward design, to implement the two phases is time consuming as the researcher must first analyse the quantitative data in phase one so that they can then determine what to observe and clarify in phase two, (Creswell and Plano Clark 2011). The collection of qualitative data to explain the quantitative results provides several advantages to the study. Greene et al. (1989), following examination of 232 studies, explicitly provided five reasons for combining quantitative and qualitative research, namely, triangulation, complementary methods, development, initiation, and expansion. These five concepts outlined below provide guidance to the explanatory sequential mixed-method research design used in this thesis.

1. Triangulation: Seeks convergence, corroboration, correspondence or results for different methods (Greene et al., 1989). According to Bryman (2006) for triangulation, "the emphasis was placed on seeking corroboration between quantitative and qualitative data" (p. 105).
2. Complementary methods: Greene et al. (1989) explain that complementary methods "seek elaboration, enhancement, illustration, clarification of the results from one method with the results from the other method" (p. 259).
3. Development: Greene et al. (1989) note that development "seeks to use the results from one method to help develop or inform the other method, where development is broadly construed to include sampling and implementation, as well as measurement decisions" (p. 259).
4. Initiation: Greene et al. (1989) add that initiation "seeks the discovery of paradox and contradiction, a new perspective of frameworks, the recasting of question or results from one method with question or results from the other methods" (p.259).
5. Expansion: Greene et al. (1989) stated that expansion "seeks to extend the breadth and range of enquiry by using different methods for different inquiry components" (p.259).

4.5 Methods

This explanatory sequential mixed methods research design used both quantitative and qualitative methods to answer the research questions. The quantitative data were collected through a national cross-sectional survey, which is referred to as phase one. Following collection and analysis of the quantitative data in phase one, in-depth interviews were conducted in phase two of this study. The quantitative results of phase one assisted the researcher to design the semi structured in-depth interview guide for data collection (see Appendix E).

Phase One: Survey

The first phase of this study involved data collection using a self-administered survey questionnaire to all CPHNs in Fiji. A national survey on the actual activities of CPHNs would provide data on the socio-demographic background and their role in providing direct care, disease prevention and health promotion. The survey aimed to answer the following research questions:

1. What are the social and demographic characteristics of CPHNs working in Fiji?
2. What types of interventions undertaken by CPHNs relate to providing direct patient care?
3. What types of interventions undertaken by CPHNs relate to providing disease prevention and health promotion?
4. What levels of population-based practice (individual, community, or systems-based) are undertaken by CPHNs in different geographical locations for each type of intervention?
5. What are CPHNs' perceptions about their knowledge and clinical preparation for undertaking their current role?

According to Phillips et al. (2013), there are several advantages to conducting self-administered surveys. Firstly, large amounts of data can be collected from a significant number of participants at less cost. Secondly, once the survey instruments are developed, the survey is easy to administer. Thirdly, when the right questions are asked, the data can be used for improving programmes, benchmarking against similar organisations, and forecasting outcomes. Fourthly, it is timely, it takes minimal time to administer the instrument, and participants respond better compared to other techniques because of this. Finally, when a survey instrument is developed,

administered, and analysed appropriately, the accuracy of data can provide a high level of reliability.

Despite the number of advantages of a survey, there are certain limitations of this method that a researcher needs to consider. One major limitation of this study is that the researcher will not be able to identify participants for clarification and similarly, if the respondents have concerns about a question, they might not be able to get more information and may answer with limited understanding or may not respond at all. To reduce this problem, the researcher piloted the instrument with a group of CPHNs to remove all ambiguities and provide clarity to all questions. The CPHNs who were part of the pilot study contributed to the interventions they believed should be included in the survey, along with the frequency of these activities. The instrument was later reviewed by nine nursing academics with extensive experience in working as CPHNs to ensure the survey questions were accurately framed in the Fijian CPHN context.

The survey questionnaire was divided into two parts (see Appendix D). Part one of the survey collected data on socio-demographic characteristics, qualifications, and experience. In part two, CPHNs utilised a five-point scale (daily, weekly, monthly, quarterly, never) to report how often they engaged with each of the 72 interventions at different population-based levels (individual-focused interventions, community-focused interventions and systems-focused interventions). The second part was developed utilising the Public Health Intervention Wheel (previously discussed in Chapter two, Narrative Review), which outlines nurses' work explicitly at the individual and family, community, and systems levels. This section also uses a five-point scale to answer questions related to nurses' work at different practice levels in the Fijian context, and how CPHNs perceive their educational preparation assisted in performing this work. The questionnaire explores all CPHN activities related to the 17 core interventions on the Public Health Intervention Wheel Model at three practice levels.

Phase Two: In-depth Semi-Structured Online Interviews

The researcher conducted in-depth semi-structured online interviews to gain insights in CPHNs' work at different intervention levels. These in-depth semi-structured interviews were undertaken to explain and verify the current activities of CPHNs identified in phase one, to provide a greater understanding of CPHNs' work. This method provided a platform to evaluate the validity of the participants' answers in the survey by asking for clarification and possible

examples (Barriball & While, 1994). The online interviews involved data collection through a semi-structured interview guide, to ensure that all participants were asked key questions. In addition, the discussion allowed flexibility of follow-up questions via zoom. Online interviews were selected because in 2021 the researcher travelled to Fiji to undertake the data collection for the current study. However, during this time the Fijian government implemented COVID-19 lockdowns. The lockdowns made it impossible to undertake face to face data collection. Instead, the researcher conducted ten in-depth online interviews with CPHNs. This method also allowed validation of the survey results.

With the rise of technology over the last few decades, communication over distance has become much easier and convenient. Online interviews are one way to take advantage of this and connecting with people at their convenience, especially for those that are geographically dispersed (Sullivan 2012). However, Fontana & Frey (year) warn that with virtual interviewing, establishing an "interviewer-interviewee relationship" and living the moment while gathering information is difficult if not impossible, although they contend that this could possibly change in the future with technological advances (p. 151). In this study the researcher used zoom online interviews where the communication was visible. The researcher could see the gestures, shrugs, winks, smiles, frowns and verbal cues, which are all visible parts of the process allowing for impression management. An online communication tool such as Skype can nearly perfectly replicate in-person interactions, including genuine self-presentation. Whatever the mechanism used to acquire the data, there is no foolproof way to determine if someone is telling the truth about what they are revealing (Sullivan 2012).

In summary, this study used both quantitative and qualitative methods to collect data. This was done in two phases. The results of the phase one cross-sectional survey informed the second phase, which involved in-depth online interviews. Similar designs and methods have been used by authors in the same field studying the work of CPHNs in other countries (Table 4)

Table 4 Mixed Methods Research Designs and Methods

Reference	Aim of the study	Research design	Methods
(Roden et al., 2015)	Explore Australian rural, remote, and urban community nurses' health promotion role and function	Mixed methods Study design	Focus group interviews. Survey
(McKinlay et al., 2012)	Explores the workforce development needs of experienced PHC nurses in a provincial area of New Zealand.	Sequential mixed methods design	Survey Qualitative exploratory interviews
(Halcomb, Davidson, Griffiths, et al., 2008; Halcomb, Davidson, Salamonson, et al., 2008; Halcomb et al., 2007)	Describe the demographic and employment characteristics of Australian practice nurses and explore the relationship between these characteristics and the nurses' role. Identifies and explores the factors cited by practice nurses as impacting the development of their role in cardiovascular disease management. Identify priority recommendations to inform the strategic development of the practice nurse role	Sequential mixed-method design	Survey Telephone interviews
(Kemp et al., 2005)	Examine the congruence between community nurses' perceptions and the realities of changes in their work.	Mixed methods research design	Community health client administrative data 1995–2000. Occasions of service data 1995–2000. Staffing numbers 1998– 2001. Interviews

4.6 Participant Selection and Recruitment and Data Collection

Phase One: Survey

A comprehensive list of all nurses working as CPHNs was obtained from the Ministry of Health and Medical Services through the Chief Nurse and Midwifery Officer, along with their contact details for posting the questionnaires. All the Divisional Medical Officers, Divisional Directors of Nursing and Sub-divisional team leaders were provided with a copy of the ethics approval and facility permission was granted, before the distribution of survey questionnaires. The researcher identified a local person from the subdivisions who assisted with providing the best possible ways of contacting the CPHNs who were working in remote rural areas based far from the sub-divisional health centres. Of the total 644 CPHNs in Fiji, 100 worked at a nursing station while 544 were employed at a health centre (Ministry of Health and Medical Services, Fiji). There are four divisions in Fiji, and the CPHNs in the Eastern division numbered approximately (n=46), increasing in the Northern division (n=109) and the Western division (n=182) with the Central division having the largest number of CPHNs (n=307). A few positions were vacant awaiting posting and some nurses were away on annual/maternity leave to whom the questionnaires were not mailed. This meant a total of 600 survey questionnaires were mailed to all 600 CPHNs who were at work.

A self-administered survey was mailed to the CPHNs through their pigeonholes (cubbyholes). Participants in hard-to-reach areas and maritime zones (islands) were posted the survey questionnaire by mail. All participants were provided with a participant information sheet. The information sheet stated participants who completed the survey questionnaire would receive a thermometer for clinical use and that the thermometer would be placed in the envelope with the invitation and survey questionnaire to compensate for their time and effort in participating in the research (See Appendix B). They were informed that there was no potential harm or monetary benefit to the researcher by providing survey data. Completion and return of the survey implied consent.

All questionnaires were sent with a pre-labelled envelope, which participants used to return the questionnaire to the researcher. All participants were sent a follow-up reminder at two weeks to encourage completion of the questionnaire. Considering the geographical layout of Fiji and limited transportation to the many islands, the researcher had to advertise the study to

all participants to achieve a reasonable response rate. Some participants in this study worked in remote rural areas, so sending the questionnaire out and getting them returned took some time. To overcome this limitation, the researcher established contact with CPHNs at the sub-divisional level, who could further contact those in rural, remote areas and remind them to compete and return the questionnaire if they were willing to participate. This method of data collection was time consuming, but it allowed participants who had no access to the internet to participate in this study.

A digital thermometer (incentive) was placed inside the envelope with the questionnaire. This was given as a *koha*[13] (gift) in recognition of the time participants gave to complete the survey questionnaire. Dillman (2000) named five elements that significantly improved the response to mail surveys in most situations. He suggested sending a token of appreciation in advance as a goodwill gesture, especially if the offer is made in a pleasant way. This increases the trust of the participants in the study. Other elements that improve the response include a friendly questionnaire, multiple contacts, return envelopes with stamps included, personalisation of correspondence, and a prepaid token (Dillman, 2000). All of these elements were embedded in this study. The personalisation of correspondence ensured that envelopes included participants' names and designations when they were sent out.

Phase Two: In-depth Semi-Structured Online Interviews

Analysis of phase one data, showed most of the participants identified their primary role as Zone Nurse, General Outpatient Nurse (GOPD) and District Nurse (Rural Remote Nurses). Other participants identified their roles as Maternal Child Health (MCH) Nurse, Integrated Management of Childhood Illness (IMCI) Nurse, Family Planning (FP) Nurse and School Health Nurse working in the area of maternal child health care. The other three roles identified were Special Outpatient Nurse (SOPD), Management of long-term illness, Footcare Nurse and Home-Based Care (HBC), which are involved with managing clients with long-term conditions. These primary roles were chosen to explore the activities of providing direct patient care, disease prevention and health promotion. The study mapped key details, such as the number of CPHNs who participated in the study, primary nursing roles, geographical locations, and health facilities in a table (see Table 5 and Table 6). Those who participated in interviews were selected

[13] *Koha:* Formal koha is the giving of gifts or money.

from urban, peri-urban, rural, and maritime districts to ensure representation from these diverse practice locations.

Table 5 Process of Participant Selection

Primary Role	No. of CPHN who participated in the survey	Geographical location:	Health setting:	No. of Participants for Interview
Zone Nurse (MCH, School)	144	Urban/Peri-Urban – 2 Rural - 2	Health Center	3
General Outpatient Nurse (GOPD)	119	Urban/Peri-Urban – 1 Rural - 1	Health Centre	1
District Nurse - Rural Remote Nurses	67	Remote Rural- 1 Maritime - 1	Nursing Station	2
Maternal Child Health (MCH) Nurse	32			0
Integrated Management of Childhood Illness (IMCI) Nurse	25	Urban/Peri-Urban	Health Centre	1
Family Planning (FP) Nurse	23			0
School Health Nurse	18			0
Special Outpatient Nurse (SOPD) - Management of long-term illness	16	Rural	Health Centre	1
Footcare Nurse	8	Urban	Health Centre	1
Mental Health Nurse	4			0
Antenatal Care Nurse (ANC)	1			0
Home-Based Care (HBC) Nurse	1	Urban/Peri-Urban	Health Centre	1
Total	**458**			**10**

Table 6 Process of participant selection by division for qualitative in-depth online interviews

Division	Primary Role	Geographical location	No.
Central (4)	Zone Nurse (MCH, School)	Urban/Peri-Urban	1
	General Outpatient Nurse (GOPD)	Urban/Peri-Urban	1
	Home-Based Care (HBC) Nurse	Urban/Peri-Urban	1
	Integrated Management of Childhood Illness (IMCI) Nurse	Urban/Peri-Urban	1
Western (2)	Special Outpatient Nurse (SOPD) - Management of long-term illness	Rural	1
	Footcare Nurse (GOPD)	Urban/Peri-Urban	1
Northern (2)	Zone Nurse (MCH, School)	Urban/Peri-Urban	1
	District Nurse	Remote Rural	1
Eastern (2)	Zone Nurse (MCH, School)	Maritime	1
	District Nurse	Maritime	1
Total			**10**

Purposeful sampling was used to recruit CPHNs with more than three years of nursing experience. The researcher identified potential participants during the phase one survey fieldwork. Selected participants were provided with a participant information sheet (See Appendix A) to invite them to participate in the online in-depth interviews. Participants were informed that the interview was video recorded on Zoom at an agreed day, place and time and was planned to suit the participants, ensuring they had internet connectivity and on-line zoom facilities. Two participants from the maritime, declined to take part as they did not have smart phones and internet connectivity. All participants were given a *koha* of $7.00 for using their internet data. All the interviews were conducted in the English language.

4.7 Ethical Consideration

Ethics approval was sought from the Fiji National Research Ethics Committee, the National Health Research Committee (FHREC 14/2020) and the Massey University Human Ethics Committee (NOR 20/08) prior to commencing data collection.

Online in-depth interview

All participants were provided with a participant's information sheet to read and decide on participation. Those who agreed were provided with information on informed and voluntary consent if they wished to be part of the online in-depth interview before data collection (See Appendix B). Participants were not pressured or forced to be part of the study. They had the right to refuse or withdraw from the study until the time of data analysis. All potential participants were informed that their names would not appear in any report or discussion/forums ensuring confidentiality of collected data and ensuring that anonymity and privacy of participants was maintained. All CPHNs´ views were respected, and the Fijian cultural protocols were followed allowing participants to speak freely and thanking them at the end of the interviews. All participants were assured of privacy and confidentiality regarding the data they provided. All the data collected was kept confidential, de-identified, and secured; hard copies of documents were locked in a cabinet at Massey University while all electronic data were kept in a password-protected computer for five years. De-identified data was only shared with doctoral supervisors for analysis purposes.

All participants received a participant information sheet about the study. They were informed that there was no potential harm or monetary benefit to the researcher by being interviewed. The participant information sheet also outlined that participants who participated in the in-depth interviews would be compensated for internet data and receive a koha of $7.00 for their participation.

All participants were respected, and all possible means was used to minimise harm and any potential conflict of interest. The study aimed to collect data on CPHNs´ daily work; the researcher did not foresee any safety issues related to participants. All participants were public health experts from Fiji who understood and had a good command of the English language in which the discussion was conducted.

4.8 Data Analysis

Phase One: Statistical Analysis

Data cleaning

Survey data was manually entered into the Statistical Package for Social Sciences (SPSS) version 27. Data were screened and checked by analysing frequency tables for all the variables. The frequency results revealed six missing values and two missing entries (fields), which were rectified. Participants with data errors were identified by a unique identity number and original survey forms were reviewed, and all data entry errors corrected. Frequency analysis for all variables was repeated to recheck the accuracy of data. Nil errors were identified in the second round of data screening.

Analysis Overview

Descriptive analysis

Descriptive analyses were performed using frequency tables and percentages. These frequencies and percentages were used to describe participants' demographic data, current primary role and other roles by Health Centre and Nursing Station. Descriptive analyses were also used to describe how often (daily, weekly, monthly, quarterly, and never) types of interventions were undertaken by CPHNs.

Inferential analysis

Inferential statistics were performed to identify relationships between demographic data and health facility or geographical practice location. Inferential statistics were also undertaken to identify relationships between geographical practice location and how often (daily, weekly, monthly, quarterly, never) the interventions were performed by CPHNs. This was important in the Fijian context to identify varying nursing practices in different practice locations. Inferential statistical analysis of the ordinal data utilised the Chi-Square linear by linear association test to determine if differences between groups were more than expected by chance (Schober 2019). The Fisher's Exact Test was used when the Chi-Square assumptions were not met. Cramer's V was used to determine effect size (Pallant 2020). All statistical tests were two-tailed and the

alpha level for statistical significance was set at ≤ 0.05. All analyses were conducted using Statistical Package for Social Sciences (SPSS) version 27.

The Chi-Square Test

The Chi-Square test is a statistical test, which measures the association between two categorical variables. The test compares what would be expected if the hypothesis were true, against what has actually been observed. (Ugoni & Walker, 1995). The Chi-Square test was used to determine the association between demographic variables and health facility or geographical practice location. The Chi-square test was also used to determine the association between how often CPHNs undertook interventions (daily, weekly, monthly, quarterly, or never) and geographical practice location. The geographical practice locations were urban/peri-urban; rural and remote rural; and maritime. In geographical locations with small numbers, less than five, data were combined and three locations created (urban/peri-urban; rural; and remote rural/maritime) to meet the assumptions of the Chi-Square test. The Chi-Square outputs were reviewed and counts and expected counts were observed for each cell. Counts that were more or less than expected by chance were described.

Fisher's Exact Test

The Fisher's Exact Test was used when the Chi-Square assumptions were not met. The Fisher's Exact Test determines whether a statistically significant association exists between two categorical variables. The Fisher's Exact Test is applicable when the sample size is small, and not meeting the Chi-Square assumption of requiring 80% of cells being greater than 5 (Kim, 2016).

Cramer's V

Cramer's V was used to determine the effect size (Pallant 2020). Cramer's V is a measure of effect size, which measure the magnitude of difference (Marchant-Shapiro, 2014). The Cramer's V test was conducted to determine if there was a small, moderate, or large effect size (Kim, 2017) (See Figure 12) and the magnitude of differences between the groups if they existed. According to Vrbin (2022) "effect size represents the magnitude of the difference between two variables or the magnitude of the relationship between two variables" (p. 302).

Figure 12 The effect size for a chi-squared test, Cramer's V and its interpretation.

Degree of freedom	Small	Medium	Large
1	0.10	0.30	0.50
2	0.07	0.21	0.35
3	0.06	0.17	0.29
4	0.05	0.15	0.25
5	0.04	0.13	0.22

Analysis of direct patient care interventions with health promotion and disease prevention and interventions

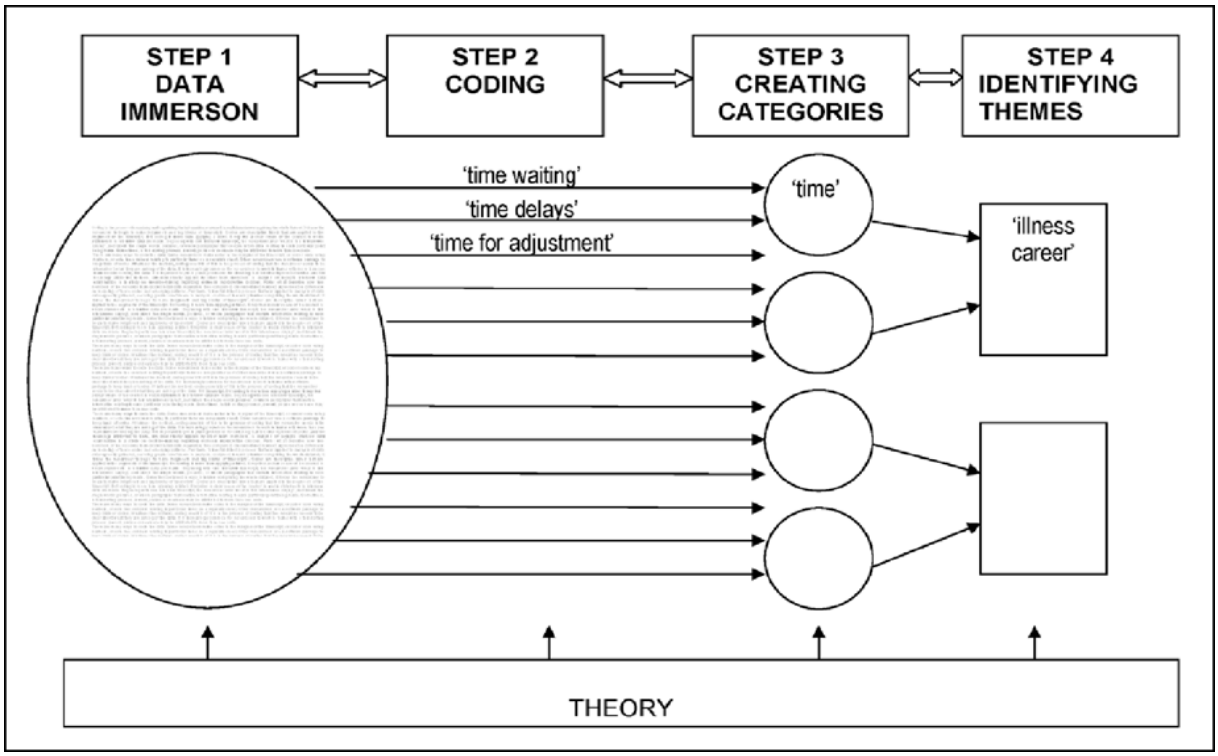
To provide a summary of CPHNs' work, analysis was also undertaken which summarised nurses' work into broader health promotion and primary prevention focus and direct patient care. All the interventions were divided into direct patient care versus health promotion/primary prevention. Please see section 5.6 (page 174) for details of how this was achieved and the assumptions made. These data were challenging to analyse for several reasons: 1) the responses in these two categories i.e. health promotion/primary preventionand direct care were reported by the same nurses and therefore not independent; 2) there were a different number of items in the health promotion/primary preventioninterventions versus the direct care interventions so using addition to provide two summary measures for analysis would not produce correct results; and 3) some interventions were, by nature, performed less or more often than others. To account for some of these factors, we generated descriptive tables and calculated the average number for daily, weekly, monthly, quarterly activities for direct patient care and health promotion/primary prevention. A Chi-Square test was run on the average numbers to ascertain if these two variables were independent or not. Counts and expected counts were observed and where counts were more/less than expected by chance these were described. This analysis was also undertaken by geographical practice location. See limitations section for further discussion.

Phase Two: Thematic Analysis

Phase two study collected qualitative data, that was thematically analysed to identify themes. Four essential steps of thematic analysis as outlined by Green et al. (2007) were used, which included: data immersion, coding, creating categories and identifying themes as illustrated in Figure 13. Firstly, the researcher read the transcribed data to understand and familiarise

himself with the data. Secondly, the data were assigned codes, with a clear sense of context based on the 17 interventions from the Public Health Intervention Wheel Model. Thirdly, the codes were re-examined to see how they are related to creating categories. The fourth and final step involved generating themes, which required the explanation of the themes, with theories relevant to the study. To ensure consistency, the researcher analysed the qualitative data and formulated themes. These were reviewed by a second experienced researcher to ensure consistency in the interpretation of meaning and coding. The data was thematically analysed according to the framework below.

Figure 13 Four steps of data analysis to generate the best qualitative evidence[14].



4.9 Research Soundness

The foundation of a good study is based on the trustworthiness of the results collected from stringent procedures. The choice of validity procedures is influenced by the lens the researchers use to validate the studies and the researcher's paradigm assumptions (Creswell & Miller, 2000). This study was conducted using the post-positivist paradigm for which Giddings and

[14] Adopted from the four steps of data analysis to generate the best qualitative evidence Green, J., Willis, K., Hughes, E., Small, R., Welch, N., Gibbs, L., & Daly, J. (2007). Generating best evidence from qualitative research: the role of data analysis. *Australian and New Zealand Journal of Public Health*, *31*(6), 545-550. .

Grant (2009) suggested the use of reliability, validity and generalisability processes being applied to mixed methods research design studies to ensure the accuracy of data collection and analysis of both quantitative and qualitative components.

Rigour for phase one – Survey

The survey was a self-administered questionnaire, and thus the results could have been influenced by self-reporting bias. Althubaiti (2016) emphasised two main issues with self-reporting bias, which are - social desirability bias and recall bias. With social desirability bias, participants provide answers, which they feel are more socially desirable or acceptable rather than reflecting their actual thoughts and feelings. The researcher was able to minimise this by providing maximum anonymity and confidentiality at the time of data collection. A second issue relates to recall bias, which is caused by the inability of the participants to remember events thoroughly, causing underestimation or overestimation. In this study, the researcher did not anticipate that recall bias played a huge role as the survey questions were designed with a focus on demographic data, routine work, and the frequent events that CPHNs undertake in their daily work, which they could likely remember.

Heale and Twycross (2015) define validity "as the extent to which a concept is accurately measured in a quantitative study" (p.66). Giddings and Grant (2009) suggested two broad scopes of validity. The first is measurement validity, which includes face validity, content validity, and construct validity. The second is design validity, which includes internal validity (credibility) and external validity (generalisability). Regarding measurement validity, Bryman (2016) defines face validity as how the “measure apparently reflects the content of the concept in question” (p. 159). To ensure face validity, the questionnaire was presented to CPH nursing academics, CPHN leaders, and senior practice nurses in Fiji, for their input. After consultation and revisions, the study supervisors were also consulted on the content and construct validity and the survey questionnaire was piloted with CPHNs and discussed with other CPH nursing experts. This stage of data collection and analysis informed the online in-depth interviews with 10 CPHNs. Content validity refers to the comprehensiveness of the questions that cover the scope of the study (McDowell, 2006). Content validity ensures that the measure covers the area it is intended to cover. This was achieved by using the Public Health Intervention Wheel Model, which comprehensively details various CPH nursing interventions at different population levels.

Community Public Health nursing academics and experienced staff in Fiji were consulted to ensure that all the CPHN activities were covered.

To address design validity and to increase internal validity, the researcher ensured careful study planning, adequate quality control, adequate recruitment strategies, data collection, data analysis, and numbers of participants. External validity (generalisability) was increased by the survey design and ensuring strategies were in place to ensure a good response rate. Strategies used in this study included a thermometer as koha and the stamped address envelope to return the survey.

Validity was further increased by using quantitative and qualitative data and cross-checking findings (triangulation). This study used a survey questionnaire with a full description of the implementation process, data collection and data analysis strategies that can be reproducible by other researchers studying CPHNs' work. An electronic copy of the completed thesis, which includes the survey, will be available through the Massey University Library.

Rigour for phase two- In-depth Semi-Structured Online Interviews

The latter part of the study collected qualitative data for which Guba (1981) suggested four criteria to ensure trustworthiness: credibility, transferability, dependability, and confirmability. Shenton (2004) suggested several strategies under these four criteria that can be used to ensure trustworthiness in qualitative research studies. Firstly, to ensure credibility this study used appropriate and well-recognised methods that have been successfully used by other authors (See Table 1). This study design was presented at a national nursing conference in the presence of Fiji registered nurses and nursing leaders for their contribution. It was later presented at the Sangam College of Nursing and Healthcare Education to academics for peer scrutiny and feedback. The comments and suggestions from these presentations were valuable in planning this study in the Fijian context and ensuring the survey questions were clear and without ambiguity. This study further utilised triangulation where data was drawn using two different methods: the surveys and in-depth semi-structured online interviews. The researcher met with the participating organisations and developed familiarity with the people and their culture. This was mainly to understand how they communicated and the best ways of sending and receiving mail. Before data collection, participants were given opportunities to refuse to take part in the study, to ensure those genuinely interested would provide data. The study

supervisors were frequently debriefed to widen the researcher's options and alternative approaches and at the same time remove flaws to ensure best practice. Guba and Lincoln (1994) strongly suggested the use of member checks, which involves checking the accuracy of the data "on the spot," to ensure that members agree with what they intended to say Shenton (2004). By seeking clarification, the researcher ensured all participant answers were interpreted correctly by him .

To further ensure credibility, the researcher made his position clear in terms of his background, qualifications, and experience as a researcher in his personal statement (Section 1.4). That position is an important element for qualitative research, as the researcher himself will be the instrument of data collection and analysis (Shenton, 2004). Finally, reflective commentary in every data collection session is discussed. The researcher documented the experience of data collection, which provided an audit trail. The researcher also kept a reflective journal to keep an account of personal experiences and perceptions.

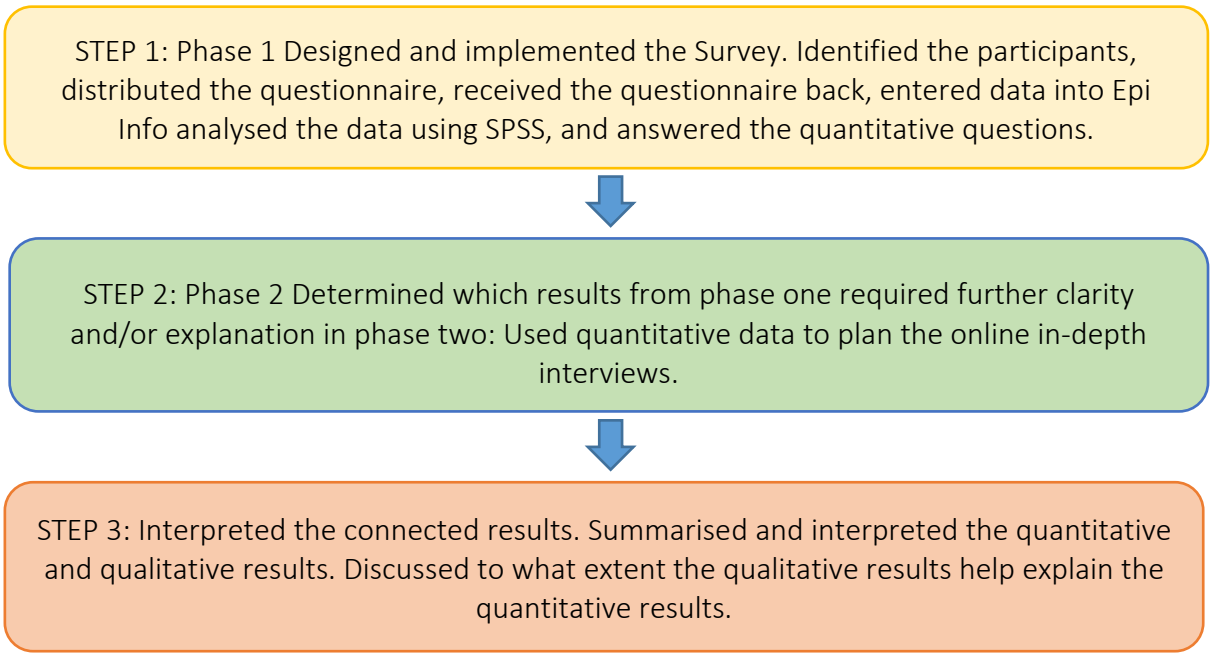
Transferability was assured by providing the full background and context of the study with a detailed account of CPHNs' work in Fiji so that readers can compare these results to other Pacific Island countries. In this thesis, the researcher provides information about the Ministry of Health and Fiji's health sector, background of participants, number of participants and methods of data collection, data analysis the length of data collection sessions, and the period over which data was collected (Shenton, 2004).

The third aspect to ensure trustworthiness is dependability for which Guba (1981) suggested "using overlapping methods" and "in-depth methodological description to allow the study to be repeated for consistency". In this thesis, the researcher describes the surveys and in-depth interviews to ensure overlapping methods and includes in-depth descriptions of methods of data collection and analysis so that the study could be replicated. Lastly, confirmability was achieved as suggested by Shenton (2004) as "triangulation to reduce the effect of investigator bias, admission of researcher's beliefs and assumption, in-depth methodological description to allow integrity of research results to be scrutinised, and the use of diagrams to demonstrate audit trail".

Finally, the issues related to reliability which is considered important in qualitative data if different individuals are coding the data, which is referred to as intercoder agreement in

qualitative research (Creswell & Plano Clark, 2011). This was not an issue for this study as the researcher solely collected and coded the data, which was then checked by the supervisors. See Figure 14 for the different steps the researcher took to complete the study.

Figure 14 Flowchart of explanatory sequential mixed methods design[15]



4.10 Chapter Summary

This chapter has provided an overview of this post-positivist, explanatory sequential mixed methods research design used to answer the research questions of this study. This study was divided into two phases. The first phase was a survey, which identified the social and demographic characteristics of CPHNs working in Fiji and the different types of interventions they undertook in relation to providing direct patient care, disease prevention and health promotion. The survey was also designed to identify the various levels of population-based practice (individual/family, community, and systems) and the perceptions of their current roles, knowledge and clinical preparation. The second phase of the study used online in-depth interviews of CPHNs with different roles. These interviews aimed to identify if CPHNs perceived that their role had changed, and if so, in what ways over the past ten years and the possible reasons for that change. The second phase also presented an opportunity to provide some

[15] Source: Developed by the author.

clarification and/or explanation to the findings of phase one and the greatest difficulties faced by CPHNs in Fiji in their everyday work. All data collection was strictly done according to ethical research standards, utilising methods that ensured reliable and valid data collection methods. The following sections will present the quantitative results of the study.

CHAPTER 5 RESULTS: PHASE 1 SURVEY

The previous chapter presented the study methodology. This chapter includes the results of phase one, the paper-based survey, with the CPHNs about their everyday work, in regards to the 17 different interventions.

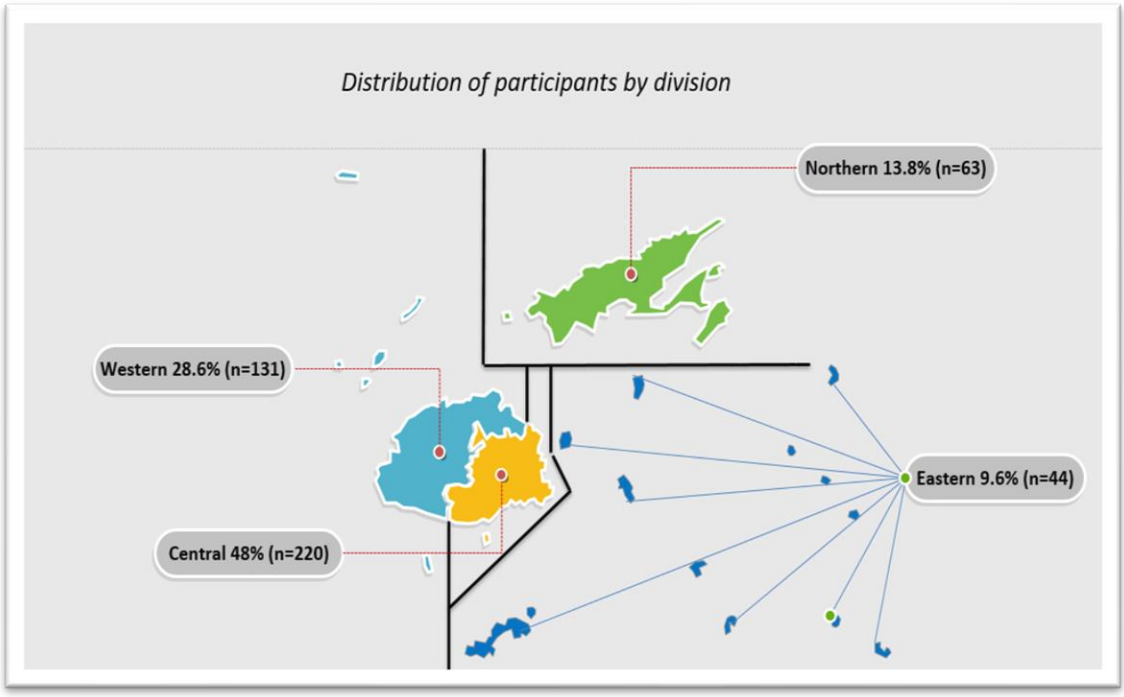
All the participants were CPHNs working at nursing stations (NSs) and health centres (HCs) from different divisions. The results of the survey answer the following research questions:

1. What are the social and demographic characteristics of CPHNs working in Fiji?
2. What types of interventions undertaken by CPHNs relate to providing direct patient care?
3. What types of interventions undertaken by CPHNs relate to providing health promotion and primary disease prevention?
4. What levels of population-based practice (individual, community, or systems) are undertaken by CPHNs in different geographical locations?
5. What are CPHNs' perceptions of their knowledge and clinical preparation for undertaking their current role?

5.1 Participants Demographics

A total of 458 community public health nurses (CPHN's) participated in this study (73.6% response rate). Most participants were *iTaukei* (Indigenous people of Fijian Islands, n= 258, 56.3%,) or Fijian of Indian descent (n= 189, 41.3%), with only small numbers identifying as Fijians of other descent (n=5, 1.1%) and other (n=6, 1.3%). The largest group of CPHNs were from the Central division (n= 220, 48%), with fewer in Western division (n=131, 28.6%), Northern division (n=63, 13.8%) and Eastern division (n=44, 9.6%) (see Figure 15)

Figure 15 Distribution of participants by division



Community public health nurses from all the twenty subdivisions participated in this study, with the largest group being from Suva (n=126, 27.5%). The small numbers of nurses in the other subdivisions were from the maritime islands such as Lakeba (n=12, 2.6%), Kadavu (n=10, 2.2%), Taveuni (n= 8, 1.7%), Lomaloma (n=3, 0.7%) and Rotuma (n=3, 0.7%). These maritime islands have a small population size, with few health facilities and thus have a small number of CPHNs employed there.

The majority (n=403, 88%) of CPHNs were female (male n=54, 11.8%) and either younger than 34 years (n= 276, 60.3%) or 35 to 49 years of age (n= 178, 38.8%); few participants were older due to the compulsory retirement age of civil servants in Fiji. Nearly 50% (n=228) of CPHNs worked in urban/peri-urban areas, while the other 25.3% (n=116,) worked in rural, rural-remote, highlands (n=55, 12%) and maritime islands (n=59, 12.9%) (see Table 7). In Fiji, participants either work at a nursing station (99 stations) or a health centre (86 stations). In this survey, 86.5% (n=396,) of all participants worked at health centres. A total of 62 (13.5%) participants worked at one of the 99 nursing stations, indicating a good representation of this group (62.6%) (Table 7). There was no association between the participants' gender and the health facilities they served (X^2=2.42, p=.120). However, there was a significant association

between the participants' geographical practice location and age group, ethnicity and the health facility they served (Table 7).

Table 7 Participants demographics N= (458)

Demographics Categories	Health Centre n (%)	Nursing station n (%)	Total n (%)	Statistical test
Geographical Practice Locations				
Urban/ Peri Urban	228 (49.8)	0 (0)	228 (49.8)	
Rural	99 (21.6)	17 (3.7)	116 (25.3)	X^2=102.22,
Rural Remote	35 (7.6))	20 (4.4)	55 (12.0)	p=<.001
Maritime	34 (7.4)	25 (5.5)	59 (12.9)	
Gender				
Male	43 (9.4)	11 (2.4)	54 (11.8)	
Female	352 (77.0)	51 (11.2)	403 (88.0)	X^2=2.42,
Gender diverse	0 (0)	1 (0.2)	1 (0.2)	p=<.120
Ethnicity				
iTaukei	201 (43.9)	57 (12.4)	258 (56.3)	FET 46.244,
Fijian of Indian descent	185 (40.4)	4 (0.9)	189 (41.3)	p=<.001
Fijian of Other descent	5 (1.1)	0 (0)	5 (1.1)	
Other	5 (1.1)	1 (0.2)	6 (1.3)	
Age				
20 to 24	10 (2.2)	0 (0)	10 (2.2)	FET 16.683
25 to 29	141 (30.8)	15 (3.3)	156 (34.1)	p=<.014
30 to 34	90 (19.7)	20 (4.4)	110 (24)	
35 to 39	74 (16.2)	19 (4.1)	93 (20.3)	
40 to 44	42 (9.2)	8 (1.7)	50 (10.9)	
45 to 49	35 (7.6)	0 (0)	35 (7.6)	
50 to 54	3 (0.7)	0 (0)	3 (0.7)	
55 to 59	1 (0.2)	0 (0)	1 (0.2)	
60 +	0 (0)	0 (0)	0 (0)	

Analysis highlighted 31.4% (n=144) of CPHNs identified their primary role as zone nurse[16]; 26% (n=119) as general outpatient nurses, and 14.6 % (n=67) as district nurses[17]. It was observed

[16] The zone nurses and district nurses provide direct care, disease prevention and health promotion activities within their geographical practice location, known as the catchment area in the Fijian context. The catchment may include villages, schools, and settlements with a population size of 200 individuals on an island to 14,000 people in an urban area.

[17] These are nurses working in rural remote areas managing a nursing station.

that there were fewer nurses working in specialist areas, such as Maternal Child Health (MCH) nurses, Integrated Management of Childhood illness (IMCI) nurses, Family Planning (FP) nurses, School Health nurses, Special Outpatient nurses (SOPD) - management of long-term illness, Footcare nurses, Mental Health nurses, Antenatal Care nurses (ANC) and Home-Based Care (HBC) nurses (Table 8).

Table 8 Participants current primary role (N=458)

Current primary role	Current Primary Role n (%)		Other Roles (Yes/No) n (%)	
Zone Nurse	144	(31.4)	*	
General Outpatient Nurse (GOPD)	119	(26.0)	293	(52.2)
District Nurse - Rural Remote Nurses	67	(14.6)	*	
Maternal Child Health (MCH) Nurse	32	(7.0)	267	(58.3)
Integrated Management of Childhood Illness (IMCI) Nurse	25	(5.5)	267	(58.3)
Family Planning (FP) Nurse	23	(5.0)	247	(53.9)
School Health Nurse	18	(3.9)	132	(28.8)
Special Outpatient Department Nurse (SOPD)	16	(3.5)	179	(39.1)
Footcare Nurse	8	(1.7)	124	(27.1)
Mental Health Nurse	4	(0.9)	117	(25.5)
Antenatal Care Nurse (ANC)	1	(0.2)	147	(32.1)
Home Based Care (HBC) Nurse	1	(0.2)	171	(37.3)
Eye Care Nurse	0		38	(8.3)
Palliative Care Nurse	0		81	(17.7)
TB Liaison Nurse	0		46	(10)
Total	458	(100)	458	(100)

*Zone Nurse and District Nurse are both primary roles thus it was not an option as other roles.

Apart from their primary role, CPHNs also identified that they performed other roles at the health facilities (see Table 9). The three most identified other roles were in all in the field of Maternal Child Health nursing and included Integrated Management of Childhood illnesses (IMCI) nurse (n= 267, 58.3%), Maternal Child Health (MCH) nurse (n= 267, 58.3%) and Family Planning nurse (n= 247,53.9%). Moreover, the participants identified providing direct clinical care in three main areas as other roles. This included (n= 293, 52.2%) General Outpatient nurse, Special Outpatients' Clinic nurse, managing clients with non-communicable diseases (n= 179, 39.1%,) and Home-based Care nurse (n= 171, 37.3%) mainly. The two other CPHN roles focused

on health promotion and disease prevention including Antennal Care nurse (n= 147, 32.1%) and School Health nurse (n= 132, 28.8%).

The remaining other roles were related to communicable and non-communicable disease management in the community. These five roles include Footcare nurse (n= 124, 27.1%), Mental Health nurse (n= 117, 25.5%), Palliative Care nurse (n= 81, 17.7%), Tuberculosis Liaison Officer (n= 46, 10%) and Eye care nurse (n= 38, 8.3%). Excluding eye care nurse, these other roles were more common for CPHNs working in health centres than in nursing stations (Table 9).

Table 9 Participants other roles by Health Centre and Nursing Station (N=458)

Types of other roles	Number of Participants with other roles n (%)	Health Center	Nursing Station	Statistical Test
General Outpatient Nurse (GOPD)	293(52.2)	189(41.3)	50 (10.9)	X^2=23.28, p= <.001
Maternal Child Health (MCH) Nurse	267 (58.3)	213 (46.5)	54 (11.8)	X^2=24.46, p=<.001
Integrated Management of Childhood Illness (IMCI) Nurse	267 (58.3)	214 (46.7)	53 (11.6)	X^2=21.80, p=<.001
Family Planning (FP) Nurse	247 (53.9)	195 (42.6)	52 (11.4)	X^2=25.87, p=<.001
School Health Nurse	132 (28.8)	101 (22.1)	31 (6.8)	X^2=15.67, p=<.001
Special Outpatient Department Nurse (SOPD)	179 (39.1)	132 (28.8)	47 (10.3)	X^2=40.61, p=<.001
Footcare Nurse	124 (27.1)	92 (20.1)	32 (7.0)	X^2=21.86, p=<.001
Mental Health Nurse	117 (25.5)	82 (17.9)	35 (7.6)	X^2=36.01, p=<.001
Antenatal Care Nurse (ANC)	147 (32.1)	98 (21.4)	49 (10.7)	X^2=72.48, p=<.001
Home Based Care (HBC) Nurse	171 (37.3)	132 (28.8)	39 (8.5)	X^2=20.03, p=<.001
Eye Care Nurse	38 (8.3)	20 (4.4)	18 (3.9)	X^2=40.52, p=<.001
Palliative Care Nurse	81 (17.7)	61 (13.3)	20 (4.4)	X^2=10.46, p=<.001
TB Liaison Nurse	46 (10)	35 (7.6)	11 (2.4)	X^2=4.70, p= <.030
Total	**458 (100)**			

5.2 Qualifications of CPHNS

The first qualification of most participants was a Diploma in Nursing (n=342, 75.2%), followed by the Bachelor of Nursing (n=113, 24.8%). However, the most common current educational qualification was a Bachelor of Nursing (n= 356, 77.9%), followed by Diploma in Nursing (n= 101, 22.1%). This change reflected that 53% (n=241) of participants upgraded their qualification from Diploma to Bachelor of Nursing, likely following its first introduction in Fiji in 2016. There was a significant association between current nursing qualification and health setting (X^2=23.16, p < .001); a moderate effect size was found (V= .22, p= <.001). More CPHNs working at health centres had a Bachelor of Nursing than had been expected and fewer had a Diploma of Nursing than expected, while more nurses working at stations, had a Diploma of Nursing and and Bachelor of Nursing less han expected (Table 10).

Only 9.2% (n= 42) of participants had a postgraduate qualification (see Table 10). There was no association between a postgraduate nursing qualification and the health setting in which nurses worked (X^2=0.584, p=.444) As shown in Table 10, only five nurses had Post Basic Certificate/Diploma in Public Health Nursing (1.1%); 12 CPHNs (2.7%) had a Post Graduate Certificate or Diploma in Public Health Nursing. As with public health nursing, a small number of participants had a Midwifery qualification. For all other postgraduate qualifications, no association was identified between postgraduate qualification and health setting (Table 10).

A total of 18.2% (n= 83) CPHNs were engaged with formal professional development with the majority enrolled in Bachelor of Nursing lateral entry programmes (n=55, 12.0%). The other programmes CPHNs were enrolled in are outlined in Table 10.

Table 10 Participants qualification

Demographics Categories	Health Centre n (%)	Nursing Station n (%)	Total	Chi Square / Fishers Exact and P value
First Nursing Qualification				
Diploma in Nursing	292 (64)	50 (11)	342 (75.2)	
Bachelor of Nursing	102 (22.4)	11 (2.4)	113 (24.8)	X^2=1.82 p= <.177
Current Nursing Qualifications				
Diploma in Nursing	73 (16)	28 (6.1)	101 (22.1)	
Bachelor of Nursing	323 (70.7)	33 (7.2)	356 (77.9)	X^2=23.16 p= <.001
Do you have a Postgraduate qualification				
Yes	38 (8.3)	4 (0.9)	42 (9.2)	
No	358 (78.3)	57 (12.5)	415 (90.8)	X^2=0.58 p= <.444
Are you currently studying towards a qualification				
Yes	68 (14.8)	12 (2.6)	80 (17.5)	
No	328 (71.6)	50 (10.9)	378 (82.5)	X^2=0.17 p= <.674
What PG Qualification do you have				
PG Certificate/ Diploma in Midwifery	7 (1.5)	3(0.7)	10 (2.2)	*FET 6.85* p= .24
Post Basic Certificate/Diploma in Public Health Nursing	4 (0.9)	1 (0.2)	5 (1.1)	*FET 4.95* p= .86
PG Certificate/ Diploma in Mental Health Nursing	4 (0.9)	1 (0.2)	5 (1.1)	NS
PG Diploma in Nursing Management	4 (0.9)	0 (0)	4 (0.9)	NS
Master of Nursing	4 (0.9)	0 (0)	4 (0.9)	NS
PG Certificate in Public Health	8 (1.7)	1 (0.2)	9 (2.0)	NS
PG Diploma in Public Health	2 (0.4)	1 (0.2)	3 (0.7)	NS
PG Diploma in Eye care	0 (0)	0 (0)	0 (0)	-
Master of Public Health	0 (0)	0 (0)	0 (0)	-

Demographics Categories	Health Centre n (%)	Nursing Station n (%)	Total	Chi Square / Fishers Exact and P value
Health or nursing qualification that participants enrolled in				
Bachelor of Nursing	46 (10.1)	9 (2.0)	55 (12.1)	NS
PG Diploma in Midwifery	6 (1.3)	0 (0)	6 (1.3)	NS
Post Graduate Diploma in Public Health Nursing	2 (0.4)	1 (0.2)	3 (0.7)	NS
Post Graduate Diploma in Mental Health Nursing	2 (0.4)	0 (0)	2 (0.4)	NS
Post Graduate Diploma in Nursing Management	7 (1.5)	0 (0)	7 (1.5)	NS
Master of Nursing	1 (0.2)	0 (0)	1 (0.2)	NS
Post Graduate Certificate in Public Health	2 (0.4)	0 (0)	2 (0.4)	NS
Post Graduate Diploma in Public Health	5 (1.1)	1(0.2)	6(1.3)	NS
Post Graduate Diploma in Eye care	1(0.2)	0 (0)	1 (0.2)	NS
Highest Nursing Qualification				
Certificate	1(0.2)	0 (0)	1(0.2)	NS
Diploma	67 (14.6)	24 (5.2)	91 (19.9)	NS
Degree	293 (64)	34 (7.4)	327 (71.4)	NS
Post Graduate	31(6.8)	4 (0.9)	35 (7.6)	NS
Masters	4 (0.9)	0 (0)	4 (0.9)	NS

Note. NS – Not significant

The CPHNs with postgraduate qualifications predominantly worked in urban and peri-urban areas (n= 31, 73.8%) with less working in rural (n= 6, 14.3%), Maritime (n=3, 7.1%) and remote rural (n= 2, 4.8%) areas (X^2=10.703, p=.01); a moderate effect size was found (V= .153, p= <.013) (Table 11). More CPHNs had a postgraduate qualification in urban/peri-urban areas than expected while CPHNs in rural, remote rural and maritime had less postgraduate qualifications than expected.

Table 11 Participants qualification by geographical practice location

Post Graduate Qualification	Geographical Practice Location N (%)				Total Frequency N (%)	Chi-Square / P value
Do you have a Post graduate qualification	Urban / Peri-urban	Rural	Remote Rural/	Maritime		X^2=10.703, p =< .01
Yes	31 (73.8)	6 (14.3)	2 (4.8)	3 (7.1)	42 (9.2)	
No	197 (43.1)	107(23.9)	53 (11.6)	56 (12.3)	415 (90.8)	

5.3 Experience

Most CPHNs were very experienced, with over 70% having more than six years of nursing experience. With regards to experience in public health, almost an equal percentage of nurses (n=241, 53.0%) had less than five years of CPH nursing experience, with just under 50% having between six to over 11 years nursing experience (Table 12). There were no significant associations between health settings and nursing experience or community public health nursing experience.

Table 12 Years of Nursing / CPH nursing experience

Demographics Categories	Health Centre n (%)	Nursing Station n (%)	Total	Statistical test
Nursing Experience				
Under 2 years	6 (1.3)	0 (0)	6 (1.3)	*FET* 8.85 p= < .15
2-5 years	91 (20.0)	11 (2.4)	102 (22.4)	
6 -10 years	127 28.0	24 (5.3)	151(33.3)	
11- 15 years	75 (16.5)	18 (4.0)	93 (20.5)	
16 - 20 years	50 (11.0)	7 (1.5)	57 (12.6)	
21 - 25 years	35 (7.7)	1 (0.2)	36 (7.9)	
25 + years	9 (2.0)	0 (0)	9 (2.0)	
Community Public Health Nursing Experience				
Under 2 years	59 (12.9)	8 (1.8)	67 (14.7)	*FET* 4.46 p= < .47
2-5 years	148 (32.5)	26 (5.7)	174 (38.2)	
6 -10 years	97 (21.3)	18 (3.9)	115 (25.2)	
11- 15 years	53 (11.6)	8 (1.8)	61 (13.4)	
16 - 20 years	23 (5.0)	1 (0.2)	24 (5.2)	
21 - 25 years	15 (3.3)	0 (0)	15 (3.3)	
25 + years	0 (0)	0 (0)	0 (0)	

5.4 CPHN Work Characteristics and Training Needs

The majority of CPHNs (n= 442, 98.9%) reported having job descriptions and most (n= 422, 94.6%) agreed that their current job description reflected what they did in their everyday work. The CPHNs who indicated their job description did not reflect their everyday work Included: General Outpatient nurses (n=9), Integrated Management of Childhood Illness (IMCI) nurses (n=5), Family Planning (FP) nurses (n= 2), Zone nurses, (n=4), District nurses (n=2), School Health nurse (n=1) and, Special Outpatient nurse (SOPD) - management of long-term illness (n=1).

Nearly 19.8% (n=90,) of all CPHNs worked alone within their health facility, whereas 47.7% (n= 217) worked alone sometimes and 32.5 % (n=148) never worked alone. Those working alone were mainly from the maritime (n=30), remote rural (n=23) and rural (n=20) areas, with fewer in the urban/peri-urban (n=17) areas. More nurses working at nursing stations reported working alone than expected than those working at health centres (X^2= 257.196, p <.001). A large effect size was found (V= .75, p= <.001). Most CPHNs (n= 379, 87.5%) could access doctors and/or health experts, while fewer (12%, n=52) were able to access doctors and/or health experts sometimes and a small number 0.5% (n= 2) were unable to access doctors and/or health experts to make clinical decisions (X^2=20.080, p <.001); a large effect size was identified (V= .21, p= <.01). More health centre nurses were able to access doctors and health experts while station nurses reported this less than expected.

Table 13 below outlines the training needs identified by CPHNs for clinical preparation in two broad areas. Firstly, training with: acute care work such as management of emergency cases, HIV testing and counselling skills, assessment and management of mentally ill clients in the community, management of sexually transmitted infections, intravenous (IV) cannulation, diabetic footcare and Package of essential NCD interventions (PEN) training, assessment of the new-born, Pap-smear screening, Integrated management of childhood illness, and Palliative care. Secondly, other themes where nurses identified training needs were about using data for decision-making and health promotion.

Secondly, these activities included: conducting small research projects, disease outbreak investigation, conducting clinical audits, implementing a healthy settings approach, assisting build healthy public policies such as smoke-free halls and community disaster preparedness

and risk reduction, implementing healthy canteen guidelines, a birth preparedness plan and complications readiness plan, post-traumatic disaster management, providing nutritional advice (malnutrition and NCD cases), speaking common languages (iTaukei and Fiji Hindi), training of village health workers, referring clients for prostate examination, and motivational interviews (Table 13).

Table 13 CPHNs' training needs for clinical preparation

Do you need more education or training to do this activity?	% Yes	% No	Not Applicable
Management of emergency cases	74.0%	21.2%	4.8%
Conducting small research projects	71.4%	19.5%	9.1%
Disease outbreak investigation	70.2%	19.4%	10.5%
HIV testing and counselling skills	69.4%	22.4%	8.2%
Conducting clinical audits	68.9%	21.4%	9.8%
Assessment and management of mentally ill clients in the community	67.2%	22.6%	10.3%
Management of sexually transmitted infections	65.9%	27.3%	6.8%
Implementing healthy settings approach	64.1%	23.7%	12.2%
Intravenous (IV) cannulation	64.0%	29.8%	6.2%
Assisting build healthy public policies such as smoke free halls	63.8%	21.6%	14.6%
Diabetic footcare	62.9%	29.9%	7.2%
Community disaster preparedness and risk reduction	62.0%	27.2%	10.8%
Package of essential NCD interventions (PEN) training	58.9%	33.7%	7.4%
Assessment of the new-born	57.2%	35.1%	7.7%
Implementing healthy canteen guidelines	57.1%	25.1%	17.8%
Birth preparedness plan and complications readiness plan	55.1%	33.8%	11.1%
Pap-smear screening	54.9%	38.3%	6.8%
Post-traumatic disaster management	54.9%	38.3%	6.8%
Providing Nutritional advise (malnutrition and NCD cases)	54.9%	38.3%	6.8%
Speaking common languages (iTaukei and Fiji Hindi)	54.9%	38.3%	6.8%
Training of village health workers	54.9%	38.3%	6.8%
Referring clients for prostate examination	54.9%	38.3%	6.8%
Integrated management of childhood illness	51.8%	44.5%	3.6%
Motivational interviews	51.0%	44.9%	4.1%
Palliative care	50.6%	38.5%	10.9%
Counselling SOPD clients on complications management	49.0%	41.5%	9.5%

Do you need more education or training to do this activity?	% Yes	% No	Not Applicable
Family planning counselling	48.8%	44.4%	6.8%
Family Assessment	47.4%	42.8%	9.8%
Complex wound dressing	47.0%	45.5%	7.5%
Completing Public health information system forms (PHIS)	45.2%	48.9%	5.9%
Breast examination	44.3%	48.4%	7.3%
Immunisation of new-borns (Expanded programme on Immunisation)	43.4%	49.5%	7.0%
Community Assessment	41.0%	44.6%	14.4%
Advising mothers on breastfeeding	39.6%	53.8%	6.6%
Management of domiciliary cases (home-based care)	38.1%	49.5%	12.3%
Booking antenatal mothers	36.4%	52.2%	11.4%

5.5 Activities by Intervention Level and Practice Setting

The latter part of the survey questionnaire collected data on the 17 public health interventions based on the intervention wheel and how frequently (daily, weekly, monthly, quarterly, or never), these activities were conducted by participants from different geographical practice locations. This section discusses each of the public health interventions by geographic practice setting.

5.5.1 Surveillance, Disease and Health Investigation, Outreach, Screening & Case Finding

Surveillance[18]

In Fiji CPHNs collect data using the Public Health Information System (PHIS) form, which is submitted monthly to their supervisors. This is an A3 size triplicate booklet where data is handwritten and sent via internal mail by all CPHNs. Figure 16 shows that at the individual-focused intervention level, 54% (n=181) of CPHNs engaged with surveillance monthly, while at the community-focused intervention level, 68% (n= 253) of CPHNs conducted monthly

[18] Surveillance: is "an ongoing, systematic collection, analysis and interpretation of health-related data essential to the planning, implementation, and evaluation of public health practice" (World Health Organization, 2018).

surveillance. At the systems-focused intervention level, 46% (n=193) of CPHNs engaged with surveillance monthly and 46% (n=192) did so quarterly.

Figure 16 How often CPHNs conducted surveillance at the individual, community, and systems-level (%)

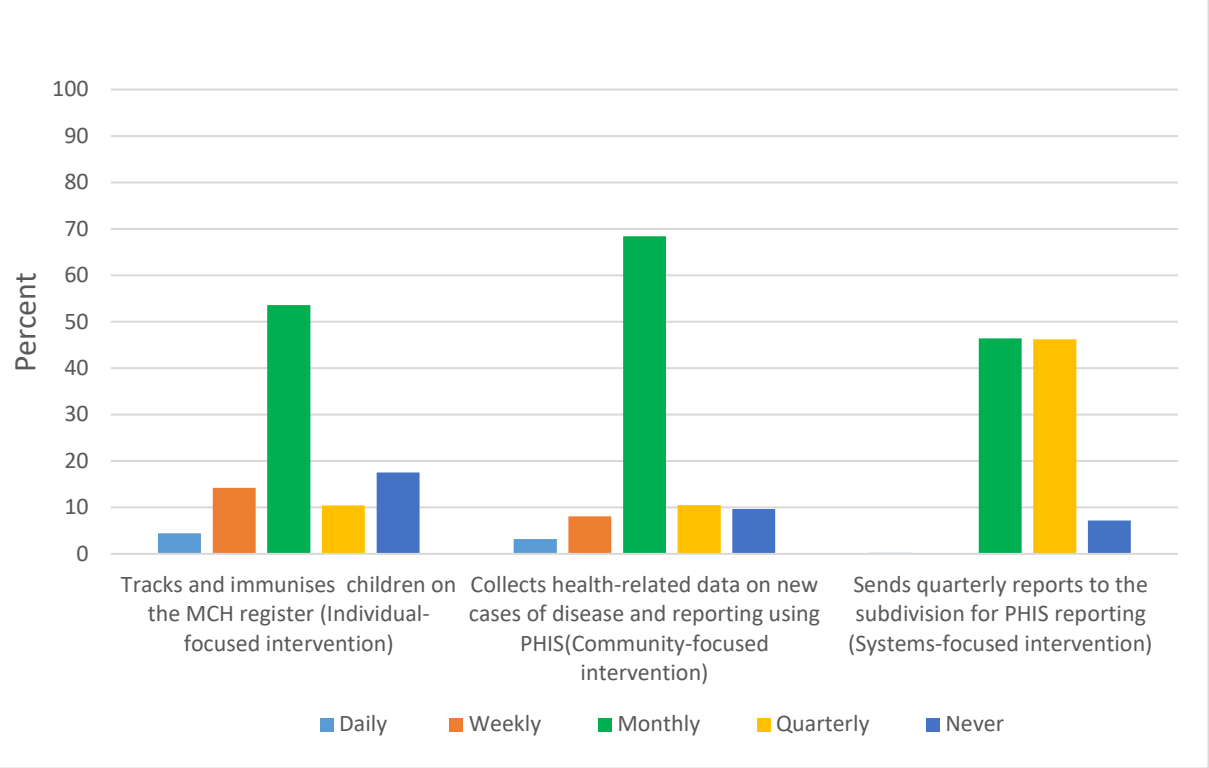


Table 14 shows how often CPHNs engaged with surveillance interventions by geographical practice location. There was a significant association between individual-level intervention - "I track children on the MCH register" and geographical practice location (X^2= 54.43, p =<.001); a moderate effect size was found (V= .40, p=<.001). More weekly and monthly tracking of children on the MCH register was observed in rural/remote/maritime areas than expected. Less weekly and monthly tracking of children was observed in urban/peri-urban areas than expected (Table 14). The CPHNs in urban/peri-urban areas reported 'never tracking children on the MCH register' more than expected while CPHNs in remote/rural/maritime locations reported this less than expected.

There was a significant association between the community-level intervention "I collect health related data on new cases of disease and report using public health information system (PHIS)" and geographical practice location (X^2= 33.39, p =<.001); a large effect size was identified (V= .30, p=<.001). More weekly and monthly data collection and reporting were observed in

rural/remote/maritime locations than expected. Less weekly and monthly data collection and reporting were observed in urban/peri-urban areas than expected (Table 14). The CPHNs in urban/peri-urban areas reported 'never collecting and reporting data' more than expected whilst CPHNs in rural/remote/maritime locations reported this less than expected.

Analysis identified a significant association between the systems-level intervention "sending quarterly reports to the subdivision for PHIS reporting" and geographical practice location (X^2= 34.31, p =< .001); a moderate effect size was found (V= .20, p= <.001). The CPHNs in urban/peri-urban areas reported "never sending quarterly reports" more than expected while CPHNs in rural/remote/maritime locations reported this less than expected (Table 14).

Table 14 Frequency of surveillance interventions by geographical practice location

No.	Interventions	Intervention level	Frequency	Geographical Practice Location n (%)			Total Frequency N (%)	Statistical test, significance
	Surveillance			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
1	I track children on the MCH register who default immunization and visit them at home to immunise them.	Individual/ Family	Daily Weekly Monthly Quarterly Never	9 (60) 11 (22.9) 66 (36.5) 10 (28.6) 49 (10)		6 (40) 37 (77.1) 115 (63.5) 25 (71.4) 10 (16.9)	15(100) 48 (100) 181 (100) 35 (100) 59 (100)	X^2= 54.43, p =<.001 V=.40 p =< .001
2	I collect health related data on new cases of disease and report using public health information system	Community	Daily Weekly Monthly Quarterly Never	6 (50) 10 (33.3) 100 (39.5) 20 (51.3) 32 (89.9)		6 (50) 20 (66.7) 153(60.5) 19 (48.7) 4 (11.1)	12 (100) 30 (100) 253 (100) 39 (100) 36 (100)	X^2=33.39 p =<.001 V=.30 p =< .001
3	I send quarterly reports to the subdivision for public health information system (PHIS) reporting	Systems	Daily Weekly & Monthly Quarterly Never	79 (40.9) 85 (44.3) 29 (96.7%)	54 (28) 58 (30.2) 1 (3.3)	60(31.1) 49 (25.5) 0 (0)	193 (100) 192 (100) 30 (100)	X^2=34.31 p =<.001 V=.20 p =< .001

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

Disease and Other Health Event Investigation [19]

Figure 17 shows that at the individual-focused intervention level, 39.4% (n=128) of CPHNs never assisted with screening TB cases, while 27.4% (n= 89) did so monthly and 27.9% (n=96) inspected children for lice and scabies monthly. At the community-focused intervention level, 38.2% (n= 130) of CPHNs conducted disease and other health event investigations monthly and 31.5% (n=107) did so quarterly. At systems-focused intervention 36.4% (n=123) CPHNs engaged with disease and other health event investigation monthly and 30% (n=100) did so quarterly.

Figure 17 How often CPHNs conducted disease and other health investigation at the individual, community, and systems-level (%)

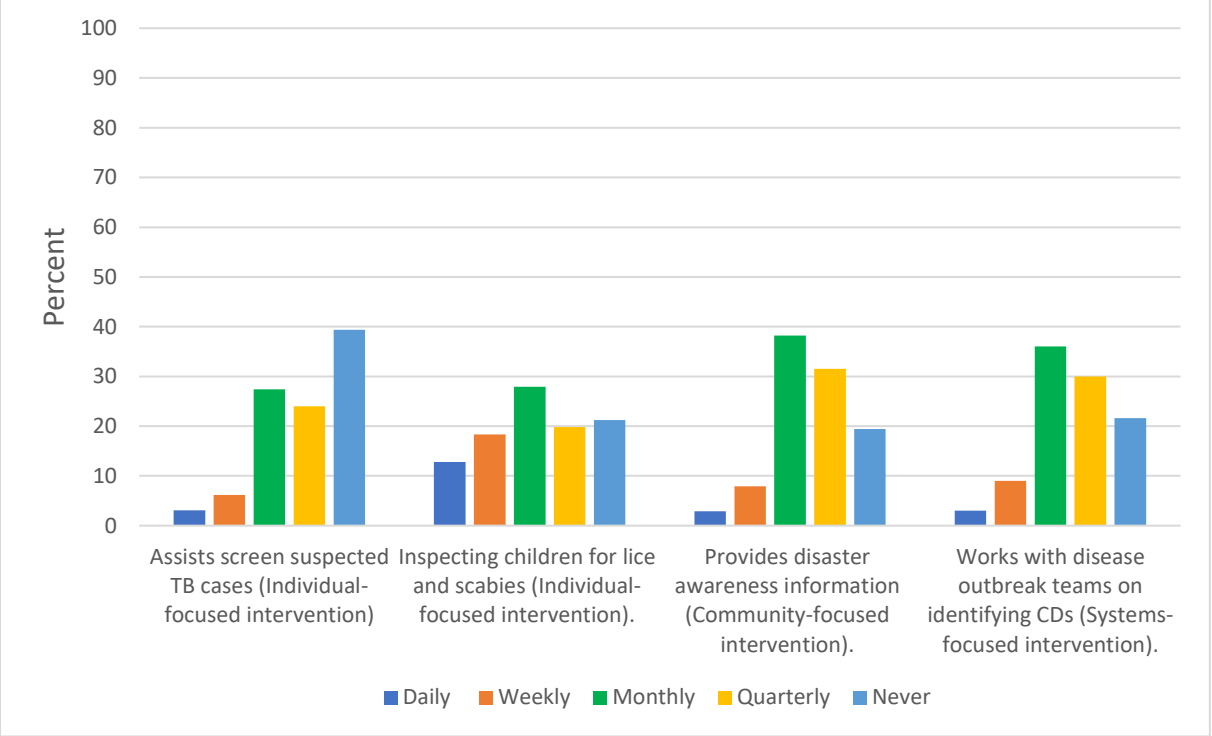


Table 15 shows how often CPHNs were engaged with surveillance interventions by geographical practice location. There was a significant association between individual family-level intervention

[19] Disease and other health event investigation, refers to the systematic gathering and analysis of data regarding threats to the health of populations, ascertains the source of the threat, identifies cases and others at risk, and determines control measures. This intervention in Fiji is commonly known as disease outbreak investigation which is commonly undertaken for communicable disease post-disaster.

-“assisting with screening suspected Tuberculosis cases that present to the clinic”, and geographical practice location (X^2= 19.59, p =<.003); a moderate effect size was identified (V= .17, p =<.003) (Table 13). More quarterly screening of suspected TB cases in rural/remote/maritime locations was observed than expected, with less quarterly screening of suspected TB cases in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never screening of suspected TB cases” more than expected while CPHNs in rural locations reported this less than expected.

There was a significant association between individual family-level intervention “inspecting children for lice and scabies” and geographical practice location (X^2= 28.51, p=<.001); a moderate effect was identified (V= .20, p=<.001) (Table 15). More quarterly inspection of children for lice and scabies in remote rural /maritime locations was observed than expected while less monthly and quarterly inspection of children for lice and scabies was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never inspecting children for lice and scabies” more than expected while CPHNs in rural, remote/rural, and maritime locations reported this less than expected.

A significant association between the community-level intervention “providing disaster awareness information to my community” and geographical practice location (X^2= 59.43, p=<.001) was identified; a large effect size was found (V= .29, p=<.001) (Table 15). More monthly and quarterly provision of disaster awareness information to the community was observed in remote rural/maritime locations than expected, whereas less monthly and quarterly provision of disaster awareness information was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported never “providing disaster awareness information” more than expected while CPHNs in rural and remote rural /maritime locations reported this less than expected.

There was also a significant association between the systems-level intervention “I work with disease outbreak teams on identifying communicable disease (CD) cases” and geographical practice location (X^2= 32.74, p =<.001); a large effect size was identified (V= .22, p =<.001) (Table 15). Identifying CD cases weekly was higher than expected in both rural areas and remote rural and

maritime areas. The CPHNs in urban/peri-urban areas reported “never identifying CD cases” more than expected while CPHNs in rural and remote rural /maritime locations reported this less than expected.

Table 15 Frequency of Disease and other health events interventions by geographical practice location

No.	Interventions	Intervention level	Frequency	Geographical Practice Location n (%)			Total Frequency N (%)	Statistical test, significance
	Disease and Other Health Event Investigation			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row total	
4	I assist screen suspected TB cases that present to my clinic (by early morning sputum or Mantoux TB skin test)	Individual/ Family	Weekly	15 (50)	9 (30)	6 (20)	30 (100)	X^2= 19.59
			Monthly	40 (44.9)	25 (28.1)	24 (27)	89 (100)	p=<.003
			Quarterly	21 (26.9)	34 (43.6)	23 (29.5)	78 (100)	V=.17
			Never	66 (51.6)	23 (18)	23 (29.5)	112 (100)	p =<.003
5	I inspect children for lice and scabies in the community	Individual/ Family	Weekly	44 (41.1)	33 (30.8)	30 (28)	107 (100)	X^2= 28.51
			Monthly	34 (35.4)	30 (31.3)	32 (33.3)	96 (100)	p=<.001
			Quarterly	22 (32.4)	19 (27.9)	27 (39.7)	68 (100)	V=.20
			Never	51 (69.9)	9 (12.3)	13 (17.8)	73 (100)	p =<.001
6	I provide disaster awareness information to my community	Community	Weekly	13 (35.1)	17 (45.9)	7 (18.9)	37 (100)	X^2= 59.43
			Monthly	45 (34.6)	39 (30)	46 (35.4)	130 (100)	p=<.001
			Quarterly	32 (29.9)	33 (30.8)	42 (39.3)	107 (100)	V=.29
			Never	54 (81.8)	7 (10.6)	5 (7.6)	66 (100)	p =<.001
7	I work with disease outbreak teams on identifying communicable disease cases	Systems	Weekly	13 (31)	18 (42.9)	11 (26.2)	42 (100)	X^2= 32.74
			Monthly	50 (40.7)	31 (25.2)	42 (34.1)	123 (100)	p=<.001
			Quarterly	35 (35)	33 (33)	32 (32.0)	100 (100)	V=.22
			Never	52 (71.2)	9 (12.3)	12 (16.4)	73 (100)	p =<.001

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

Outreach[20]

Figure 18 shows that at the individual-focused intervention level, 42.6% (n=156) of CPHNs engaged with outreach monthly. At the community-focused intervention level, 40.4% (n= 137) of CPHNs conducted outreach monthly and at systems-focused intervention level 47.5% (n=169) of CPHNs engaged with outreach monthly.

Figure 18 How often CPHNs conducted outreach at the individual, community, and systems-level (%)

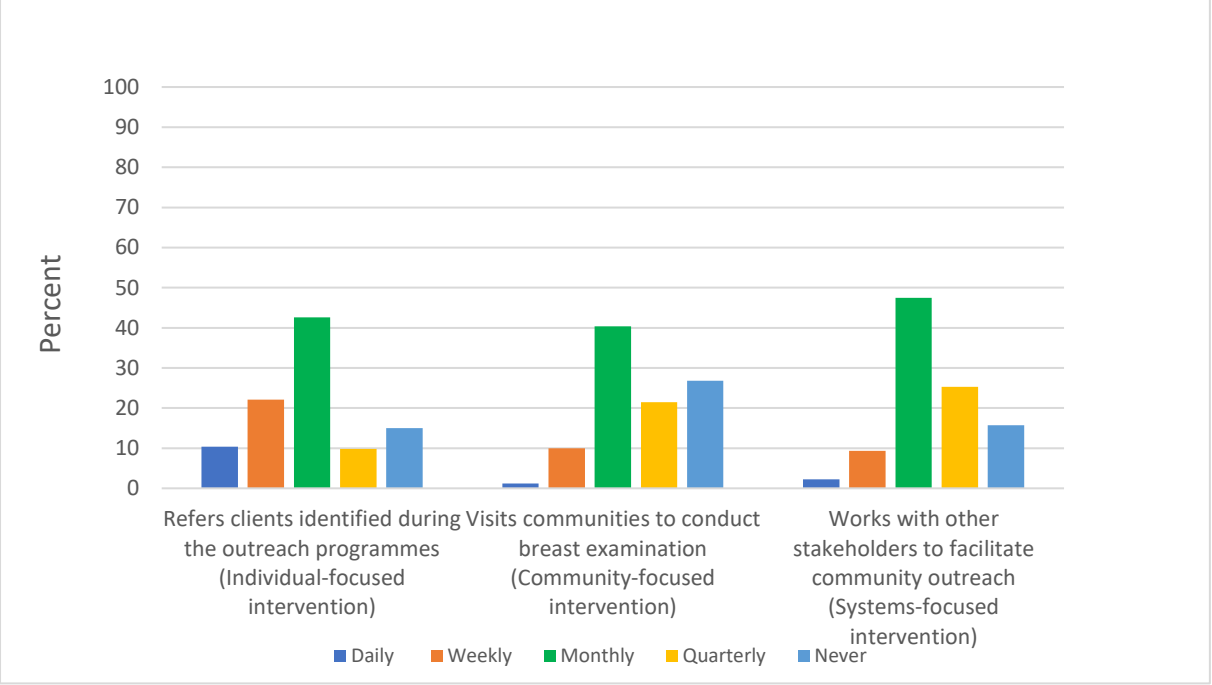


Table 16 shows how often CPHNs were engaged with outreach investigations by geographical practice location. There was a significant association between individual/family-level intervention - "referring clients with life-threatening conditions (identified during outreach visits) to the doctors", and geographical practice location (X^2= 51.41, p =<.001); a large effect size was identified (V= .26, p=< .001) (Table 16). More weekly referral of clients with life-threatening conditions was observed in rural and remote rural/maritime locations than expected, with less weekly referrals

[20] Outreach refers to locating populations-of-interest or populations-at-risk and provides information about the nature of the concern, what can be done about it, and how services can be obtained. This intervention is also known as shift clinic, usually organised at the village halls or community halls with the help of community leaders and village health workers.

observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported "never referring clients with life-threatening conditions" more than expected while CPHNs in rural/remote/maritime locations reported this less than expected.

There was a significant association between the community-level intervention -"visiting communities to conduct breast examination and providing information on mammography", and geographical practice location (X^2= 35.40, p =<.001); a large effect size was identified (V= .22, p< .001) (Table 16). More weekly, monthly and quarterly data collection and reporting were observed in rural/remote/maritime locations than expected, with less monthly and quarterly visits observed in urban/peri-urban areas than expected. CPHNs in urban/peri-urban areas reported "never visiting" more than was expected while CPHNs in rural, and remote rural/maritime locations, reported this less than expected.

Analysis revealed a significant association between the systems-level intervention - "working with other stakeholders to facilitate community outreach programmes", and geographical practice location ($X^{2=}$62.59, p =<.001); a large effect size was found (V= .29, p =<.001) (Table 16). More weekly, monthly, and quarterly work with other stakeholders was observed in the rural/remote/maritime locations than expected, while less weekly and monthly work with other stakeholders was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported "never working with other stakeholders to facilitate community outreach programmes", more than was expected while CPHNs in rural, and remote rural /maritime locations reported this less than expected.

Table 16 Frequency of outreach interventions by geographical practice location

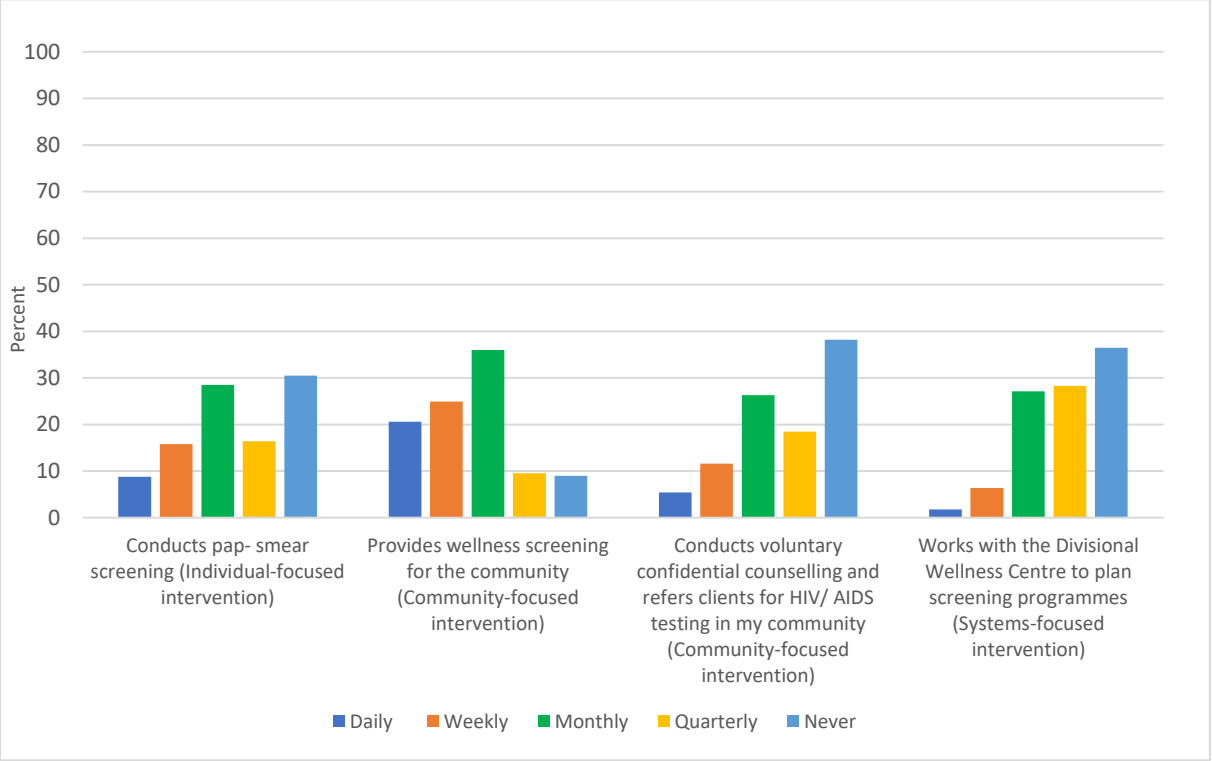
No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Outreach			Urban / Peri urban	Rural	Remote Rural/ Maritime	Row total	
8	Refers clients with life-threatening conditions to the doctors that are identified during the outreach programmes	Individual/ Family	Daily Weekly Monthly Quarterly Never	13 (34.2) 21 (25.9) 65 (41.7) 15 (41.7) 47 (85.5)	12 (31.6) 29 (35.8) 43 (27.6) 9 (25) 5 (9.1)	13 (34.2) 31 (38.3) 48 (30.8) 12 (33.3) 3 (5.5)	38 (100) 81 (100) 156 (100) 36 (100) 55 (100)	X^2= 51.41 p=<.001 V=.26 p =< .001
9	Visits to my community to conduct breast examination and provide information on mammography	Community	Weekly Monthly Quarterly Never	15 (39.5) 49 (35.8) 24 (32.9) 60 (65.9)	17 (44.7) 42 (30.7) 18 (24.7) 13 (14.3)	6 (15.8) 46 (33.6) 31 (42.5) 18 (19.8)	38 (100) 137 (100) 73 (100) 91 (100)	X^2= 35.40 p=<.001 V=.22 p =< .001
10	Work with other stakeholders to facilitate community outreach programs	Systems	Weekly Monthly Quarterly Never	11 (26.8) 64 (37.9) 38 (42.2) 47 (83.9)	24 (58.5) 50 (29.6) 19 (21.1) 3 (5.4)	6 (14.6) 55 (32.5) 33 (36.7) 6 (10.7)	41 (100) 169 (100) 90 (100) 56 (100)	X^2= 62.59 p=<.001 V=.29 p =< .001

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

Screening[21]

Figure 19 shows that at the individual-focused intervention level, 30.5% (n=108) of CPHNs never engaged in screening and 28.5% (n=101) of CPHNs did so monthly. At the community-focused intervention level, 36% (n=136) of CPHNs provided wellness screening for the community monthly. Regarding providing voluntary confidential counselling and referring clients for testing of HIV/AIDS, 38.2% (n= 128) of CPHNs reported never providing this service and 26.3 % (n=88) reported doing so monthly. At systems-focused intervention level, 36.5% (n=120) of CPHNs never engaged with planning screening while 28.3% (n=93) of CPHNs were engaged quarterly and 27.1%% (n=89) engaged monthly.

Figure 19 How often CPHNs conducted screening at the individual, community, and systems-level (%)



[21] Screening refers to identifying individuals with unrecognised health risk factors or asymptomatic disease conditions in populations. Wellness screening in Fiji is usually conducted at village level and at workplaces. This includes weight checks, Blood pressure, capillary blood sugar.

Table 17 shows how often CPHNs were engaged with screening interventions by geographical practice location. There was a significant association between individual/family-level intervention - “conducting Papanicolaou-smear (Pap-smear), screening (either visual inspection under acetic acid smear method)” and geographical practice location (X^2= 27.22, p=<.001); a moderate effect size was found (V= .19, p=<.001). More weekly pap-smear screening in rural areas and more quarterly screening in remote rural/maritime locations was observed than expected. Less monthly and quarterly pap smear screening was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never conducting pap smear screening” more than expected while CPHNs in rural/remote/maritime locations reported this less than expected.

There was a significant association between the community-level intervention - “providing wellness screening for my community (blood pressure (BP), capillary blood glucose (CBG), height, weight check)” and geographical practice location (X^2= 53.66, p=<.001); a large effect size was identified (V= .26, p=<.001) (Table 17). More weekly wellness screening in rural areas and more monthly screening in remote rural/maritime locations, was observed than expected with less weekly wellness screening observed in urban/peri-urban areas. The CPHNs in urban/peri-urban areas reported “never providing wellness screening for the community” - more than was expected, while CPHNs in rural and remote rural/maritime locations reported this less than expected.

A significant association between the community-level intervention “conducting voluntary confidential counselling and referring for testing of HIV/AIDS in the community” and geographical practice location (X^2= 14.78, p=<.022) was identified with a moderate effect size (V= .14, p=< .022) (Table 17). More monthly voluntary confidential counselling and referral for testing of HIV/ AIDS was observed in rural/remote/maritime locations than expected and less monthly counselling and referral was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never” performing these interventions more than was expected, while CPHNs in rural and remote rural /maritime locations reported “never” less than expected.

A significant association was found between the systems-level intervention - “working with the Divisional Wellness Centre to planning screening programmes for my community”, and geographical practice location (X^2= 19.47, p =<.003). A moderate effect size was identified, (V= .17,

p=< .003) (Table 17). More monthly and quarterly planning for screening programmes was observed in rural areas than expected, while less monthly planning was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never working with Divisional Wellness Centre to planning screening programmes for my community”, more than expected while CPHNs in rural locations reported this less than expected.

Table 17 Frequency of screening interventions by geographical practice location

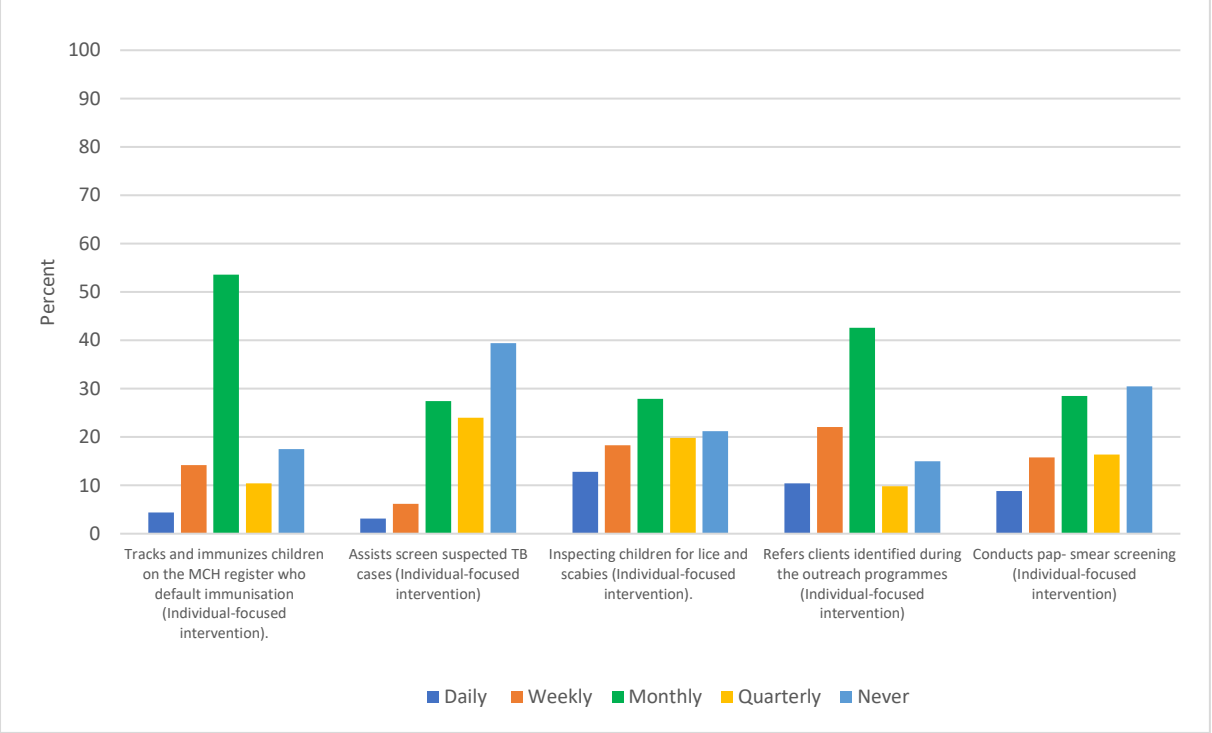
No.	Interventions Screening	Intervention level	Frequency	Geographical practice location n (%) Urban / Peri urban	Rural	Remote Rural/ Maritime	Total Frequency N (%) Row total	Statistical test, significance
11	I conduct pap- smear screening (either VIA or smear method)	Individual/ Family	Daily Weekly Monthly Quarterly Never	17 (54.8) 20 (35.7) 36 (35.6) 22 (37.9) 64 (59.3)	10 (32.3) 24 (42.9) 33 (32.7) 13 (22.4) 19 (17.6)	4 (12.9) 12 (21.4) 32 (31.7) 323 (39.7) 25 (23.1)	31 (100) 56 (100) 101 (100) 358 (100) 108 (100)	X^2= 27.22 p=<.001 V=.19 p =< .001
12	I provide wellness screening for my community (BP, CBG, height, weight check)	Community	Daily Weekly Monthly Quarterly Never	31 (39.7) 32 (34) 59 (43.4) 13 (36.1) 32 (94.1)	24 (30.8) 40 (42.6) 27 (19.9) 10 (27.8) 2 (5.9)	23 (29.5) 22 (23.4) 50 (36.8) 13 (36.1) 0 (0)	78 (100) 94 (100) 136 (100) 36 (100) 34 (100)	X^2= 53.66 p=<.001 V=.26 p =<.001
13	I conduct voluntary confidential counselling and refer for testing of HIV/ AIDS in my community	Community	Daily Weekly Monthly Quarterly Never	22 (38.6) 31 (35.2) 25 (40.3) 68 (53.1)	19 (33.3) 34 (38.6) 13 (21.0) 27 (21.1)	16 (28.1) 23 (26.1) 24 (38.7) 33 (25.8)	57 (100) 88 (100) 62 (100) 128 (100)	X^2= 14.78 p=< .022 V=.14 p =<.022
14	I work with the Divisional Wellness Centre to planning screening programmes for my community	Systems	Daily Weekly Monthly Quarterly Never	11 (40.7) 35 (39.3) 33 (35.5) 68 (56.7)	12 (44.4) 30 (33.7) 29 (31.2) 19 (15.8)	4 (14.8) 24 (27) 31 (33.3) 33 (27.5)	27 (100) 89 (100) 93 (100) 120 (100)	X^2= 19.47 p=< .003 V=.17 p =< .003

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

Case Finding[22]

Almost all case-finding interventions were at individual level and were mainly conducted monthly. Exceptions were for TB screening and pap-smears, where "never" was the most reported category. Figure 20 shows that at the individual-focused intervention level, 54% (n=181) of CPHNs engaged with surveillance monthly. For disease and other health event investigation, 27.4% (n= 89) of CPHNs assisted with screening TB cases and 27.9% (n=96) inspected children for lice and scabies monthly. Under 50% of CPHNs engaged with outreach monthly (42.6%, n=156) with fewer (28.5%, n=101) CPHNs engaged with screening monthly. *(Case findings are interventions numbers 1, 4, 5, 8, and 11 are the individual level interventions of Surveillance, Disease and Health Investigation, Outreach, Screening)*

Figure 20 How often CPHNs conducted case finding at the individual (%)



[22] Case finding refers to locating individuals and families with identified risk factors and connecting them with resources. All case finding interventions are at individual level.

Table 18 shows there was a significant association between individual-level intervention - “I track children on the MCH register”, and geographical practice location (X^2= 54.43, p =<.001); a moderate effect size was found (V= .40, p=<.001). More weekly and monthly tracking of children on the MCH register was observed in rural/remote/maritime areas than expected. Less weekly and monthly tracking of children was observed in urban/peri-urban areas than expected (Table 18). The CPHNs in urban/peri-urban areas reported ‘never tracking children on the MCH register’ more than expected, while CPHNs in remote/rural/maritime locations reported this less than expected.

Analysis revealed a significant association between individual family-level intervention “assisting with screening suspected Tuberculosis cases that present to the clinic” and geographical practice location (X^2= 19.59, p =<.003); a moderate effect size was identified (V= .17, p =<.003) (Table 18). More quarterly screening of suspected TB cases in rural/remote/maritime locations was observed than expected, with less quarterly screening of suspected TB cases in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never screening suspected TB cases” more than expected while CPHNs in rural locations reported this less than expected.

There was a significant association between individual family-level intervention - “inspecting children for lice and scabies”, and geographical practice location (X^2= 28.51, p=<.001); a moderate effect was identified (V= .20, p=<.001) (Table 18). More quarterly inspection of children for lice and scabies in remote rural/maritime locations was observed than expected while less monthly and quarterly inspection of children for lice and scabies was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never inspecting children for lice and scabies” more than expected, while CPHNs in rural, remote/rural, and maritime locations reported this less than expected.

Analysis also identified a significant association between individual/family-level intervention - “referring clients with life-threatening conditions (identified during outreach visits) to the doctors” and geographical practice location (X^2= 51.41, p =<.001); a large effect size was identified (V= .26, p=<.001) (Table 18). More weekly referral of clients with life-threatening conditions was observed in rural and remote rural/maritime locations than expected, with less weekly referrals observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never

referring clients with life-threatening conditions" more than expected, while CPHNs in rural/remote/maritime locations reported this less than expected.

Analysis furthermore showed a significant association between individual/family-level intervention "Pap-smear screening (either visual inspection under acetic acid smear method)", and geographical practice location (X^2= 27.22, p=<.001); a moderate effect size was found (V= .19, p=<.001). More weekly pap-smear screening in rural areas and more quarterly screening in remote rural/maritime locations was observed than expected. Less monthly and quarterly pap smear screening was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported "never conducting pap smear screening" more than expected while CPHNs in rural/remote/maritime locations reported this less than expected.

Table 18 Frequency of case finding interventions by geographical practice location

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Case Finding			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row total	
1	I track children on the MCH register who default immunisation and visit them at home to immunise them.	Individual/ Family	Daily Weekly Monthly Quarterly Never	9 (60) 11 (22.9) 66 (36.5) 10 (28.6) 49 (10)		6 (40) 37 (77.1) 115 (63.5) 25 (71.4) 10 (16.9)	15 (100) 48 (100) 181 (100) 35 (100) 59 (100)	X^2= 54.43 p=<.001 V=.40 p =< .001
4	I assist screen suspected TB cases that present to my clinic (by EMS or PPD test)	Individual/ Family	Weekly Monthly Quarterly Never	15 (50) 40 (44.9) 21 (26.9) 66 (51.6)	9(30) 25 (28.1) 34 (43.6) 23 (18)	6 (20) 24 (27) 23 (29.5) 23 (29.5)	30 (100) 89 (100) 78 (100) 112 (100)	X^2= 19.59 p=<.003 V=.17 p =< .003
5	I inspect children for lice and scabies in the community	Individual/ Family	Weekly Monthly Quarterly Never	44 (41.1) 34 (35.4) 22 (32.4) 51 (69.9)	33 (30.8) 30 (31.3) 19 (27.9) 9 (12.3)	30 (28) 32 (33.3) 27 (39.7) 13 (17.8)	107 (100) 96 (100) 68 (100) 73 (100)	X^2= 28.51 p=<.001 V =0.20 p =< .001
8	I refer clients with life threatening conditions that are identified during the outreach programmes, to the doctors	Individual/ Family	Daily Weekly Monthly Quarterly Never	13 (34.2) 21 (25.9) 65 (41.7) 15 (41.7) 47 (85.5)	12 (31.6) 29 (35.8) 43 (27.6) 9 (25) 5 (9.1)	13 (34.2) 31 (38.3) 48 (30.8) 12 (33.3) 3 (5.5)	38 (100) 81 (100) 156 (100) 36 (100) 55 (100)	X^2= 51.41 p=<.001 V=.26 p =< .001
11	I conduct pap- smear screening (either VIA or smear method)	Individual/ Family	Daily Weekly Monthly Quarterly Never	17 (54.8) 20 (35.7) 36 (35.6) 22 (37.9) 64 (59.3)	10 (32.3) 24 (42.9) 33 (32.7) 13 (22.4) 19 (17.6)	4 (12.9) 12 (21.4) 32 (31.7) 323 (39.7) 25 (23.1)	31 (100) 56 (100) 101 (100) 358 (100) 108 (100)	X^2= 27.22 p=<.001 V=.19 p =< .001

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

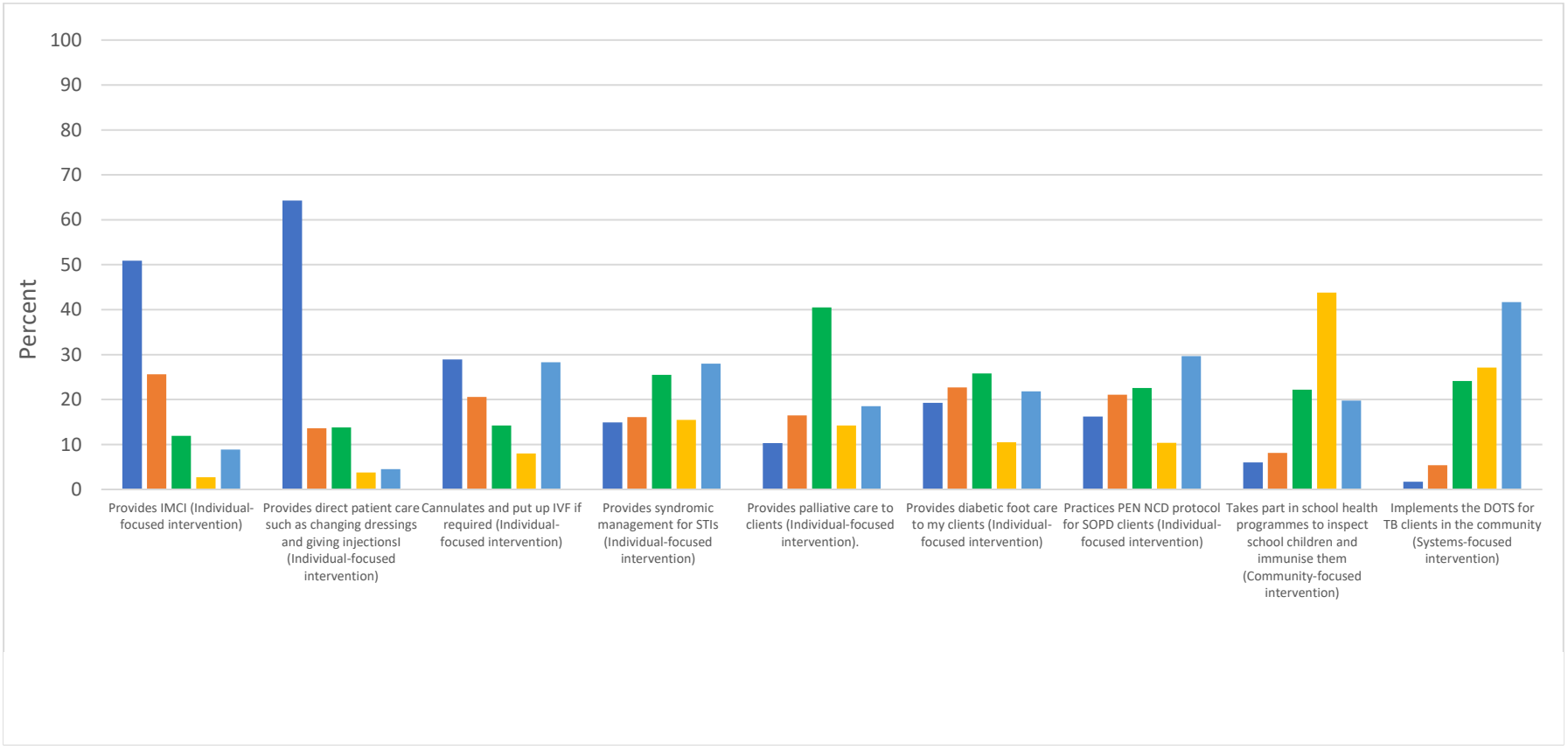
5.5.2 Delegated Functions, Case Management, Referral, and Follow-up

Delegated Functions[23]

Figure 21 shows that at the individual-focused intervention level, 50.9% (n=189) of CPHNs engaged with providing Integrated Maternal Child Health services, 64.3% (n=256), changed dressings and gave injections, 28.9% (n=94), cannulated and administered intravenous fluids daily. The other individual-level interventions outlined in Figure 21 were commonly done less frequently than daily. At the community-focused intervention level, 43.8% (n=146) of CPHNs conducted delegated functions monthly and at systems-focused intervention level, 41.7 % (n=295) of CPHNs never engaged with delegated functions, with 27.1% (n=80) doing so monthly.

[23] Delegated functions refer to direct care tasks a registered professional nurse carries out under the authority of a healthcare practitioner as allowed by law. Delegated functions also include any direct care tasks that registered professional nurse judges entrust to other appropriate personnel to perform.

Figure 21 How often CPHNs conducted delegated functions at the individual, community, and systems-level (%)



There was a significant association between individual/family-level intervention - “providing Integrated Management of Childhood illness Health services”, and geographical practice location (X^2= 36.81, p=<.001); a large effect size was found (V= .22, p =<.001) (Table 19). More weekly and monthly provision of IMCI services was observed in remote rural/maritime locations than expected, and less daily provision of IMCI observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never” for these activities more than expected, and CPHNs in rural/remote/maritime locations reported “never” less than expected (Table 19).

Table 19 shows how often CPHNs were engaged with delegated function interventions by geographical practice location. There was a significant association between individual/family-level intervention - “providing direct patient care, such as changing dressings and giving injections” and geographical practice location (X^2= 32.39, p =<.001); a moderate effect size was identified (V= .26, p =<.001) (Table 19). More daily/weekly direct patient care, such as changing dressings and giving injections was observed in remote rural/maritime locations than expected. Less daily/ weekly and more quarterly direct patient care was observed in urban/peri-urban areas than expected with CPHNs in urban/peri-urban areas reported “never” more than expected, and CPHNs in rural/remote/maritime locations reported “never” less than expected.

There was a significant association between individual/family-level intervention - “cannulating and put-up intravenous fluid if required”, and geographical practice location (X^2= 36.41, p =<.001); a large effect size was found (V= .23, p =<.001) (Table 19). More weekly and monthly cannulating was observed in remote rural/maritime locations than expected and less daily cannulating observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never” more than expected, and CPHNs in rural/remote/maritime locations reported “never” less than expected (Table 19).

A significant association was found between individual/family-level intervention - “providing syndromic management for sexually transmitted infections”, and geographical practice location (X^2= 24.06, p =<.002); a moderate effect size was identified (V=.18, p =<.002) (Table 19). More monthly syndromic management was observed in remote rural/maritime locations than expected, with less monthly provision observed in urban/peri-urban areas than expected. The CPHNs in

urban/peri-urban areas reported - “never providing of syndromic management for sexually transmitted infections” more than expected while CPHNs in remote rural/maritime locations reported this less than expected (Table 19).

There was a significant association between individual/family-level intervention “providing palliative care to my clients” and geographical practice location (X^2= 24.06, p=<.002); a moderate effect size was found (V= .18, p=<.002). More daily provision of palliative care to clients was observed in remote rural/maritime locations than expected, while less daily provision was observed in urban/peri-urban areas than expected. The CPH’s in urban/peri-urban areas reported “never providing palliative care” more than expected and CPHNs in rural/remote/maritime locations, reported this less than expected (Table 19).

A significant association was found between individual/family-level intervention - “providing diabetic foot care services to my clients”, and geographical practice location (X^2= 8.09, p=<.424); a small effect size was identified (V= .10, p=<.424). More daily and weekly provision of diabetic foot care services was observed in remote rural/maritime locations than expected, with less weekly provision of diabetic foot care services in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - “never providing diabetic foot care services”, more than expected and CPHNs in rural/remote/maritime locations reported this less than expected (Table 19).

There was a significant association between individual family-level intervention, “using PEN Non communicable disease management protocol for my SOPD clients”, and geographical practice location (X^2= 42.38, p=<.001); a large effect size was found (V= .25, p=<.001). More weekly use of PEN protocol was observed in rural areas than expected, with more weekly and monthly use observed in remote rural /maritime locations than expected. Less weekly and monthly use of PEN protocol was observed in urban/peri-urban areas than expected with CPHNs in urban/peri-urban areas reporting “never” more than expected by chance; CPHNs in rural/remote/maritime locations reported this less than expected (Table 19).

A significant association was identified between the community-level intervention "I take part in school health programmes to inspect school children and immunise them" and geographical practice location (X^2= 66.02, p =<.001); a large effect size was found (V= .31, p=<.001) (Table 19). More weekly and monthly taking part in school health programmes was observed in rural locations. More quarterly taking part in school health programmes was observed in remote rural/maritime locations than expected. Less quarterly taking part in school health programmes was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported "never taking part" more than expected and CPHNs in rural remote/maritime locations reported this less than expected.

There was also a significant association between the systems-level intervention - "working with the national TB programme to plan and implement the DOTS for TB clients in the community", and geographical practice location (X^2= 27.79, p=<.001); a moderate effect size was identified (V= .21, p= <.001) (Table 19). More quarterly activity was observed in rural and remote rural/maritime locations than expected. Less quarterly activity was observed in urban/peri-urban areas than expected with CPHNs in urban/peri-urban areas reporting "never planning and implement the DOTS for TB clients" more than expected; CPHNs in rural and remote rural/maritime locations reported this less than expected.

Table 19 Frequency of delegated function interventions by geographical practice location

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Delegated Functions			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
15	I provide Integrated Maternal Child health services	Individual/ Family	Daily Weekly Monthly & Quarterly Never	64 (33.9) 45 (47.4) 33 (61.1) 26 (78.8)	50 (26.5) 27 (28.4) 14 (25.9) 4 (12.1)	75 (39.7) 23 (24.2) 7 (13) 3 (9.1)	189 (100) 95 (100) 54 (100) 33 (100)	X^2= 36.81 p =< .001 V=.22 p =< .001
16	I provide direct patient care such as changing dressings and giving injections	Individual/ Family	Daily Weekly Monthly Quarterly Never	93 (36.3) 29 (53.7) 34 (61.8) 10 (66.7) 16 (88.9)		163 (63.7) 25 (46.3) 21 (38.2) 5 (33.3) 2 (11.1)	256 (100) 54 (100) 55 (100) 15 (100) 18 (100)	X^2= 32.39 p=< .001 V=.26 p =< .001
17	I cannulate and put-up intravenous fluid if required	Individual/ Family	Daily Weekly Monthly Quarterly Never	34 (36.2) 24 (35.8) 15 (32.6) 14(53.8) 56 (60.9)	23 (24.5) 14 (20.9) 12 (26.1) 8 (30.8) 28 (30.4)	37 (39.4) 29 (43.3) 19 (41.3) 4 (15.4) 8 (8.7)	94 (100) 67 (100) 46 (100) 26 (100) 92 (100)	X^2= 36.41 p=< .001 V=.23 P =< .001
18	I provide syndromic management for sexually transmitted infections	Individual/ Family	Daily Weekly Monthly Quarterly Never	19 (39.6) 25 (48.1) 27 (32.9) 18 (36) 55 (6.1)	13 (27.1) 11 (21.2) 26 (31.7) 14 (28) 21 (23.3)	16 (33.3) 16 (30.8) 29 (35.4) 18 (36) 14 (15.6)	48 (100) 52 (100) 82 (100) 50 (100) 90 (100)	X^2= 19.01 p=< .015 V=.17 p =< .015

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Delegated Functions			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
19	I provide palliative care to my clients	Individual/ Family	Daily Weekly Monthly Quarterly Never	8 (22.2) 22(37.9) 60 (42.3) 25 (50) 43 (66.2)	11(30.6) 20 (34.5) 41 (28.9) 13 (26) 9 (13.8)	17 (47.2) 16 (27.6) 41 (28.9) 12 (24) 13 (20)	36 (100) 58 (100) 142 (100) 50 (100) 65 (100)	X^2= 24.06 p=< .002 V=.18 p =< .002
20	I provide diabetic foot care services to my clients	Individual/ Family	Daily Weekly Monthly Quarterly Never	35 (51.5) 28 (35) 38 (41.8) 15 (40.5) 39 (50.6)	18 (26.5) 22 (27.5) 27 (29.7) 10 (27) 21 (27.3)	15 (22.1) 30 (37.5) 26 (28.6) 12 (32.4) 17 (22.1)	68 (100) 80 (100) 91 (100) 37 (100) 77 (100)	X^2= 8.09 p=<.424 V=.10 p =< .424
21	I use PEN Non communicable disease management protocol for my SOPD clients	Individual/ Family	Daily Weekly Monthly Quarterly Never	20 (37.7) 18 (26.1) 22 (29.7) 16 (47.1) 66 (68)	14 (26.4) 24 (34.8) 22(29.7) 7 (20.6) 20 (20.6)	19 (35.8) 27 (39.1) 30 (40.5) 11 (32.4) 11(11.3)	53 (100) 69 (100) 74 (100) 34 (100) 97 (100)	X^2= 42.38 p=< .001 V=.25 p =< .001
22	I take part in school health programmes to inspect school children and immunise them	Community	Daily Weekly Monthly Quarterly Never	6 (30) 8 (29.6) 26 (35.1) 48 (32.9) 52 (78.8)	8 (40) 14 (51.9) 28 (37.8) 32 (21.9) 9 (13.6)	6 (30) 5 (18.5) 20 (27) 66 (45.2) 5 (7.6)	20 (100) 27 (100) 74 (100) 146 (100) 66 (100)	X^2= 66.02 p=< .001 V=.31 p =< .001
23	I work with the national TB program to plan and implement the DOTS for TB clients in the community	Systems	Daily & Weekly Monthly Quarterly Never	7 (33.3) 23 (32.4) 22 (27.5) 68 (55.3)	9 (42.9) 30 (42.3) 26 (32.5) 20 (16.3)	5 (23.8) 18 (25.4) 32 (40) 35 (28.5)	21 (100) 71 (100) 80 (100) 123 (100)	X^2= 27.79 p=< .001 V=.21 p =< .001

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

Case Management[24]

Figure 22 shows that at the individual-focused intervention level, 39.9% (n=130) of CPHNs visited clients after diabetic amputations to teach dressing techniques and 44.7% (n=149) visited palliative care clients to assist with daily needs monthly. At the community-focused intervention level, 44.3% (n= 164) of CPHNs conducted case management monthly. At the systems-focused intervention level, 35.2% (n=125) of CPHNs engaged quarterly, and 9.9% (n=98) did so monthly.

Figure 22 How often CPHNs conducted case management at the individual, community, and systems-level (%)

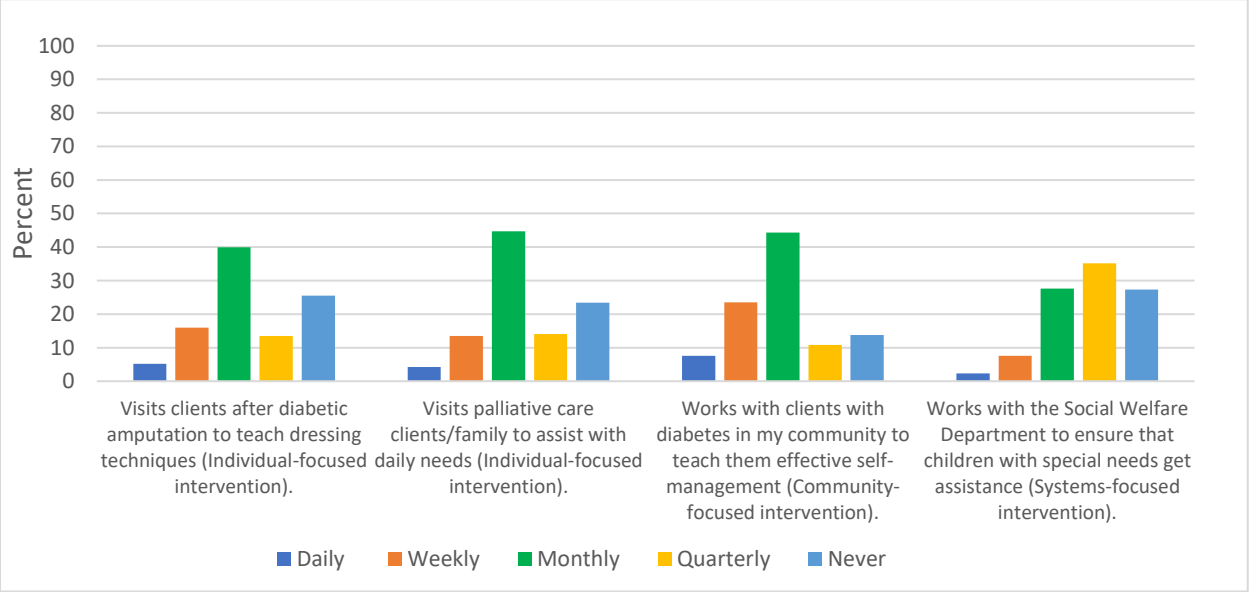


Table 20 shows how often CPHNs were engaged with case management interventions, by geographical practice location. There was a significant association between individual/family-level intervention "visiting clients after diabetic amputation to teach them dressing techniques" and geographical practice location (X^2= 29.33, p=<.001); a moderate effect size was found (V= .21, p=< .001) (Table 20). More daily, weekly, and monthly visits were observed in remote rural/maritime locations than expected, while less daily, weekly, and monthly visits to clients were observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported they

[24] Case management refers to optimising self-care capabilities of individuals and families and the capacity of systems and communities to coordinate and provide services.

"never" completed these visits more than expected, while those in rural and rural/remote/maritime locations reported "never" completing these visits less than expected.

Table 20 shows how often CPHNs were engaged with delegated function interventions by geographical practice location. There was a significant association between individual/family-level intervention - "visiting palliative care clients/family to assist with their daily needs", and geographical practice location (X^2= 31.22, p=<.001); a moderate effect size was identified (V= .21, p=<.001) (Table 20). More daily and weekly visits were observed in remote rural/maritime locations. Less daily weekly and monthly visits were observed in urban/peri-urban areas than expected with CPHNs reporting they never visited palliative care clients/family to assist with their daily needs" more than expected whilst CPHNs in rural remote/maritime locations reported this less than expected.

There was a significant association between the community-level intervention - "I work with clients with diabetes in my community to teach them effective self-management", and geographical practice location (X^2= 36.33, p=<.001); a large effect size was found (V= .22, p=<.001) (Table 20). More monthly work with clients was observed in remote rural/maritime locations than expected, while less weekly and monthly work was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported "never" for this activity more than expected while CPHNs in rural and rural remote/maritime locations reported "never" less than expected.

A significant association was also found between the systems-level intervention -"working with the Social Welfare Department to ensure that children with special needs get assistance", and geographical practice location (X^2= 17.01, p =<.009); a moderate effect size was identified (V= .15, p=<.001) (Table 20). More weekly and quarterly work with the Social Welfare Department was observed in remote rural/maritime locations than expected. Less monthly and quarterly work with the Social Welfare Department was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported "never" more than expected, whereas those working in rural remote/maritime locations reported "never" less than expected.

Table 20 Frequency of case management interventions by geographical practice location

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Case management			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
24	I visit clients after diabetic amputation to teach them dressing techniques	Individual/ Family	Daily & Weekly Monthly Quarterly Never	20 (29) 49 (37.7) 17 (38.6) 55 (66.3)	23 (33.3) 35 (26.9) 17 (38.6) 15 (18.1)	26 (37.7) 46 (35.4) 10 (22.7) 13 (15.7)	69 (100) 130 (100) 44 (100) 83 (100)	X^2= 29.33 p=<.001 V=.21 p =<.001
25	I visit palliative care clients/family to assist with their daily needs	Individual/ Family	Daily & Weekly Monthly Quarterly Never	17 (28.8) 53 (35.6) 17 (36.2) 53 (67.9)	17 (28.8) 45 (30.2) 17 (36.2) 13 (16.7)	25 (42.4) 51 (34.2) 13 (27.7) 12 (15.4)	59 (100) 149 (100) 47 (100) 78 (100)	X^2= 31.22 p=<.001 V=.21 p =<.001
26	I work with clients with diabetes in my community to teach them effective self-management	Community	Daily Weekly Monthly Quarterly Never	15 (53.6) 29 (33.3) 57 (34.8) 22 (55) 38 (74.5)	7 (25) 29 (33.3) 48 (29.3) 13 (32.5) 5 (9.8)	6 (21.4) 29 (33.3) 59 (36) 5 (12.5) 8 (15.7)	28 (100) 87 (100) 164 (100) 40 (100) 51 (100)	X^2= 36.33 p=<.001 V=.22 p =<.001
27	I work with the Social Welfare Department to ensure that children with special needs get assistance	Systems	Daily & Weekly Monthly Quarterly Never	14 (40) 39 (39.8) 51 (40.8) 60 (61.9)	14 (40) 27 (27.6) 33 (26.4) 17 (17.5)	7 (20) 32 (32.7) 41 (32.8) 20 (20.6)	35 (100) 98 (100) 125 (100) 97 (100)	X^2= 17.01 p=.009 V=.15 p =<.009

Note: Where only two geographical practice locations were analysed, this was due to the small sample size.

Referral and Follow-Up[25]

Figure 23 shows that at the individual-focused intervention level, 39.4% (n=128) of CPHNs engaged with teaching amputee's skills monthly. At the community-focused intervention level, 45.7% (n=143) never engaged with referral to clubs/groups or NGOs, while 29.7% (n=93) referred quarterly. Just over 40% (43.0%, n=159) of CPHNs worked with community health workers to ensure safe motherhood initiatives monthly. At systems-focused intervention level, 31.8 ((n=105) of CPHN's engaged with government and NGOs monthly and 30.6% (n=105) did so quarterly.

Figure 23 How often CPHNs conducted referral and follow-up at the individual, community, and systems-level (%)

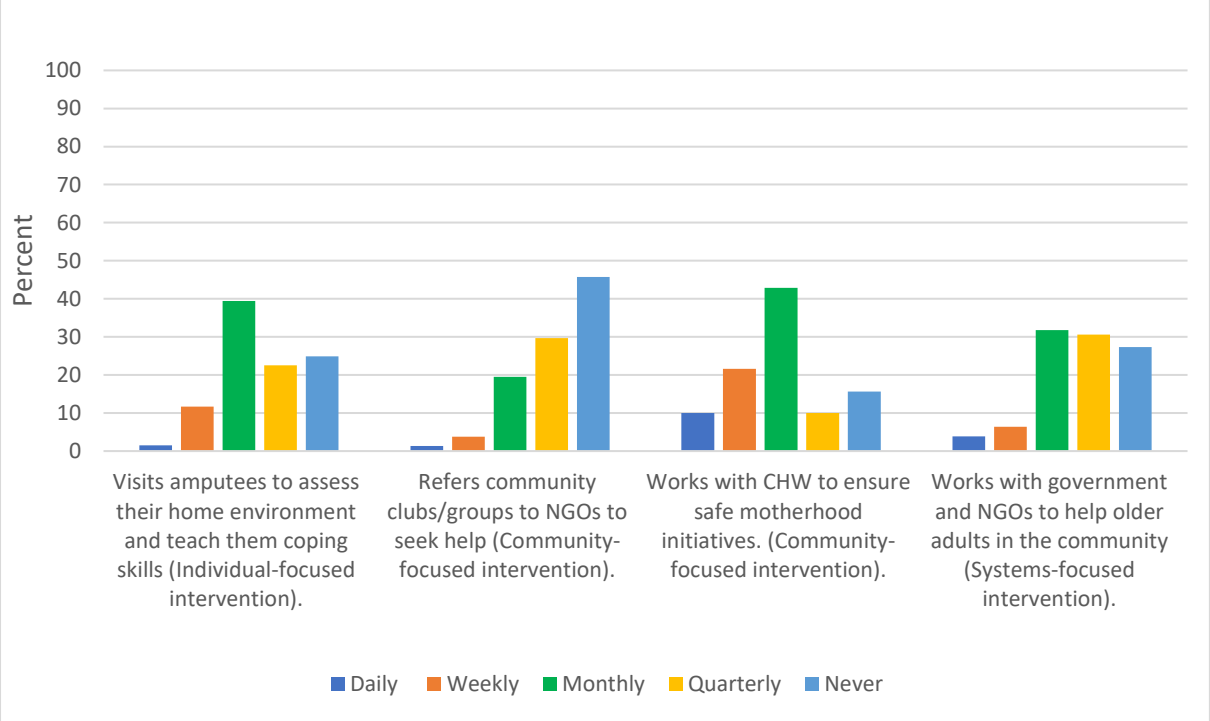


Table 21 shows how often CPHN's were engaged with referral and follow-up interventions by geographical practice location. There was a significant association between individual/family-level intervention - "I visit amputees to assess their home environment and teach them coping skills", and geographical practice location (X^2= 27.98, p=<.001); a moderate effect size was found (V=.20,

[25] Referral and follow-up activities involve assisting individuals, families, groups, organisations, and/or communities to identify and access the necessary resources to prevent or resolve problems or concerns.

p=<.001). More daily, weekly, and monthly visits to amputees were observed in remote rural/maritime locations, than expected. Less daily weekly and monthly visits to amputees were observed in urban/peri-urban areas than expected with these CPHNs reporting "never visiting amputees" more than expected whilst CPHNs in rural remote/maritime locations reported this less than expected.

There was a significant association between the community-level intervention - "referring community clubs/groups to Red Cross, Diabetes Fiji or Fiji Cancer Society to seek help", and geographical practice location (X^2= 11.17, p=<.025); a large effect size was identified (V= .13, p=<.025) (Table 21). More daily, weekly, and monthly referrals were observed in rural locations than expected. Less daily, weekly and monthly referrals were observed in urban/peri-urban areas than expected with the CPHNs in urban/peri-urban areas reporting "never referring" more than expected and CPHNs in rural locations reporting this less than expected.

A significant association was identified between the community-level intervention - "working with community health workers to ensure safe motherhood initiatives", and geographical practice location (X^2= 59.96, p =<.001); a large effect size was found (V= .28, p=<.025) (Table 21). More weekly work with community health workers was observed in rural locations and more daily work with community health workers was observed in remote rural/maritime locations, than expected. Less daily, weekly, and monthly work with community health workers was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - "never working with community health workers to ensure safe motherhood initiatives", more than expected while CPHNs in rural remote/maritime locations reported this less than expected.

Analysis also found a significant association between the systems-level intervention - "working with government and non-government agencies to help older adults in my community", and geographical practice location (X^2= 21.47, p=<.002); a moderate effect size was identified (V= .18, p=<.002) (Table 21). There was less quarterly work with government and non-government agencies in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported "never" performing this intervention more than expected while those in rural and remote rural/maritime locations reported this less than expected.

Table 21 Frequency of Referral and Follow-Up of interventions by geographical practice location

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Referral and Follow-Up			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
28	I visit amputees to assess their home environment and teach them coping skills	Individual/ Family	Daily & Weekly Monthly Quarterly Never	11 (25.6) 45 (35.2) 31 (42.5) 54 (66.7)	17 (39.5) 38 (29.7) 22 (30.1) 12 (14.8)	15 (34.9) 45 (35.2) 20 (27.4) 15 (18.5)	43 (100) 128 (100) 73 (100) 81 (100)	X^2= 27.98 p=<.001 V=.20 p =<.001
29	I refer community clubs/groups to Red Cross, Diabetes Fiji or Fiji Cancer Society to seek help	Community	Daily, Weekly & Monthly Quarterly Never	29 (37.7) 41 (44.1) 74 (51.7)	30 (39) 23 (24.7) 27 (18.9)	18 (23.4) 29 (31.2) 42 (29.4)	77 (100) 93 (100) 143 (100)	X^2= 11.17 p=<.025 V=.13 p =< .025
30	I work with community health workers to ensure safe motherhood initiatives.	Community	Daily Weekly Monthly Quarterly Never	9 (24.3) 24 (30) 67 (42.1) 19 (51.4) 50 (86.2)	9 (24.3) 30 (37.5) 42 (26.4) 9 (24.3) 6 (10.3)	19 (51.4) 26 (32.5) 50 (31.4) 9 (24.3) 2 (3.4)	37 (100) 80 (100) 159 (100) 37 (100) 58 (100)	X^2= 59.96 p=<.001 V=.28 p =<.001
31	I work with government and non-government agencies to help older adults in my community	Systems	Daily & Weekly Monthly Quarterly Never	10 (29.4) 40 (38.1) 37 (36.6) 57 (63.3)	13 (38.2) 32 (30.5) 31 (30.7) 13 (14.4)	11 (32.4) 33 (31.4) 33 (32.7) 20 (22.2)	34 (100) 105 (100) 101 (100) 90 (100)	X^2= 21.47 p =<.002 V=.18 p =<.002

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

5.5.3 Health Teaching, Counselling, Consultation

Health Teaching[26]

Figure 24 shows for health teaching at the individual-focused intervention level, 43.4% (n=172) of CPHNs provided breastfeeding advice to MCH mothers daily and 37.6% weekly (n= 149). Also, 33.8% (n=130) provided health education and advice to SOPD clients weekly and 32.3% (n=123) reported teaching pregnant mothers about self-care, nutrition and reducing substance abuse weekly.

At the community-focused intervention level, 31.3% (n=110) of CPHNs taught hand washing to schoolchildren quarterly, 39.3% (n=138) worked with the community women's group on health-promoting activities monthly, and 50.9% (n=178) taught village health workers about wellness, referred simple cases, and collected community health data monthly. At systems-focused intervention level, "never" was the most commonly reported category (39.2% n =131) with only 28.1% (n=94) of CPHNs engaged in health teaching quarterly.

[26] Health teaching involves communicating facts, ideas, and skills that change the knowledge, attitudes, values, beliefs, behaviours, and practices of individuals, families, systems, and/ or communities. Counselling establishes an interpersonal relationship with a community, a system, and family or individual intended to increase or enhance their capacity for self-care and coping.

Figure 24 How often CPHNs conducted health teaching at the individual, community, and systems-levels (%)

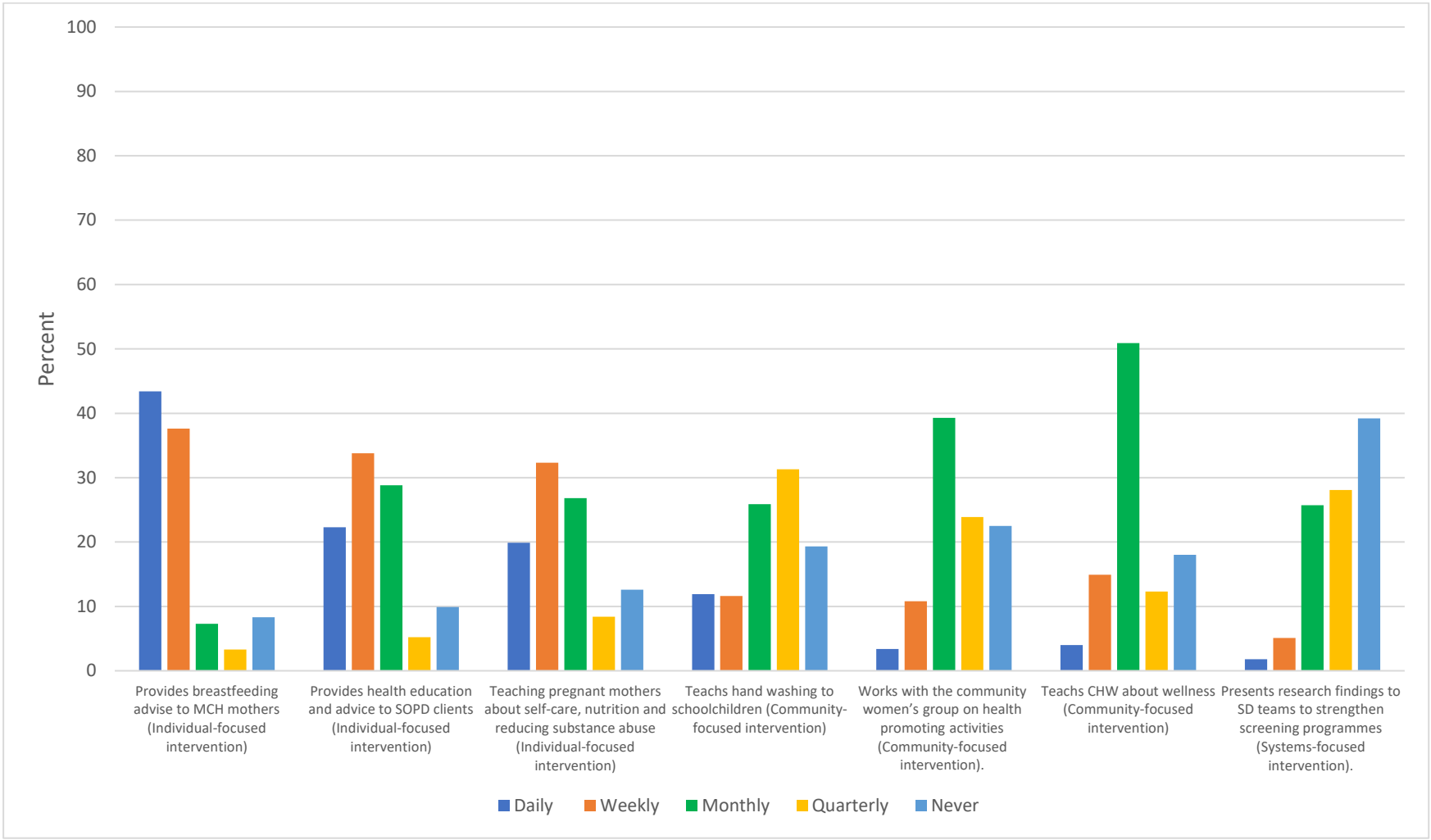


Table 22 shows how often CPHNs were engaged with health teaching interventions by geographical practice location. There was a significant association between the individual family/level intervention - “providing breastfeeding advice to MCH mothers”, and geographical practice location (X^2= 43.55, p =<.001); a large effect size was identified (V= .33, p=<.001) (Table 22) More weekly provision of breastfeeding advice was observed in rural remote/maritime locations than expected, while less weekly provision of breastfeeding advice was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - “never providing breastfeeding advice”, more than expected and CPHNs in rural remote/maritime locations reported this less than expected.

How often CPHNs were engaged with health teaching interventions by geographical practice location, is shown in Table 22. There was a significant association between the individual/family-level intervention “providing health education and advice to SOPD clients on managing complications, i.e. footcare” and geographical practice location (X^2= 42.71, p=<.001); a large effect size was found (V= .23, p=<.001) (Table 20). More daily and weekly provision of health education and advice to SOPD clients was observed in remote rural/maritime locations than expected, while less weekly provision of health education and advice was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never providing health education and advice to SOPD clients on managing complications” more than expected and CPHNs in rural/remote/maritime locations reported this less than expected.

Also shown in Table 22, is how frequently CPHNs were engaged with health teaching interventions by geographical practice location. There was a significant association between the individual/family-level intervention - “teaching pregnant mothers about self-care, nutrition and reducing substance abuse”, and geographical practice location (X^2= 48.59, p =<.001); a large effect size was found (V= .25, p=<.001) (Table 22). More weekly teaching of pregnant mothers was observed in rural and remote rural/maritime locations than expected, while less weekly teaching of pregnant mothers was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never teaching pregnant mothers” more than expected, and those working in in remote rural/maritime locations reported this less than expected.

There was a significant association between the community-level intervention - “teaching hand washing to schoolchildren”, and geographical practice location (X^2= 34.61, p=<.001); a large effect size was identified (V= .22, p=<.001) (Table 22). More daily/weekly teaching of hand washing in rural locations was observed than expected and more quarterly teaching hand washing was observed in remote rural/maritime locations than expected. Less teaching hand washing to schoolchildren monthly was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - “never teaching hand washing to schoolchildren”, more than expected whilst those in rural remote/maritime locations reported this less than expected.

A significant association was also found between the community-level intervention - “working with the community women’s group on health promoting activities”, and geographical practice location (X^2= 42.66, p=<.001); a large effect size was identified (V= .24, p=<.001) (Table 22). More quarterly work with the community women’s group was observed in rural locations than expected, with less monthly and quarterly work with the community women’s group observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - “never working with the community women’s group”, more than expected and CPHNs in rural remote/maritime locations reported this less than expected.

There was a significant association between the community-level intervention “teaching village health workers about wellness, referring simple cases and collecting community health data” and geographical practice location (X^2= 56.18, p=<.001); a large effect size was found (V= .40, p=< .001) (Table 22). There was less weekly teaching of village health workers observed in urban/peri-urban areas, than expected and more weekly and monthly teaching of village health workers observed in rural remote/maritime locations. The CPHNs in urban/peri-urban areas reported never teaching village health workers more than expected, while CPHNs in remote rural/maritime locations reported this less than expected.

Analysis revealed a significant association between the systems-level intervention “presenting research findings to the sub-divisional teams to strengthen screening programmes” and geographical practice location (X^2= 27.98, P=<.001); a moderate effect size was identified (V= .20, p=<.001) (Table 22). More monthly presentation of research findings was observed in remote rural/maritime locations than expected, with less daily and weekly presentation of

research findings observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - “never presenting research findings”, more than expected and those working in in remote rural/maritime locations reported this less than expected.

Table 22 Frequency of health teaching interventions by geographical practice location

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Health teaching			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
32	I provide breastfeeding advice to MCH mothers	Individual/ Family	Daily Weekly Monthly Quarterly Never	77 (44.8) 52 (34.9) 12 (41.4) 8 (61.5) 32 (97.0)		95 (55.2) 97 (65.1) 17 (58.6) 5 (38.5) 1 (3.0)	19 (100) 62 (100) 61 (100) 88 (100)	X^2= 43.55 p=<.001 V=.33 p =< .001
33	I provide health education and advice to SOPD clients on managing complications, i.e., footcare	Individual/ Family	Daily Weekly Monthly Quarterly Never	33 (38.4) 42 (32.3) 47 (42.3) 15 (75) 32 (84.2)	24 (27.9) 48 (36.9) 31 (27.9) 3 (15) 3 (7.9)	29 (33.7) 40 (30.8) 33 (29.7) 2 (10) 3 (7.9)	86 (100) 130 (100) 111 (100) 20 (100) 38 (100)	X^2= 42.71 p=<.001 V=.23 p =< .001
34	I teach pregnant mothers about self-care, nutrition and reducing substance abuse	Individual/ Family	Daily Weekly Monthly Quarterly Never	30 (39.5) 38 (30.9) 45 (44.1) 16 (50) 42 (87.5)	20 (26.3) 40 (32.5) 30 (29.4) 10 (31.3) 4 (8.3)	26 (34.2) 45 (36.6) 27 (26.5) 6 (18.8) 2 (4.2)	76 (100) 123 (100) 102 (100) 32 (100) 48 (100)	X^2= 48.59 p=<.001 V=.25 p =< .001
35	I teach hand washing to schoolchildren	Community	Daily Weekly Monthly Quarterly Never	19 (45.2) 12 (29.3) 29 (31.9) 43 (39.1) 48 (70.6)	10 (23.8) 20 (48.8) 31 (34.1) 24 (21.8) 12 (17.6)	13 (31) 9 (22) 31 (34.1) 43 (39.1) 8 (11.8)	42 (100) 41 (100) 91 (100) 110 (100) 68 (100)	X^2= 41.11 p=<.001 V =0.22 p =<.001

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Health teaching			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
36	I work with the community women's group on health promoting activities	Community	Daily & Weekly Monthly Quarterly Never	15 (30) 46(33.3) 33 (39.3) 58 (73.4)	18 (36) 37 (26.8) 28 (33.3) 9 (11.4)	17 (34) 55 (39.9) 23 (27.4) 12 (15.2)	50 (100) 138 (100) 84 (100) 79 (100)	X^2= 42.66 p=< .001 V=.24 p =<.001
37	I teach village health workers about wellness, referring simple cases and collect community health data	Community	Daily Weekly Monthly Quarterly Never	5 (35.7) 12 (32.1) 59 (33.1) 19 (44.2) 52 (82.5)		9 (64.3) 40 (76.9) 119 (66.9) 24 (55.8) 11 (17.5)	14 (100) 52 (100) 178 (100) 43 (100) 63 (100)	X^2= 56.18 p=<.001 V=.40 p =<.001
38	I present research findings to my sub divisional teams to strengthen screening programmes	Systems	Daily & Weekly Monthly Quarterly Never	4 (17.4) 31 (36) 40 (42.6) 72 (55)	13 (56.5) 17 (19.8) 25 (26.6) 32 (24.4)	6 (26.1) 38 (44.2) 29 (30.9) 27 (20.6)	23 (100) 86 (100) 94 (100) 131 (100)	X^2= 27.98 p=<.001 V=.20 p =<.001

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

Counselling[27]

Figure 25 shows that at the individual-focused intervention level, 37.9% (n=150) of CPHNs provided family planning counselling and contraceptives daily, 31% (n=113) provided sexual health advice to the young people in the community monthly, 27.2% (n=99) conducted motivational interviews with SOPD clients monthly, and 26.6% (n= 97) did so weekly. At the community-focused intervention level, 44.3% (n=153) of CPHNs conducted counselling monthly. At the systems-focused intervention level, 34% (n= 113) of CPHNs never engaged with counselling, 30.4% (n=101) engaged with counselling quarterly and 28.6% (n=95) did so monthly.

Figure 25 How often CPHNs conducted counselling at the individual, community, and systems level (%)

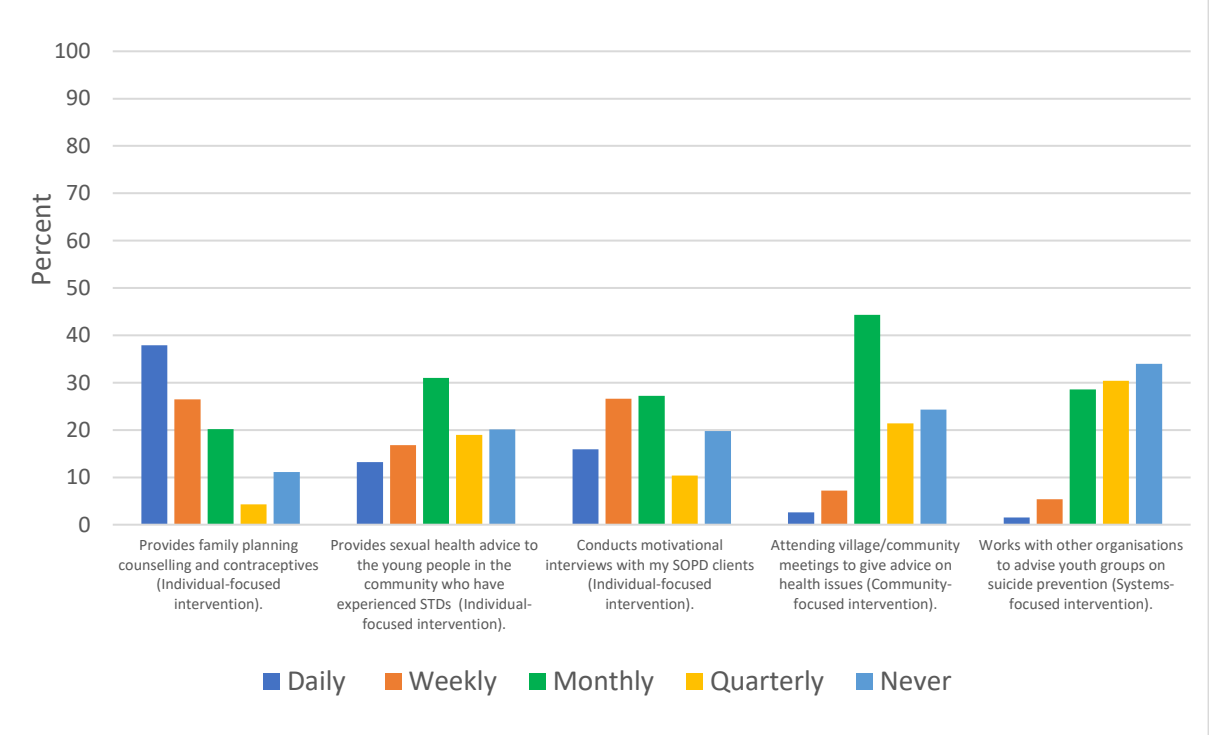


Table 23 shows how often CPHNs were engaged with counselling interventions by geographical practice location. There was a significant association between the individual/family-level intervention - "providing family planning counselling and contraceptives", and geographical practice location (X^2= 48.35, p =<.001); a large effect size was identified (V= .34, p =<.001). More daily and weekly provision of family planning counselling and contraceptives was

[27] Counselling engages the community, a system, and a family or individual at an emotional level.

completed in remote rural/maritime areas than expected, while less daily and weekly providing of family planning counselling and contraceptives was performed in urban/peri-urban areas than expected (Table 23). The CPHNs in urban/peri-urban areas reported - “never providing family planning counselling”, more than expected while those working in rural remote/ maritime areas reported never less than expected.

There was a significant association between individual family-level intervention - “providing sexual health advice to the young people in the community who have experienced sexually transmitted diseases”, and geographical practice location (X^2= 38.12, p =<.001); a large effect size was found (V= .22, p=<.001) (Table 23). More daily and monthly providing of sexual health advice was observed in remote rural/maritime areas than expected, with more weekly provision of sexual health advice in rural areas than expected. The CPHNs in urban/peri-urban areas reported “never providing sexual health advice” more than expected and CHPNs in rural areas reported never providing this service less than expected.

As shown in Table 23, there was variation in how frequently CPHNs engaged with counselling interventions by geographical practice location. There was a significant association between individual family-level intervention - “conducting motivational interviews with SOPD clients”, and geographical practice location (X^2= 34.42, p=<.001); a moderate effect size was identified (V= .21, p =<.001) (Table 23). More motivational interviews with SOPD clients were conducted in rural and remote rural/maritime areas than expected, while there was less weekly conducting of motivational interviews in urban/ peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never” performing this activity more than expected, while those in rural, and remote rural/maritime areas reported this less than expected.

A significant association was identified between the community-level intervention - “taking part in village/community meetings to give advice on health issues”, and geographical practice location (X^2= 75.45, p =<.001); a large effect size was found (V= .33, p=<.001) (Table 23). More CPHNs took part quarterly in village community meetings in rural areas, and more did so monthly in remote rural/maritime areas than expected. Less monthly activity in village community meetings was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - “never taking part in village community meetings”, more than expected while rural and remote rural/maritime CPHNs reported this less than expected.

There was also a significant association between the systems-level intervention - “working with other organisations to advise youth groups on suicide prevention”, and geographical practice location (X^2= 30.26, p =<.001); a moderate effect size was identified (V= .21, p=<.001) (Table 23). More work was done with other organisations on suicide prevention in remote rural/maritime areas than expected, while less monthly and quarterly work was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported never working with other organisations on suicide prevention more than expected, while CPHNs in rural and remote rural/maritime areas reported this less than expected.

Table 23 Frequency counselling intervention by geographical practice location

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Counselling			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
39	Provides family planning counselling and contraceptives	Individual/ Family	Daily Weekly Monthly Quarterly Never	58 (38.7) 33 (31.4) 38 (47.5) 9 (52.9) 40 (90.9)		92 (61.3) 72 (68.6) 42 (52.5) 8 (47.1) 4 (9.1)	150 (100) 105 (100) 80 (100) 17 (100) 44 (100)	X^2= 48.35 p=<.001 V=.34 p=<.001
40	I provide sexual health advice to the young people in the community who have experienced sexually transmitted diseases	Individual/ Family	Daily Weekly Monthly Quarterly Never	16 (33.3) 20 (32.8) 43 (38.1) 27 (39.1) 53 (72.6)	11 (22.9) 23 (37.7) 31 (27.4) 24 (34.8) 11 (15.1)	21 (43.8) 18 (29.5) 39 (34.5) 18 (26.1) 9 (12.3)	48 (100) 61 (100) 113 (100) 69 (100) 73 (100)	X^2= 38.12 p=<.001 V=.22 p=<.001
41	I conduct motivational interviews with my SOPD clients	Individual/ Family	Daily Weekly Monthly Quarterly Never	26 (44.8) 27 (27.8) 38 (38.4) 20 (52.6) 50 (69.4)	12 (20.7) 34 (35.1) 31 (31.3) 11 (28.9) 12 (16.7)	20 (34.5) 36 (37.1) 30 (30.3) 7 (18.4) 50 (69.4)	58 (100) 97 (100) 99 (100) 38 (100) 112 (100)	X^2= 34.42 p=<.001 V=.21 p=<.001
42	I take part in village / community meetings to give advice on health issues	Community	Daily & Weekly Monthly Quarterly Never	12 (35.3) 41 (26.8) 27 (36.5) 67 (79.8)	10 (29.4) 43 (28.1) 30 (40.5) 10 (11.9)	12 (35.3) 69 (45.1) 17 (23) 7 (8.3)	34 (100) 153 (100) 74 (100) 84 (100)	X^2= 75.45 p=<.001 V=.33 p=< 001
43	I work with other organisations to advise youth groups on suicide prevention	Systems	Daily & Weekly Monthly Quarterly Never	9 (39.1) 34 (35.8) 30 (29.7) 70 (61.9)	10 (43.5) 28 (29.5) 31 (30.7) 18 (15.9)	4 (17.4) 33 (34.7) 40 (39.6) 25 (22.1)	23 (100) 95 (100) 101 (100) 113 (100)	X^2= 30.26 p=<.001 V=.21 p=<.001

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

Consultation[28]

Figure 26 shows that at the individual-focused intervention level, CPHNs engaged with providing different family planning options daily (28.8%, n=114) and weekly (28.8%, n=114). At the community-focused intervention level, 31% (n= 105) of CPHNs conducted consultation monthly and 30.7% (n=104) did so quarterly. At systems-focused intervention level, 39.3% (n= 126) never worked with Police, 29.3% (n= 94) did so quarterly, and 4% (n=13) weekly.

Figure 26 How often CPHNs conducted consultation at the individual, community, and systems-level (%)

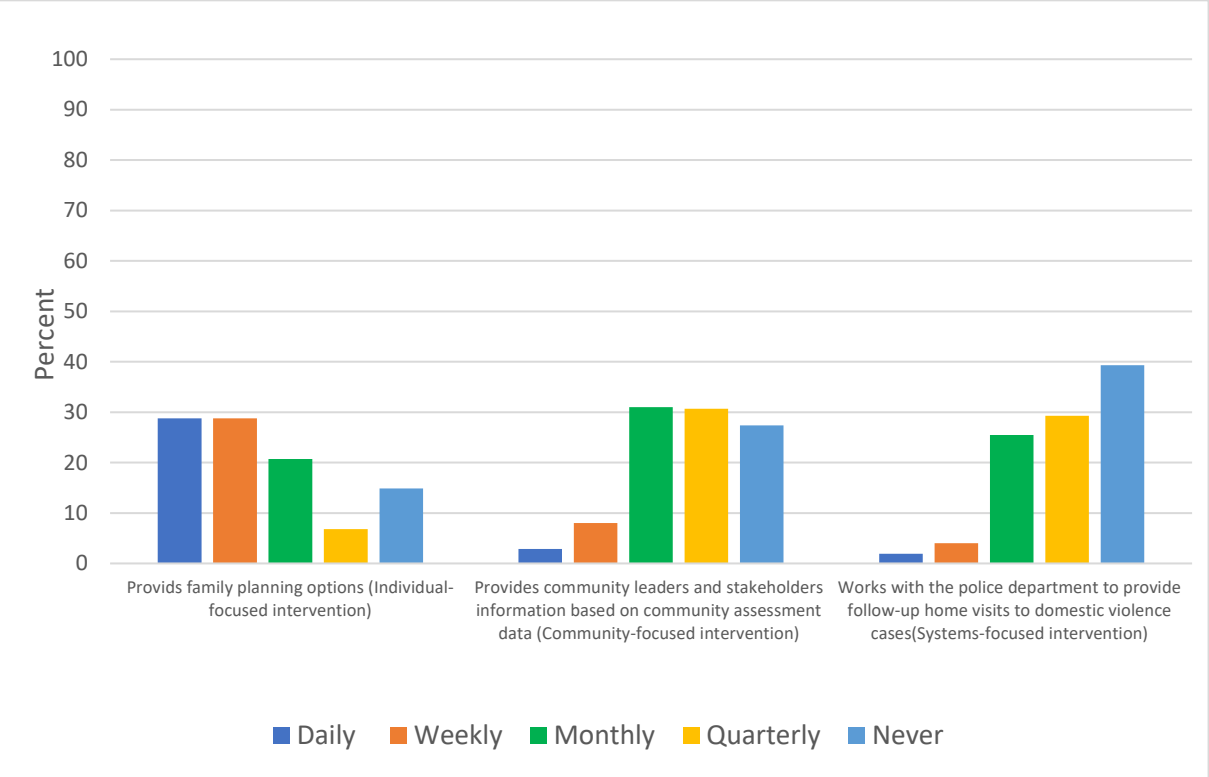


Table 24 shows how often CPHNs were engaged with consultation interventions by geographical practice location. There was a significant association between the individual/family-level intervention - "providing different family planning options to the clients for them to decide and choose from", and geographical practice location (X^2= 65.76, p= <.001); a large effect size was identified (V= .28, p=<.001) (Table 24). More CPHNs provided family

[28] Consultation seeks information and generates optional solutions to perceived problems or issues through interactive problem solving with a community, system, and family or individual. The community, system, and family or individual select and act on the option best meeting the circumstances.

planning options to clients in remote rural/maritime areas weekly than expected, whereas this was observed less in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never” more than expected while CPHNs in remote rural/maritime locations reported this less than expected.

There was a significant association between the community-level intervention - “I provide community leaders and stakeholders information based on community assessment data”, and geographical practice location (X^2= 45.74, p=<.001); a large effect size was found (V=.26, p =< .001) (Table 24). More quarterly provision of information to community leaders and stakeholders was observed in rural areas than expected and more monthly provision was observed in remote rural/maritime areas than expected. Providing information to community leaders and stakeholders quarterly was observed less in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never” for this activity more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

A significant association was also found between the systems-level intervention “working with the police department to provide follow-up home visits to domestic violence cases” and geographical practice location (X^2= 16.03, p=<.014); a moderate effect size was identified (V= .15, p =<.001) (Table 24). More monthly work was done with the police department in rural areas than expected, while more daily and quarterly work with the police was observed in remote rural/maritime areas than expected. There was less monthly work with the police department observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - “never working with the police”, more than expected while those in remote rural/maritime areas reported this less than expected.

Table 24 Frequency of consultation intervention by geographical practice location and chi-square and Cramer V tests

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Consultation			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
44	I provide different family planning options to my clients for them to decide and choose from.	Individual/ Family	Daily	50 (43.9)	33 (28.9)	31 (27.2)	114 (100)	X^2= 65.76
			Weekly	27 (23.7)	37 (32.5)	50 (43.9)	114 (100)	p=<.001
			Monthly	35 (42.7)	29 (35.4)	18 (22)	82 (100)	V=.28
			Quarterly	15 (55.6)	5 (18.5)	7 (25.9)	27 (100)	p =<.001
			Never	50 (84.7)	5 (8.5)	4 (6.8)	59 (100)	
45	I provide community leaders and stakeholders information based on community assessment data	Community	Daily & Weekly	11 (29.7)	13 (35.1)	13 (35.1)	37 (100)	X^2= 45.74
			Monthly	39 (37.1)	27 (25.7)	39 (37.1)	105 (100)	p=<.001
			Quarterly	29 (27.9)	39 (37.5)	36 (34.6)	104 (100)	V=.26
			Never	66 (71)	12 (12.9)	15 (16.1)	93 (100)	p =<.001
46	I work with the police department to provide follow-up home visits to domestic violence cases	Systems	Daily & Weekly	7 (36.8)	4 (21.1)	8 (42.1)	19 (100)	X^2= 16.03
			Monthly	26 (31.7)	30 (36.6)	26 (31.7)	82 (100)	p=<.014
			Quarterly	40 (42.6)	21 (22.3)	33 (35.1)	94 (100)	V=.15
			Never	69 (54.8)	31 (24.6)	26 (20.6)	126 (100)	p =<.001

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

5.5.4 Collaboration, Coalition Building and Community Organising

Collaboration[29]

Figure 27 shows that at the individual-focused intervention level, 54% (n=181) of CPHNs engaged with collaboration monthly. At the community-focused intervention level, 36.2% (n=115) of CPHNs never planned disaster management strategies with the community, while 30.8% (n=98) did so quarterly and 1.9% (n=6) weekly. At the community intervention level, 40.0% (n=144) worked work with health inspectors and community groups on environmental cleanliness monthly. At the systems-focused intervention level, 35.9% (n=127) of CPHNs engaged with surveillance monthly and 31.6% (n=112) quarterly.

Figure 27 How often CPHNs conducted collaboration at the individual, community, and systems-level (%)

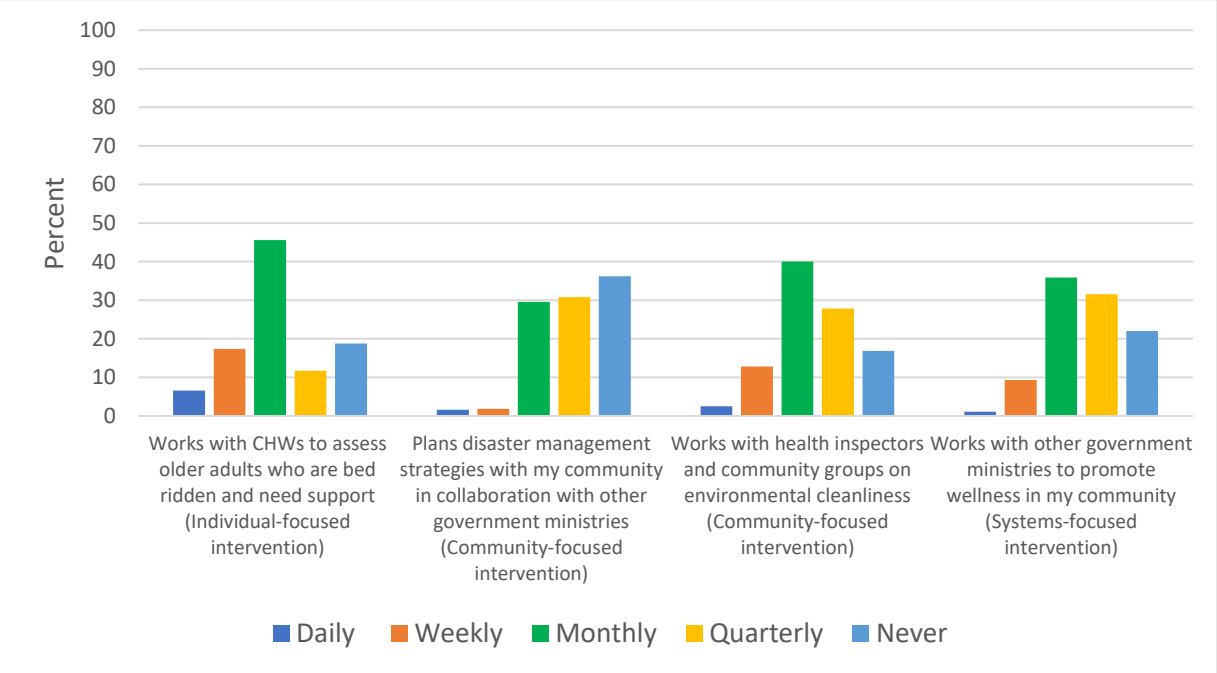


Table 25 shows how often CPHNs were engaged with collaboration interventions by geographical practice location. There was a significant association between the individual/family-level intervention - "working with community health workers to assess older adults who are bedridden and needed support", and geographical practice location (X^2= 72.05, p=< .001); a large effect size was found (V= .32, p=<.001) (Table 25). More weekly and monthly

[29] Collaboration commits two or more persons or organisations to achieve a common goal through enhancing the capacity of one or more of the members to promote and protect health [adapted from Henneman, Lee, and Cohen "Collaboration: A Concept Analysis" in J. Advanced Nursing Vol 211995:103–109].

work was observed in rural areas than expected, whereas more daily work with older adults was observed in remote rural/maritime areas than expected. In urban/peri-urban areas, less weekly and monthly work was observed than expected. The CPHNs in urban/peri-urban areas reported "never" more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

There was a significant association between the community-level intervention - "planning disaster management strategies with the community in collaboration with other government ministries", and geographical practice location (X^2= 41.49, p=<.001); a large effect size was identified (V= .25, p=<.001) (Table 25). More daily/weekly/monthly and quarterly planning was observed in rural areas than expected. Less daily/weekly/monthly and quarterly planning was observed in urban/peri-urban areas than expected. Those working in urban/peri-urban areas reported "never planning disaster management" more than expected while CPHNs in rural and remote rural/maritime areas reported never doing this less than expected.

There was a significant association between the community-level intervention - "working with health inspectors and community groups on environmental cleanliness", and geographical practice location (X^2= 70.29, p=<.001); a large effect size was identified (V= .31, p=<.001) (Table 25). More daily work was observed in rural areas than expected and more monthly work was observed in remote rural/maritime areas than expected. Less daily and monthly work was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - "never working with health inspectors/community groups on environmental cleanliness", more than expected while those in in rural and remote rural/maritime areas reported this less than expected.

A significant association was also identified between the systems-level intervention - "working with other government ministries to promote wellness in my community", and geographical practice location (X^2= 41.08, p=<.001); a large effect size was found (V= .24, p=<.001) (Table 25). More monthly work was observed in rural and remote rural/maritime areas than expected with less monthly and quarterly work observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported "never working with other government ministries to promote wellness in community" more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

Table 25 Frequency collaboration intervention by geographical practice location

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Collaboration			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
47	I work with community health workers to assess older adults who are bed ridden and need support	Individual/ Family	Daily	6 (26.1)	2 (8.7)	15 (65.2)	23 (100)	X^2= 72.05
			Weekly	12 (19.7)	27 (44.3)	22 (36.1)	61 (100)	p=<.001
			Monthly	60 (37.5)	49 (30.6)	51 (36.9)	160 (100)	V=.32
			Quarterly	18 (43.9)	12 (29.3)	11 (26.8)	41 (100)	p =<.001
			Never	54 (81.8)	5 (7.6)	7 (10.6)	66 (100)	
48	I plan disaster management strategies with my community in collaboration with other government ministries	Community	Daily, weekly, Monthly	31 (29.5)	32 (30.5)	42 (40)	105 (100)	X^2= 41.49
			Quarterly	31 (31.6)	34 (34.7)	33 (33.7)	98 (100)	p=<.001
			Never	77 (67.0)	14 (12.2)	24 (20.9)	115 (100)	V=.25
								p=<.001
49	I work with health inspectors and community groups on environmental cleanliness	Community	Daily Weekly	16 (29.1)	25 (41)	14 (25.5)	55 (100)	X^2= 70.29
			Monthly	44 (30.6)	41 (28.5)	59 (41)	144 (100)	p=<.001
			Quarterly	42 (42)	32 (32)	26 (26)	100 (100)	V=.31
			Never	53 (86.9)	2 (3.3)	6 (9.8)	61 (100)	p=<.001
50	I work with other government ministries to promote wellness in my community	Systems	Daily Weekly	16 (43.2)	11 (29.7)	10 (27)	37 (100)	X^2= 41.08
			Monthly	39 (30.7)	42 (33.1)	46 (36.2)	127 (100)	p=<.001
			Quarterly	42 (37.5)	34 (30.4)	36 (32.1)	112 (100)	V=.24
			Never	58 (74.4)	7 (9)	13 (16.7)	78 (100)	p=<.001

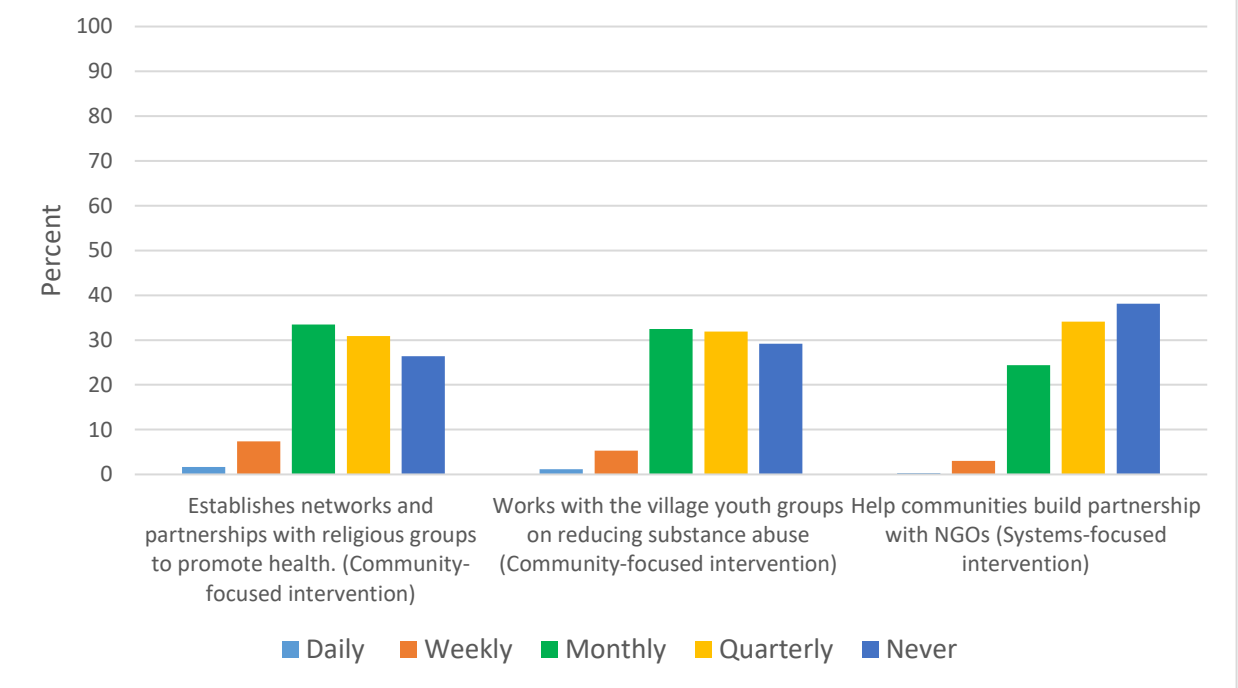
Note: Where only two geographical practice locations were analysed this was due to the small sample size.

Coalition Building[30]

Coalition building and community organising does not have any intervention at an individual level.

Figure 28 shows that for coalition building at the community-focused intervention level, 33.5% (n= 117) of CPHNs established networks and partnerships with religious groups to promote health monthly and 30.9% (n=108) did so quarterly. Working with the village youth groups was undertaken by 32.5% (n=111) of CPHNs monthly and 31.9% (n= 109) quarterly. At the systems-focused intervention level, 38.1% (n=125) of CPHNs never built partnerships with NGO's and 34.1% (n=112) built partnerships quarterly.

Figure 28 How often CPHNs conducted investigation at the community and systems-level (%)



There was a significant association between the community-level intervention - "establishing networks and partnerships with religious groups to promote health", and geographical practice location (X^2= 34.38, p=<.001); a large effect size was found (V= .22, p=<.001) (Table 26). More monthly work was observed in remote rural/maritime areas than expected while less quarterly

[30] Coalition building promotes and develops alliances among organisations or constituencies for a common purpose. It builds linkages, solves problems, and / or enhances local leadership to address health concerns.

work was observed in these areas. In rural areas, there was less monthly work for this intervention than expected and more quarterly work than expected. The CPHNs in urban/peri-urban areas reported - “never forming networks and partnership established with religious groups to promote health”, more than expected while those in rural and remote rural/maritime areas reported this less than expected.

A significant association was identified between the community-level intervention - “working with the village youth groups to develop strategies on reducing substance abuse”, and geographical practice location (X^2= 38.30, p=<.001); a large effect size was found (V= .23, p =<.001) (Table 26). More daily and quarterly work was done with village youth groups in rural areas than expected and more monthly work was completed in remote rural/maritime areas than expected. Less monthly and quarterly work was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - “never working with village youth groups”, more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

Analysis also highlighted a significant association between the systems-level intervention - “helping communities to build partnership with NGOs and other ministries”, and geographical practice location (X^2= 15.28, p=<.001); a moderate effect size was identified (V= .18, p =<.001) (Table 26). More daily, monthly, and quarterly work helping communities to build partnership was observed in rural areas than expected. Less daily, weekly, monthly, and quarterly work was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never” for this intervention more than expected while CPHNs in rural areas reported this less than expected.

Table 26 Frequency of Coalition Building intervention by geographical practice location and chi square and Cramer V tests

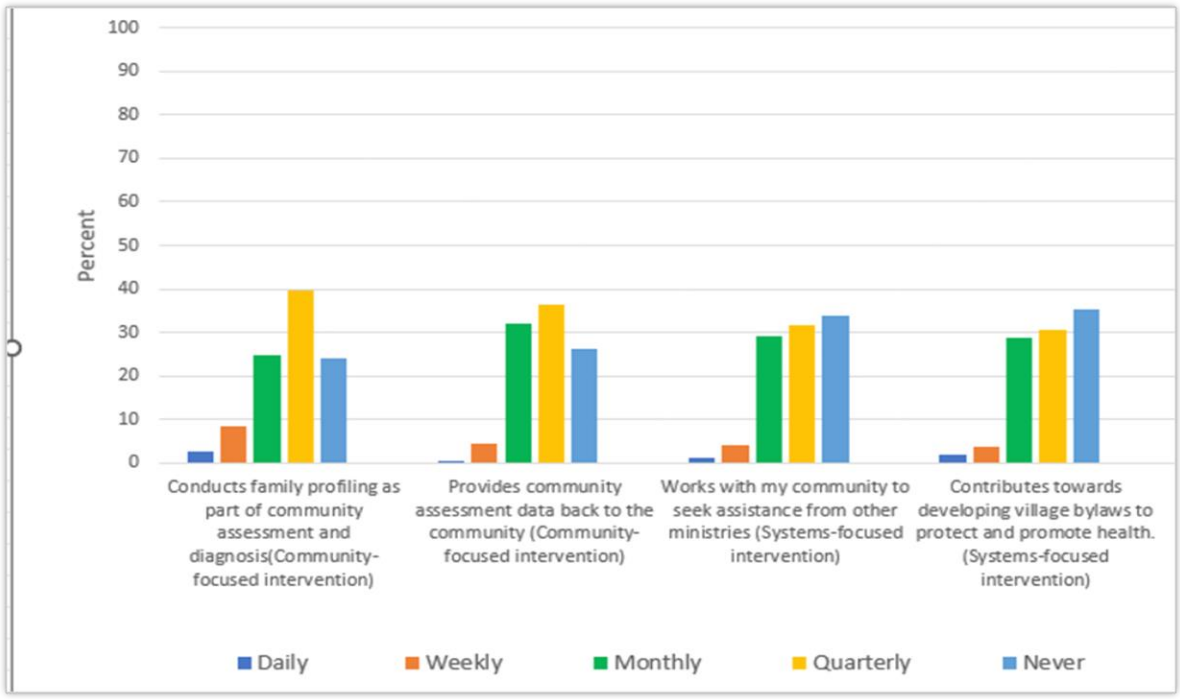
No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Coalition Building			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
51	I have established networks and partnerships with religious groups to promote health	Community	Daily Weekly	12 (37.5)	10 (31.3)	10 (31.3)	32 (100)	X^2= 34.38
			Monthly	34 (29.1)	33 (28.2)	50 (42.7)	117 (100)	p=<.001
			Quarterly	45 (41.7)	37 (34.3)	26 (24.1)	108 (100)	V=.22
			Never	60 (65.2)	13 (14.1)	19 (20.7)	92 (100)	p =<.001
52	I work with the village youth groups to develop strategies on reducing substance abuse	Community	Daily Weekly	6 (27.3)	9 (40.9)	7 (31.8)	22 (100)	X^2= 38.30
			Monthly	37 (33.3)	31 (27.9)	43 (38.7)	111 (100)	p=<.001
			Quarterly	37 (33.9)	38 (34.9)	34 (31.2)	109 (100)	V=.23
			Never	68 (6)	14 (14)	18 (18)	100 (100)	p =<.001
53	I help my communities to build partnership with NGOs and other ministries	Systems	Daily, Weekly, Monthly	30 (33)		61 (67)	91 (100)	X^2= 15.28
			Quarterly	43 (38.4)		69 (61.6)	112 (100)	p=<.001
			Never	72 (57.6)		53 (42.4)	125 (100)	V=.18
								p =<.001

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

Community Organising[31]

Figure 29 shows results for community organising. At the community-focused intervention level, 39.8% (n= 131) of CPHNs conducted family profiling quarterly. For the intervention - "providing community assessment data back to the community," 36.6% (n=122) of CPHNs did so quarterly, and 32.1% (n=107) monthly. At systems-focused intervention level, 33.8% (n=111) of CPHNs never worked with communities to seek assistance from other ministries, 31.7% (n=104) did so quarterly, and 29% (n=95) monthly. Around 30% of CPHNs (35.2%, n=113) never contributed towards developing village bylaws to protect and promote health, while 30.5% (n=98) did so quarterly and 28.7% (n=92) monthly.

Figure 29 How often CPHNs conducted investigation at the individual, community, and systems-level (%)



There was a significant association between the community-level intervention - "conducting family profiling as part of community assessment and diagnosis with village health workers and student nurses", and geographical practice location (X^2= 50.88, p=<.001); a large effect size was identified (V= .27, p=<.001) (Table 27). More family profiling was observed in rural areas than expected. More quarterly family profiling was observed in remote rural/maritime areas than

[31] Community organising helps community groups to identify common problems or goals, mobilise resources, and develop and implement strategies for reaching the goals they collectively have set [adapted from Minkler, M (Ed) Community Organizing and Community Building for Health (New Brunswick, NJ: Rutgers University Press) 1997;30].

expected, with less monthly and quarterly family profiling observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported "never conducting family profiling" more than expected, while CPHNs in rural and remote rural/maritime areas reported this less than expected.

A significant association was also highlighted between the community-level intervention - "providing community assessment data to the community for identifying common problems and draw plans to solve it", and geographical practice location (X^2= 51.27, p=<.001); a large effect size was found (V= .27, p=<.001) (Table 27). More daily, weekly, and monthly community assessment data was returned to the community in rural and remote rural/maritime areas than expected with less daily, weekly, monthly, and quarterly community assessment data returned in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - "never providing community assessment data back to the community", more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

Analysis also revealed a significant association between the systems-level intervention "working with the community to seek assistance from other ministries" and geographical practice location (X^2= 29.10, p=<.001); a moderate effect size was identified (V= .21, p=<.001) (Table 27). More monthly work was done with communities in rural areas than expected, and more quarterly work was performed with communities in remote rural/maritime areas than expected. Less monthly and quarterly work with communities was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported "never working with communities to seek assistance from other ministries", more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

A significant association was also identified between the systems-level intervention of "contributing towards developing village bylaws to protect and promote health" and geographical practice location (X^2= 45.31, p=<.001); a large effect size was found (V=.27, p=<.001) (Table 27). The CPHNs in rural and remote rural/maritime areas performed more monthly and quarterly work focusing on developing village bylaws than expected while those working in urban/peri-urban areas completed this intervention less than expected. The CPHNs in urban/peri-urban areas reported "never" completing this intervention more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

Table 27 Frequency of Community organising intervention by geographical practice location

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Community Organising			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
54	I conduct family profiling as part of community assessment and diagnosis with village health workers and student nurses.	Community	Daily Weekly	17 (45.9)	10 (27)	10 (27)	37 (100)	X^2= 50.88
			Monthly	24 (29.3)	31 (37.8)	27 (32.9)	82 (100)	p=<.001
			Quarterly	42 (32.1)	36 (27.5)	53 (40.5)	131 (100)	V=.27
			Never	60 (75.9)	10 (12.7)	9 (11.4)	79 (100)	p =<.001
55	I provide community assessment data back to the community for identifying common problems and draw plans to solve it.	Community	Daily, weekly, Monthly	33 (26.6)	43 (34.7)	48 (38.7)	124 (100)	X^2= 51.27
			Quarterly	45 (36.9)	38 (31.1)	39 (32)	122 (100)	p=<.001
			Never	65 (74.7)	10 (11.5)	12 (13.8)	87 (100)	V=.27
								p =<.001
56	I work with my community to seek assistance from other ministries.	Systems	Daily, weekly, Monthly	35 (36.8)	35 (36.8)	25 (26.3)	95 (100)	X^2= 29.10
			Quarterly	33 (31.7)	31 (29.8)	40 (38.5)	104 (100)	p=<.001
			Never	70 (63.1)	16 (14.4)	25 (22.5)	111 (100)	V=.21
								p =<.001
57	I contribute towards developing village bylaws to protect and promote health.	Systems	Daily, weekly, Monthly	26 (28.3)	30 (32.6)	36 (39.1)	92 (100)	X^2= 45.31
			Quarterly	29 (29.6)	33 (33.7)	36 (36.7)	98 (100)	p=<.001
			Never	77 (68.1)	13 (11.5)	23 (20.4)	113 (100)	V=.27
								p =<.001

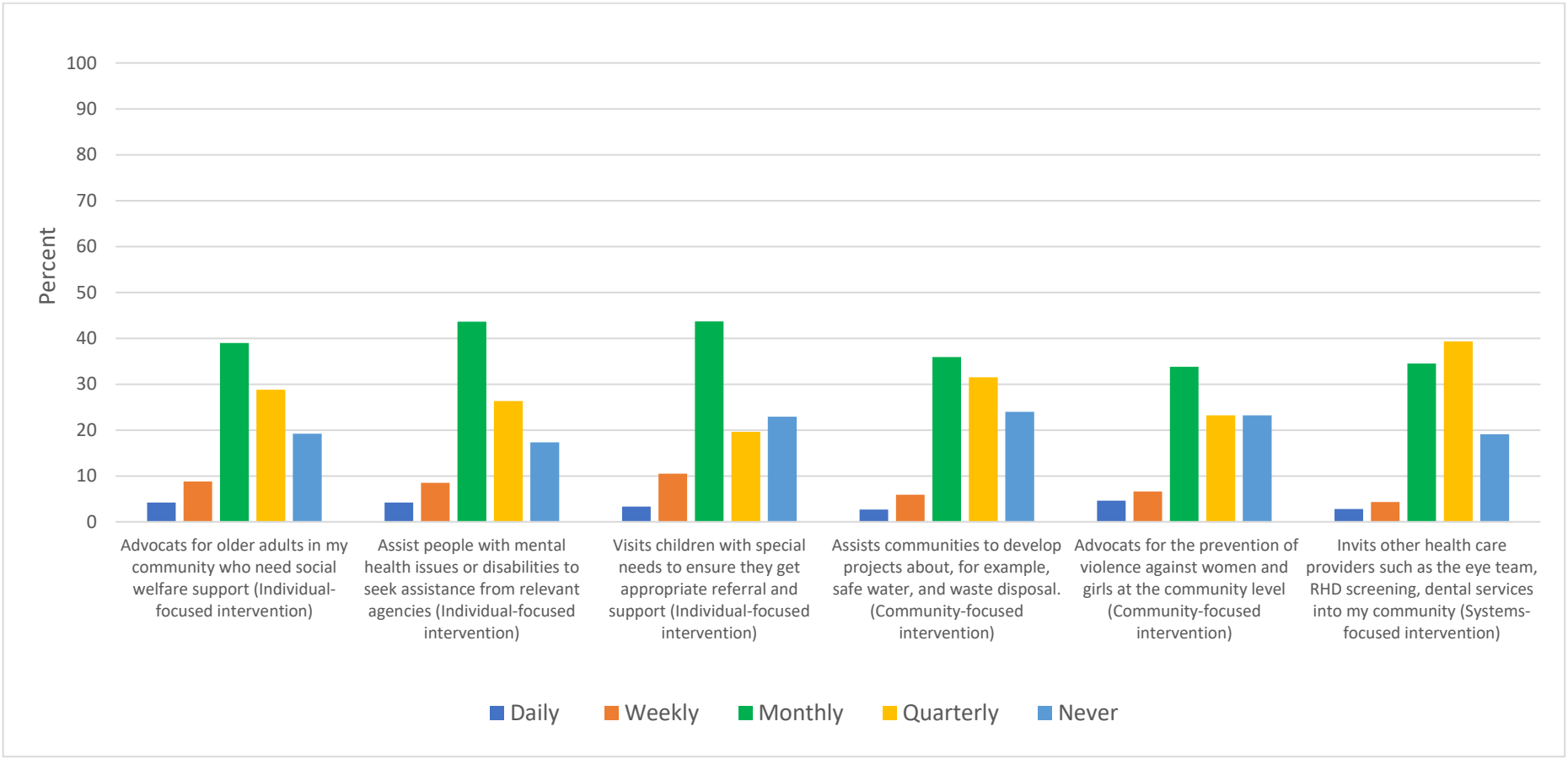
Note: Where only two geographical practice locations were analysed this was due to the small sample size.

5.5.5 Advocacy, Social Marketing, Policy Development and Enforcement

Advocacy

Figure 30 shows that at the individual-focused intervention level, 39% (n=138) of CPHNs advocated for older adults in their community, who needed social welfare support. In fact, 43.6% (n=154) reported helping people with mental health issues or people with disabilities to seek assistance from relevant agencies, and 43.7% (n=145) visited children with special needs to ensure they got appropriate referral and support monthly. At the community-focused intervention level, 35.9% (n= 121) of CPHNs assisted communities in developing projects, such as safe water, and waste disposal and 31.5% (n=106) quarterly. Almost 34.0% (33.8%, n=118)) of CPHNs advocated for the prevention of violence against women and girls at the community-level monthly. At systems-focused intervention level, 39.3% (n=138) of CPHNs engaged with surveillance quarterly and 34.5% (n=121) monthly.

Figure 30 How often CPHNs conducted advocacy at the individual, community, and systems-level (%)



A significant association was also found between individual family-level intervention "advocating for older adults in my community who need social welfare support", and geographical practice location (X^2= 36.47, p=<.001); a large effect size was identified (V= .22, p=<.001) (Table 28). More daily and weekly advocating for older adults in communities was observed in rural areas than expected and more monthly advocating was observed in remote rural/maritime areas than expected. Less monthly advocating for older adults was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported "never advocating" more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

There was a significant association between individual family-level intervention - "helping people with mental health issues or people with disabilities to seek assistance from relevant agencies", and geographical practice location (X^2= 48.11, p= <.001); a large effect size was found (V= .26, p=<.001) (Table 28). More monthly help was provided in rural areas than expected, and more quarterly help was provided in remote rural/maritime areas than expected. Less quarterly help was provided in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported "never helping" more than expected, while CPHNs in rural and remote rural/maritime areas reported this less than expected.

Analysis revealed a significant association between individual family-level intervention "visiting children with special needs to ensure they get appropriate referral and support" and geographical practice location (X^2= 54.35, p=<.001); a large effect size was identified (V= .28, p=<.001) (Table 28). More monthly visits to children with special needs were observed in rural areas than expected while more daily and weekly visits were observed in remote rural/maritime areas than expected. Less monthly visits occurred in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - "never visiting children with special needs", more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

A significant association was also found between the community-level intervention - "assisting communities to develop projects about, for example, safe water, and waste disposal", and geographical practice location (X^2= 67.22, p=<.001); a large effect size was found (V= .31, p =< .001) (Table 28). More CPHNs assisted communities monthly to develop projects, such as safe

water and waste disposal, in rural areas and remote rural/maritime areas than expected. Less daily, weekly, monthly and quarterly assistance of communities in developing these projects occurred in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never assisted communities” more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

Analysis also revealed a significant association between the community-level intervention - “advocating for the prevention of violence against women and girls at the community-level”, and geographical practice location (X^2= 42.91, p=<.001); a large effect size was identified (V= .24, p=<.001) (Table 28). Monthly advocacy was higher than expected in rural areas. More quarterly advocacy was observed in remote rural/maritime areas than expected with less monthly and quarterly advocacy observed in urban/peri-urban areas, than expected. The CPHNs in urban/peri-urban areas reported - “never advocating for the prevention of violence against women and girls at the community-level”, more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

A significant association was found between the systems-level intervention - “inviting other health care providers, such as the eye team, RHD screening, dental services into my community”, and geographical practice location (X^2= 47.71, p=<.001); a large effect size was identified (V= .26, p=<.001) (Table 28). More monthly invitations to other healthcare providers were observed in rural areas than expected with less daily and weekly invitations observed. Less monthly and more quarterly invitations to other health care providers were observed in remote rural/maritime areas than expected, with less quarterly invitations observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported -“never inviting other health care providers, such as the eye team, RHD screening, dental services into community”, more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

Table 28 Frequency of advocacy intervention by geographical practice location

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Advocacy			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
58	I advocate for older adults in my community who need social welfare support	Individual/ Family	Daily Weekly	16(34.8)	18 (39.1)	12 (26.1)	46 (100)	X^2= 36.47
			Monthly	48 (34.8)	41 (29.7)	49 (35.5)	138 (100)	p=<.001
			Quarterly	39 (38.2)	31 (30.4)	32 (31.4)	102 (100)	V=.22
			Never	51 (75)	8 (11.8)	9 (13.2)	68 (100)	p =<.001
59	I help people with mental health issues or people with disabilities to seek assistance from relevant agencies	Individual/ Family	Daily Weekly	19 (42.2)	15 (33.3)	11 (24.4)	45 (100)	X^2= 48.11
			Monthly	51 (33.1)	55 (35.7)	48 (31.2)	154 (100)	p=<.001
			Quarterly	35 (37.6)	26 (28)	32 (34.4)	93 (100)	V=.26
			Never	50 (82)	2 (3.3)	9 (14.8)	61 (100)	p =<.001
60	I visit children with special needs to ensure they get appropriate referral and support	Individual/ Family	Daily Weekly	15 (32.6)	12 (26.1)	19 (41.3)	46 (100)	X^2= 54.35
			Monthly	48 (33.1)	54 (37.2)	43 (29.7)	145 (100)	p=<.001
			Quarterly	26 (40)	18 (27.7)	21 (32.3)	65 (100)	V=.28
			Never	61 (80.3)	5 (6.6)	10 (13.2)	76 (100)	p =<.001
61	I assist communities to develop projects for example, safe water, and waste disposal.	Community	Daily Weekly	5 (17.2)	12 (41.4)	12 (41.4)	29 (100)	X^2= 67.22
			Monthly	38 (31.4)	40 (33.1)	43 (35.5)	121 (100)	p=<.001
			Quarterly	36 (34)	32 (30.2)	38 (35.8)	106 (100)	V=.31
			Never	66 (81.5)	8 (9.9)	7 (8.6)	81 (100)	p =<.001
62	I advocate for the prevention of violence against women and girls at the community-level	Community	Daily Weekly	13 (33.3)	11 (28.2)	15 (38.5)	39 (100)	X^2= 42.91
			Monthly	41 (34.7)	41 (34.7)	36 (30.5)	118 (100)	p=<.001
			Quarterly	40 (36)	31 (27.9)	40 (36)	111 (100)	V=.24
			Never	61 (75.3)	10 (12.3)	10 (12.3)	81 (100)	p =<.001

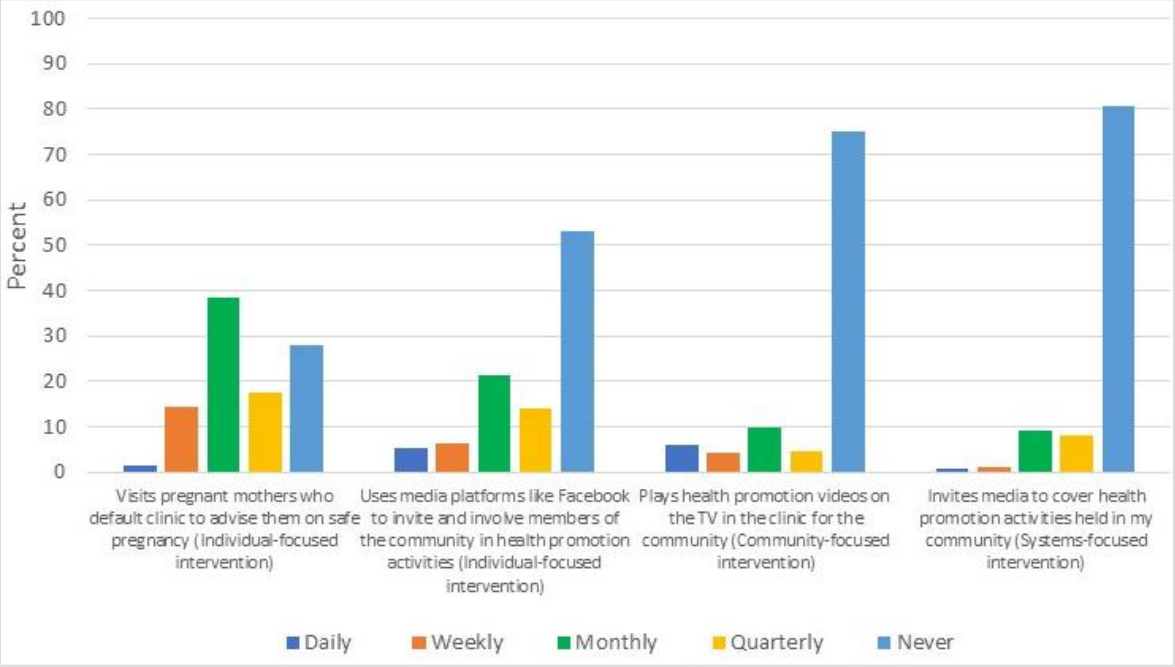
No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Advocacy			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
63	I invite other health care providers such as the eye team, RHD screening, and dental services into my community	Systems	Daily Weekly	9 (36)	4 (16)	12 (48)	25 (100)	X^2= 47.71
			Monthly	46 (38)	48 (39.7)	27 (22.3)	121 (100)	p=<.001
			Quarterly	44 (31.9)	39 (28.3)	55 (39.9)	138 (100)	V=.26
			Never	49 (73.1)	7 (10.4)	11 (16.4)	67 (100)	p =<.001

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

Social Marketing[32]

Figure 31 shows that at the individual-focused intervention level, 38.4% (n=126) of CPHNs visited pregnant mothers who default clinic to advise them on safe pregnancy monthly. Just over 50% (53%, n=170) of CPHNs never used social media platforms to invite and involve community members in health promotion activities, but 21.2% (n= 68) did so monthly. At the community-focused intervention level, the vast majority of CPHNs never engaged, however, 9.9% (n=30) reported playing health promotion videos on television at the clinic monthly. At systems-focused intervention level, again the vast majority did not engage, but 9.3% (n=28) of CPHNs engaged with social marketing and media monthly.

Figure 31 How often CPHNs conducted investigation at the individual, community, and systems-level (%)



A significant association was found individual family-level intervention - "visiting pregnant mothers who defaulted clinic appointments to advise them on safe pregnancy", and geographical practice location (X^2= 77.61, p=<.001); a large effect size was found (V= .34, p=<.001) (Table 29). More daily and weekly visits to pregnant mothers were observed in rural areas than expected with more daily, weekly, and monthly visits to pregnant mothers observed in remote rural/maritime areas than expected. There were less daily, weekly, and monthly visits to pregnant mothers observed in urban/peri-urban areas than expected. The CPHNs in

[32] Social marketing utilises commercial marketing principles and technologies for programs designed to influence the knowledge, attitudes, values, beliefs, behaviours, and practices of the population-of-interest.

urban/peri-urban areas reported - “never visiting pregnant mothers who default clinic appointments to advise them on safe pregnancy” more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

Analysis also found a significant association between individual family-level intervention -“using social media platforms, like Facebook, to invite and involve members of the community in health promotion activities”, and geographical practice location (X^2=19.79, p=<.001); a moderate effect size was identified (V=.17, p=<.003) (Table 29). More monthly use of media platforms like Facebook to invite and involve members of the community was observed in rural areas than expected with more daily and weekly use of social media platforms observed in remote rural/maritime areas than expected. Less daily, weekly, and monthly use of social media platforms was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - “never using media platforms, like Facebook, to invite and involve members of the community in health promotion activities”, more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

Analysis revealed a significant association between the community-level intervention “having a TV in my clinic where I played health promotion videos for the community” and geographical practice location (X^2= 5.75, p=<.218); a small effect size was identified (V= .11, p=<.297) (Table 29). There was more daily and weekly playing health promotional videos for the community in urban/peri-urban areas than expected and less daily and weekly playing health promotion videos in rural remote maritime areas than expected whereas those working in remote rural maritime urban areas reported “never” more than expected due to most rural remote maritime clinics not having a TV.

A significant association was also identified between the systems-level intervention - “inviting media to cover health promotion activities held in my community” and geographical practice location (X^2= 4.12, p=<.390); a small effect size was identified (V= .08, p =<.390) (Table 29). More quarterly invitations to media to cover health promotion activities was observed in remote rural/maritime than expected, with less quarterly invitations to media to cover health promotion activities observed in rural areas than expected. The CPHNs in urban/peri urban rural areas reported - “never inviting media to cover health promotion activities held in community” more than expected.

Table 29 Frequency of Social marketing interventions intervention by geographical practice location

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Social Marketing			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
64	I visit pregnant mothers who default clinic to advise them on safe pregnancy	Individual/ Family	Daily Weekly	8 (15.4)	22 (42.3)	22 (42.3)	52 (100)	X^2= 77.61
			Monthly	33 (26.2)	33 (26.2)	60 (47.6)	126 (100)	p=<.001
			Quarterly	28 (48.3)	17 (29.3)	13 (22.4)	58 (100)	V=.34
			Never	69 (75)	14 (15.2)	9 (9.8)	92 (100)	p =<.001
65	I use social media platforms like Facebook to invite and involve members of the community in health promotion activities	Individual/ Family	Daily Weekly	8 (21.1)	12 (31.6)	18 (47.4)	38 (100)	X^2= 19.79
			Monthly	22 (32.4)	24 (35.3)	22 (32.4)	68 (100)	p=<.001
			Quarterly	24 (53.3)	9 (20)	12 (26.7)	45 (100)	V=.17
			Never	89 (52.4)	36 (21.2)	45 (26.5)	170 (100)	p =<.003
66	I have a TV in my clinic where I play health promotion videos for the community	Community	Daily	13 (72.2)		5 (27.8)	18 (100)	X^2= 5.75
			Weekly	6 (46.2)		7 (53.8)	13 (100)	p =<.218
			Monthly	14 (46.7)		16 (53.3)	30 (100)	V=.11
			Quarterly	8 (57.1)		6 (42.9)	14 (100)	p =<.297
			Never	101 (44.5)		126 (55.5)	227 (100)	
67	I invite media to cover health promotion activities held in my community	Systems	Daily Weekly, Monthly	18 (52.9)	8 (23.5)	8 (23.5)	34 (100)	X^2= 4.12
			Quarterly	11 (45.8)	3 (12.5)	10 (41.7)	24 (100)	p =<.390
			Never	105 (43.2)	66 (27.2)	72 (29.6)	243 (100)	V=.08
								p =<.390

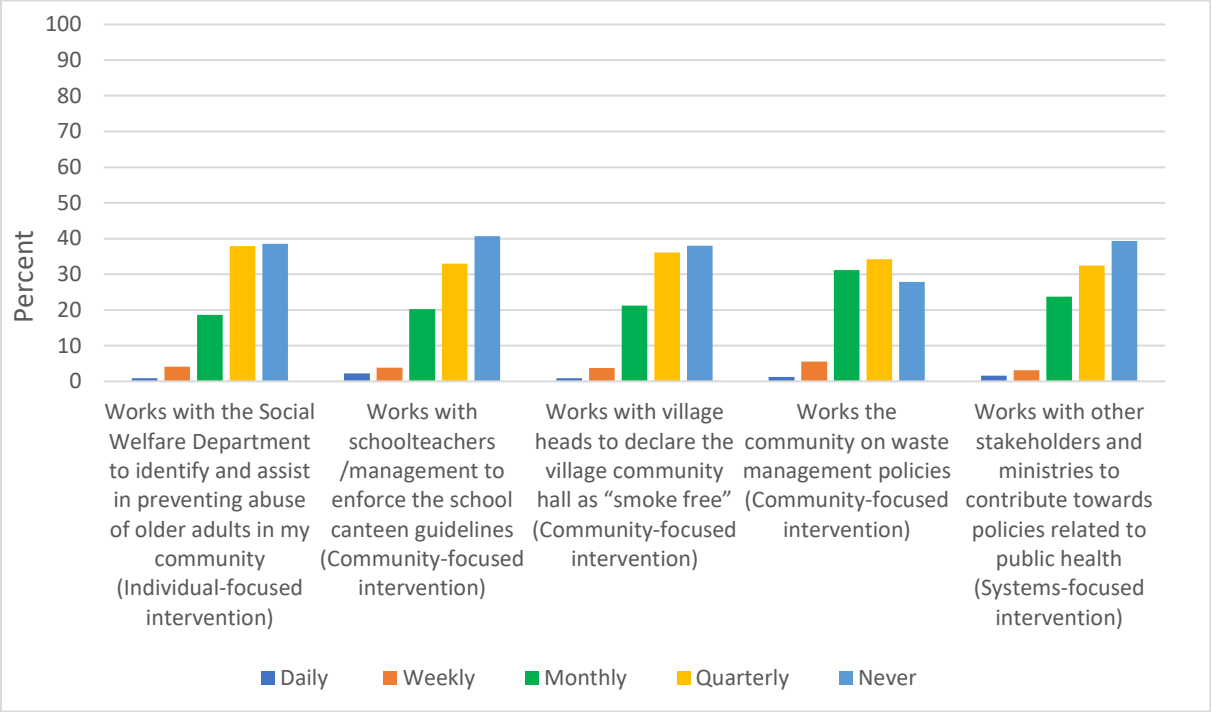
Note: Where only two geographical practice locations were analysed this was due to the small sample size.

Policy Development and Policy Enforcement[33]

Figure 32 shows the frequency CPHNs engaged in Policy Development and Policy Enforcement. At the individual-focused intervention level, 37.9% (n=120) of CPHNs engaged with case management quarterly. At the community-focused intervention level, 33% (103) of CPHNs worked with schoolteachers/management to enforce the school canteen guidelines, 36.1% (116) worked with village heads to declare the village community hall as "smoke free" and 34.2% (113) worked with the community on waste management policies. At systems-focused intervention level, 32.4% (n=104) of CPHNs engaged with Policy Development and Policy Enforcement monthly and 46% (n=192) quarterly.

[33] Policy development and policy enforcement places health issues on decision-makers' agendas, acquires a plan of resolution, and determines needed resources. Policy development results in laws, rules and regulation, ordinances, and policies. Compels others to comply with the laws, rules, regulations, ordinances, and policies created in conjunction with policy development.

Figure 32 How often CPHNs conducted investigation at the individual, community, and systems-level (%)



A significant association was identified between individual family-level intervention - "I work with the Social Welfare Department to identify and assist in preventing abuse of older adults in my community" and geographical practice location (X^2= 30.52, p=.21); a moderate effect size was identified (V= .21, p =<.001) (Table 30). More daily, weekly and monthly work was done with social welfare department in rural areas than expected and more quarterly work in this area in remote rural/maritime areas than expected. Less quarterly work was done with the social welfare department in urban/peri-urban areas that expected. The CPHNs in urban/peri-urban areas reported - "never working with social welfare department to identify and assist in preventing abuse of older adults in community", more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

Analysis found a significant association between the community-level intervention - “I work with schoolteachers/management to enforce the school canteen guidelines”, and geographical practice location (X^2=24.47, p=<.001); a moderate effect size was identified (V= .19, p =<.001) (Table 30). More monthly work was done with school teachers/ management in rural areas than expected and more monthly and quarterly work was done with school teachers/management in remote rural/maritime than expected. Less monthly working with school teachers/management was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported “never working with school teachers/management to enforce the school canteen guidelines” more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

Community-level intervention - “I work with village heads to declare the village community hall as `smoke free`”, was significantly associated with geographical practice location (X^2= 32.52, p=<.001); a moderate effect size was identified (V= .22, p =<.001) (Table 30). More quarterly work was done with village heads in rural areas than expected while less quarterly work was done with village heads was observed in urban/peri-urban areas that expected. The CPHNs in urban/peri-urban areas reported “never working with village heads to declare the village community hall as smoke free” more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

A significant association was also found between the community-level intervention - “working with the community on waste management policies”, and geographical practice location (X^2=65.85, p=< .001); a large effect size was identified (V= .31, p=<.001) (Table 30). More monthly and quarterly work was done with community on waste management policies in rural areas that expected with more daily, weekly, and monthly work was done in remote rural/maritime areas than expected. Less daily, weekly, monthly, and quarterly working with community on waste management policies was observed in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - “never working with community on waste management policies” more than expected while CPHNs in rural and remote rural/maritime areas reported this less than expected.

A further significant association was found between the systems-level intervention “working with other stakeholders and ministries to contribute towards policies related to public health” and geographical practice location was found (X^2= 21.80, p=<.001) with a moderate effect size identified (V= .18, p=<.001) (Table 30). More daily, weekly, and monthly work was done with other stakeholders and ministries in rural areas than expected and more daily, weekly, and monthly work was done with this intervention in remote rural/maritime areas, than expected. Less daily, weekly, monthly, and quarterly work was done with other stakeholders and ministries in urban/peri-urban areas than expected. The CPHNs in urban/peri-urban areas reported - “never working working with other stakeholders and ministries to contribute towards policies related to public health”more than expected whilst CPHNs in rural and remote rural /maritime reported this less than expected.

Table 30 Frequency of Policy Development and Policy Enforcement interventions by geographical

No.	Interventions	Intervention level	Frequency	Geographical practice location n (%)			Total Frequency N (%)	Statistical test, significance
	Policy Development and Policy Enforcement			Urban / Peri-urban	Rural	Remote Rural/ Maritime	Row Total	
68	I work with the Social Welfare Department to identify and assist in preventing abuse of older adults in my community	Individual/ Family	Daily, Weekly Monthly Quarterly Never	28 (37.3) 37 (30.8) 77 (63.1)	27 (36) 36 (30) 21 (17.2)	20 (26.7) 47 (39.2) 24 (19.7)	75(100) 120(100) 122(100)	X^2= 30.52 p=<.001 V=.21 p =<.001
69	I work with schoolteachers /management to enforce the school canteen guidelines	Community	Daily Weekly Monthly Quarterly Never	9 (47.4) 15 (23.8) 39 (37.9) 75 (59.1)	5 (26.3) 23 (36.5) 28 (37.9) 27 (21.3)	5 (26.3) 25 (39.7) 36 (35) 25 (19.7)	19 (100) 63 (100) 103 (100) 127 (100)	X^2= 24.47 p=<.001 V=.19 p =<.001
70	I work with village heads to declare the village community hall as “smoke-free”	Community	Daily Weekly Monthly Quarterly Never	31 (37.3) 32 (27.6) 75 (61.5)	24 (28.9) 46 (39.7) 18 (14.8)	28 (33.7) 38 (32.8) 29 (23.8)	83 (100) 116 (100) 122 (100)	X^2= 32.52 p=<.001 V=.22 p =<.001
71	I work with my community on waste management policies	Community	Daily Weekly Monthly Quarterly Never	5 (22.7) 29 (28.2) 35 (31) 71 (77.2)	6 (27.3) 35 (34) 40 (35.4) 8 (8.7)	11 (50) 39 (37.9) 38 (33.6) 13 (14.1)	22 (100) 103 (100) 113 (100) 92 (100)	X^2= 65.85 p=<.001 V=.31 p =<.001
72	I work with other stakeholders and ministries to contribute towards policies related to public health	Systems	Daily Weekly Monthly Quarterly Never	28 (30.8 39 (37.5) 76 (60.3)	30 (33) 31 (29.8) 23 (18.3)	33 (36.3) 34 (32.7) 27 (21.4)	91 (100) 104 (100) 126 (100)	X^2= 21.80 p=<.001 V=.18 p =<.001

Note: Where only two geographical practice locations were analysed this was due to the small sample size.

5.6 Direct patient care interventions compared with health promotion and disease prevention and interventions

This chapter has presented how frequently CPHNs are involved in health care activities within each section of the Health intervention Wheel and identified significant geographical differences in how frequent CPHNs are involved in these activities. To answer the research question, the average number of health promotion and disease prevention interventions performed by CPHNs versus direct care interventions were calculated for daily, weekly, monthly, and quarterly. Table 31 shows how often CPHNs were engaged with health promotion/disease prevention interventions and direct care interventions (daily, weekly monthly and quarterly). A significant association was found between disease prevention/health promotion and direct care (X^2= 26.19; p=< .001). The analysis shows that CPHNs performed health promotion/disease prevention less than expected on a daily and weekly basis and more so on a quarterly basis. The CPHNs performed direct care more than expected on a daily and weekly basis and less than expected on a quarterly basis.

Table 31 Summary of nurses' work: Health promotion/ disease prevention vs direct care at all levels of intervention

Type of intervention	Daily	Weekly	Monthly	Quarterly	Statistical test, significance
Health promotion / disease prevention interventions					X^2= 26.19 p=<.001
Average *n* observed	27	38	104	92	
Expected count	36	48	110	67	
Direct care interventions					
Average *n* observed	48	63	126	49	
Expected count	39	53	120	74	

To further identify if there was any difference by geographical practice location the average number of health promotion and disease prevention interventions performed by CPHNs versus direct care interventions were calculated for daily, weekly, monthly, and quarterly for urban/ peri urban, rural and remote rural/maritime. Table 32 shows how often CPHNs were engaged with health promotion/disease prevention interventions and direct care interventions (daily, weekly monthly and quarterly) by geographical practice locations (Urban/ peri urban, rural and

remote rural/maritime). A significant association was found between health promotion/ disease prevention and direct care by geographical practice locations. Urban/ peri urban (X^2= 10.16; p=<.05), rural (X^2= 9.90; p=<.05), and remote rural/maritime (X^2= 17.03; p=<.05).

The analysis shows that in all three areas, nurses do more direct care than expected daily and less public health daily and this pattern is slightly more pronounced in the rural areas and remote rural maritime areas.

Table 32 Summary of nurses' work: Health promotion/ disease prevention vs direct care at all levels of intervention by geographical practice locations.

Geographical practice location	Type of intervention	Daily	Weekly	Monthly	Quarterly	Statistical test, significance
Urban/ peri urban	*Direct care interventions*					X^2= 10.16 p=<.05
	Average *n* observed	22	22	44	20	
	Expected count	17.08	18.18	44.63	28.10	
	Health promotion / disease prevention interventions					
	Average *n* observed	9	11	37	31	
	Expected count	13.92	14.82	36.37	22.90	
Rural	*Direct care interventions*					X^2= 9.90 p=<.05
	Average *n* observed	16	21	35	13	
	Expected count	11.54	17.84	35.68	19.94	
	Health promotion / disease prevention interventions					
	Average *n* observed	6	13	33	25	
	Expected count	10.46	16.16	32.32	18.06	
Remote rural / Maritime	*Direct care interventions*					X^2= 17.03 p=<.05
	Average *n* observed	21	22	37	13	
	Expected count	14.63	17.76	37.62	22.99	
	Health promotion / disease prevention interventions					
	Average *n* observed	7	12	35	31	
	Expected count	13.37	16.24	34.38	21.01	

5.7 Chapter Summary

In summary, the findings highlighted that a total of 458 CPHNs participated in this study with a 73.6% response rate where 88% were females. A total of 13.5% of participants worked at nursing stations indicating 62.6% of representation of participants from the rural remote and maritime areas. It was noted that rural remote and maritime nurses engaged in collecting

health-related data, providing disaster awareness, working with the outbreak team, facilitating outreach programmes, and facilitating wellness screening for the community, providing maternal child health care, using PEN model, taking part in school health programmes, teaching effective self-management, and working with CHW's, health teaching, counselling, consultation, disaster awareness and planning, working with community groups on wellness, establishing partnerships with religious groups, working with youth groups, conducting community profiling, developing village by-laws and advocating for vulnerable population, developing community projects, community screening, safe motherhood and waste disposal policies. Moreover, nurses in urban/peri-urban, rural remote and maritime all engaged with direct care work. The analysis shows that on a daily and weekly basis direct care intervention were undertaken more than expected and disease prevention and health promotion less than expected. The next chapter will present the results of the 10 in-depth interviews with CPHNs.

CHAPTER 6 FINDINGS ON THE WORK OF COMMUNITY PUBLIC HEALTH NURSES – SEMI STRUCTURED INTERVIEWS.

6.1 Introduction

The previous chapter presented the survey results and nurses' perceptions of their work with different interventions, at different population-based levels, and in different geographic locations. This chapter reports the results of in-depth interviews with ten CPHNs about their everyday work. The interviews were undertaken to validate the survey findings (Phase 1 data) on the actual work of CPHN's. All participants were CPHNs working at nursing stations (NSs) and health centres (HCs) in different divisions. Their various roles, included Zone Nurses, General Outpatient Nurse (GOPD), District Nurse (working in NSs in Rural Remote areas), Maternal Child Health (MCH) Nurse, Integrated Management of Childhood Illness (IMCI) Nurse, Family Planning (FP) Nurse and School Health Nurse were all purposefully selected for this study. The participants shared their lived experiences of working as CPHNs in Fiji. These interviews aimed to answer the following research question:

> How do CPHNs undertake interventions, either autonomously or as part of a team, at different levels of population-based practice?

The results in this section are presented under the 17 public health interventions based on the Public Health Intervention Wheel components shown in Figure 33. The 17 interventions are outlined in Table 33. The Public Health Intervention Wheel was the model used to map the work of the Community Public Health Nurses (CPHNs). This model provided a comprehensive list of interventions that CPHNs could undertake. The interventions, and groups of interventions (wedges), served as themes for the analysis of data and the presentation of study findings in this chapter. By using the Public Health Wheel, a structured approach was possible that enabled all public health activities described by nurses to be analysed and interpreted in a systematic way that referenced clinical and health system contexts. This allowed for deep insights into the scope and effectiveness of CPHN interventions.

Figure 33 The Intervention Wheel Components

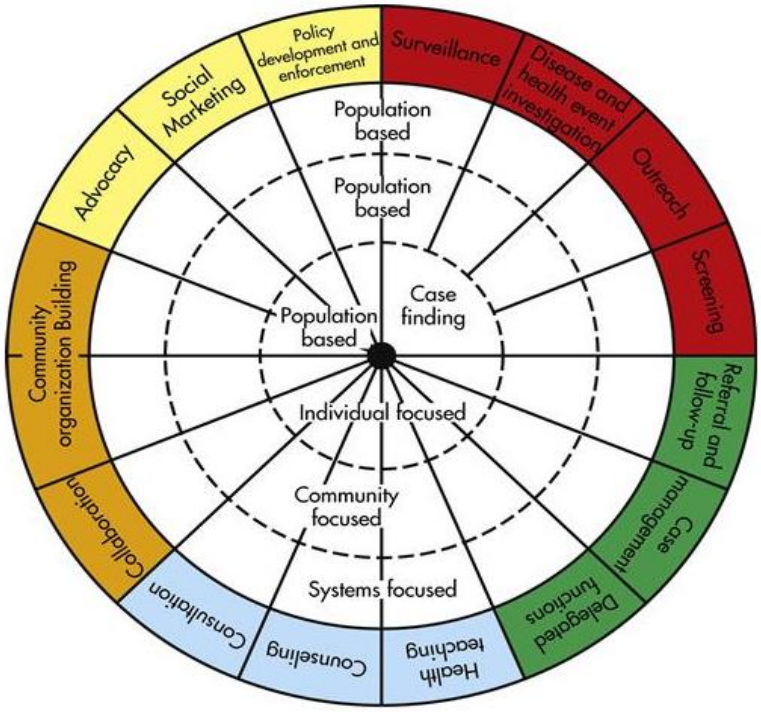


Table 33 The Seventeen Intervention Wheel components

Red	Surveillance, Disease and Health Investigation, Outreach, Screening, Case Finding (individual level)
Green	Delegated functions, Case management, Referral, and Follow-up
Blue	Health teaching, Counselling, Consultation
Orange	Collaboration, Coalition building and Community organising
Yellow	Advocacy, Social Marketing, Policy Development and Enforcement

6.2 Profile of Interview Participants

The ten study participants worked either at a nursing station or a health centre. Participants were selected on their different primary care roles, health workplace settings, and geographic locations. Participants' primary roles were identified in phase one of the data analysis. Most, identified their primary role as Zone Nurse, General Outpatient Nurse (GOPD) and District Nurse. Other participants identified their roles as Maternal Child Health (MCH) Nurse, Integrated Management of Childhood Illness (IMCI) Nurse, Family Planning (FP) Nurse, or School Health Nurse working in the area of maternal child health care. The other three roles

identified were Special Outpatient Nurse (SOPD), Footcare Nurse, and Home-Based Care Nurse (HBCN), which all involved managing clients with complications of non-communicable diseases. These participants were selected for in-depth interviews to explore their roles in providing direct patient care, disease prevention, and health promotion at nursing stations and health centres.

Participants working in the nursing stations (NSs) are sole practitioners, who work in rural remote and maritime (islands) settings without doctors. These participants are coded as NS01 to NS03 and are known as District Nurses (DNs). The remaining seven participants worked at Health Centres (HCs) located in urban, peri-urban and rural settings with other health professionals, such as doctors, dietitians, health inspectors, pharmacists, dental officers (dentists), and paramedics; they are coded HC04 to HC10. A complete description of their roles, experience, health settings and the population they served in different geographic locations, is outlined in Table 34.

Table 34 Profile of Interview participants

Participant	Division	Type of facility	Distance km to base hosp.	Years nursing	Years at facility	Scope of Work / Role
NS01 District Nurse	North	NS	80	17	15	Responsible for twelve villages, five settlements, three islands, three schools and one kindergarten in that catchment area. Works alone without a doctor.
NS02 District Nurse	Eastern	NS	94	10	8	District nurse in the Maritime Islands responsible for four villages, eight settlements, two primary schools and one secondary boarding school.
NS03 District Nurse	Eastern	NS	Maritime	5	3	The district nurse in the Lau group works in an island setting. It takes 2 to 3 days to reach the island. Has a population of less than 150 people on the island, and he is the only medical personnel on the island.
HC04 Special Out-patient Dept Nurse	Central	Health Centre	32	13	11	A senior footcare/SOPD (Special outpatient department) nurse looks after clients with long-term conditions at the rural HC. Works with two other nurses and a doctor.
HC05 Zone/Mental Health Nurse	North	Health Centre	1	13	11	Responsible for four villages, nine settlements, two schools, three kindergartens and one secondary school with a total population size of 3055. Has an added role as mental health nurse for the subdivision, which involves staff training on mental health issues, implementing mental health programmes, organising mental health outreach programmes and visiting clients with mental health issues.
HC06 General Out Patient Dept Nurse	Central	Health Centre	2	9	4	Works as a general outpatient nurse at an HC in the Central Division, which operates from 6 am to 10 pm with other nurses and doctors.
HC07 IMCI Nurse	Central	Health Centre	12	14	10	Works at an urban HC in the Central Division about 12 km from the base hospital. Does 12-hour shift and sometimes works in the emergency department and the general outpatient department. Works at one of the most densely populated areas in the Central Division. Doctors and nurses are available at her health facility all the time.
HC08 Footcare Nurse	Western	Health Centre	140	14	11	Based at a rural, remote sub-divisional hospital responsible for clients with long-term conditions and foot complications. Also works as infection prevention and control officer.
HC09 Special Out Patient Dept Nurse	Western	Health Centre	15	16	14	Works in a rural HC as an SOPD nurse managing clients with long-term needs, providing care to approximately 6,500 people in the community.
HC10 Home-Based Care Nurse	Central	Home Based Care	3	23	13	Worked as a Home-Based Care Nurse in the Central Division for the past 13 years. Looks after clients who are still classified as hospital clients but are discharged home as home-based care clients under the hospital in the home (HITH) programme. Works with nurses from other HCs to coordinate clients who are home. Works closely with nurse practitioners who visit clients with surgical and stroke diagnoses.

6.3 Surveillance, Disease and Health Investigation, Outreach, Screening & Case Finding

Surveillance

Thacker and Berkelman (1988) define surveillance as "the continued watchfulness over the distribution and trends of incidence through the systematic collection, consolidation and evaluation of morbidity and mortality reports and other relevant data" (p. 164). In Fiji, nurses collect data using the Public Health Information System (PHIS) form, which is submitted monthly to their supervisors. This is an A3 size triplicate booklet where data is handwritten and sent via internal mail. The three NS participants collected data monthly, using the PHIS. Participants shared the task of collecting the data on non-communicable diseases, special outpatient attendance (clients coming in hypertension and diabetes clinics), immunisation for children under one year of age and school-age children, and care of older persons. One of the participants shared that, "*we normally collect monthly data, which is known as the PHIS where we send [data] to our local medical area, then it goes to our sub-divisional level" (NS 01 DN). These* reports would ultimately be sent to the Divisional Office. Other information in the PHIS included *"clients seen in SOPD, outpatient(s), any paps [cervical] smear screening that was conducted, to assessment and debridement that was done, RHD cases that we'd follow that was followed up before that tracing, all this is part of reporting"* (HC09 SOPD Nurse). Data were routinely collated and reported monthly on specific diseases or conditions and different population groups.

Population groups included children under one year and under five years of age, school children, women, and older adults. Census data is collected annually by community health workers (CHWs). All participants collected and submitted data monthly, using a structured reporting form. As one CPHN said: *"I also collect reports from them [CHWs] every month for what they normally do in the village and since they're being paid by the government, it's compulsory for them [to send] reports every end of the month"* (NS02 DN). Participants also received PHIS data with the help of the Village Chief, the village administration, and the schoolteachers on any major event, death or migration of people from one zone to another. The participants stated this data was used for obtaining assistance post-disaster as it recorded the community members' information in terms of their socio-economic status and other living

conditions. One participant said that through *"surveillance and collection of data, we were able to get a hold of many of them [children who] have received theirs [MR injection] and how many still pending to be given"* (NS03, DN). The CPHNs used proper surveillance and record keeping thereby increasing immunisation coverage, which resulted in controlling disease outbreaks. The continuous collection of monthly data provided a picture of the community in terms of the prevailing health conditions and allowed the CPHNs to be informed of the movement of people from remote rural areas to urban areas to access healthcare.

Similarly, HC participants collected data related to the total number of patients referred, transferred, bordered for observation, seen at the integrated management of childhood illness clinic (for children under five years), attending the special outpatient clinic, family planning clinic, antenatal clinic, and cases of sexually transmitted diseases. They also submitted monthly reports on health promotion and health awareness activities, with women, youth, and church groups. Participants reported collecting community profiling data using the community needs assessment forms. As a participant explains:

> *Community assessment here, the one we do to get the population [information] like [we] do the village assessment like house-to-house assessment [to] collect [information on] how many elderlies in this house, what family planning is being used, is there anyone in the family having a non-communicable disease who needs care like urgent assistance. We like to count how many males and females are in this house, what type of house they live in, what type of toilet do they have, and the kitchen - is it attached or unattached. That is the only assessment I have done so far.* (HC04, SOPD Nurse)

Community profiling data was used to identify common problems that could cause disease outbreaks and to identify common conditions that might need clinical management, such as scabies in children. Community profiling was undertaken either yearly or two yearly, depending on resources, including manpower and transportation available for house-to-house data collection. From this community assessment data, significant disease burdens in the community, such as the number of people living with a non-communicable disease (mainly diabetes and hypertension), malnourishment cases and unimmunised children are identified. Data were then used to plan health promotion activities and develop village policies, such as "having a smoke-free village hall," discussed later in this chapter under policy development and enforcement. One of the participants shared that:

> *"Mental health reporting has a different template (not PHIS). Each sub-divisional HC and NS submits it monthly, quarterly and yearly to the sub-divisional level coordinator and the divisional Mental Nursing Officer. This report includes the number of home visits conducted, the number of cases they see, the number of new cases they receive, deaths, changes in the client's condition etc* (HC05, Zone/Mental Health Nurse).

The Mental Health nurse gets data monthly from the (national) coordinators:

> *"I do get feedback from my wellness centre, and for mental health, I would say now it is really well organised. We conduct every quarterly {a] meeting with our national coordinator, and we go and visit our national coordinator*" (HC05, Zone/Mental Health Nurse).

However, some participants from both NSs and HCs expressed their disappointment regarding not receiving any feedback and the under utilisation of PHIS data. As one said: "*so far honestly, when they (supervisors) come we sit…. then only we know about"* (NS01 DN) the data we submit. Similarly, other participants shared that "w*hen the reports went up to divisional level, I don't think they can really give us feedback*" HC04 (SOPD Nurse). Some participants perceived they did not know how the data was utilised for decision making saying - "*most of the time, the data that is gathered by the zone nurses, is reported, but we don't know actually that data is utilised anywhere or assessed in any way so that our problems are identified at the community level*" (HC05 Zone Nurse/Mental Health Nurse). Moreover, an IMCI Nurse discussed that IMCI data was collected by age group and disease classification. This data on pneumonia, diarrhoea and skin infections is given to the Team Leader and then to the Nurse Unit Manager -"*which should be given to the zone nurses to go out to the community for outreach and follow-up care* (HC07 IMCI Nurse). When asked about getting feedback on this disease and the follow-up, the participant said: "*not really, we don't get feedback"* [on the data] (HC07 IMCI Nurse). The major challenge highlighted by the participants was their inability to use data for decision-making.

Disease and Health investigation

Disease and health event investigation, known as a disease outbreak investigation in Fiji, involves systematic gathering and analysing data related to threats to population health, ascertaining the source of the threat, identifying cases and others at risk, and determining control measures (Minnesota Department of Health, 2001). The common disease outbreaks in Fiji fitting the category, include leptospirosis, dengue, and typhoid (LTD). Nurses are actively

involved in disease and health investigation and are very aware of the impact of these diseases within their community, as described in the following statements:

> *We had to go out many times for our leptospirosis, dengue cases follow up, our typhoid cases follow up, and there was one latest one which is a new bacterium which they saw in an Island in Druwandurwa - they still doing [investigating] it. They sent the sample to Australia, and we are still waiting"* (NS01 DN*).*

The participant shared that the:

> *…. bacterium was first brought from Papua New Guinea (PNG) in World War II when people returned to the islands…. deaths have resulted in the past, and investigations are ongoing…. a surveillance team from [the] Northern Health Service was called to investigate this case to assist with the investigations (NS* 01 DN).

This CPHN further articulated how they suspected an outbreak of dengue when cases presented with signs and symptoms at the clinic, where she collected all the important information saying: *"That was the importance of writing their contacts and their travel history or wherever they were"* (NS01 DN). The participant took blood samples and once confirmed positive, activated the surveillance team at Labasa (Divisional Office). The nurse collected full details of clients – so clients could be contacted again after receiving blood results. The DN used her clinical decision-making skills to take blood samples from suspected clients with dengue fever in a remote setting to manage the case promptly. The participant further shared how they could see the disease pattern presented to the clinic, and they had to go back to the community to see how the community could respond to these diseases (dengue and scabies). Another DN shared that outbreaks were reported to the area medical officer, followed by presenting awareness programmes in the community.

Disease outbreaks are very common post-disaster, due to disruption in infrastructure, sanitation, and safe water supply, which is very common in Fiji. Communicable disease outbreak investigation mainly included leptospirosis, dengue fever and typhoid (LDT) cases, which are common after natural disasters. One of the participants shared that *"leptospirosis, typhoid, and dengue fever (LTD) was very common after ……. cyclones that [affected] Fiji, so we were part of investigation team*" (NS01 DN), which also included medical officers, nurse practitioners, health inspectors, army officers, police officers and village health workers. Participants reported that-

"if we have a case of a disease like dengue fever, we normally report it to our medical officer." The patients with dengue are treated at the sub-divisional hospital" *and they [sub divisional team) normally come around and do [community] awareness programme at the villages"* (NS02 DN). Another participant shared that *"we go around the village, we visit, we assess what's the problem in the village, and the hygiene of the village - how they up to with their hygiene and the sanitation in the community"* (HC04 SOPD Nurse). The participant further shared that: *"once we compile all these investigation results, we present it back to the community for the solution that we can come up with so that we can reduce this disease outbreak in the community"*.

The CPHNs work very closely with the CHWs and other community leaders by involving them in the disease outbreak control team. One CPHN said that the team also includes the *"Turaga-ni- koro [head of the village]… and the community health workers because these are very people who go down to the level of the village and communicate with them"* [the community] (HC04 SOPD Nurse). The participant further stated that - *"if the Turaga- ni- koro and the [village] Chiefs are working hand in hand with us. … and they become role models in the village like in terms of health promotion, all the villagers will also follow them"* (HC04 SOPD Nurse). In traditional village settings, the Chiefs and community elders play a very important role in decision-making as they occupy traditional leadership positions and are highly regarded as influencing the communities' behaviours. A SOPD nurse, shared the importance of following the village culture and tradition for effective communication with the village administration, stating that:

> *going to the Chiefs compound so we go and sit with them and discuss with them…. in a polite way, that's the only way they will accept [you] in the village. … if you'll [go] and stand in the village and tell the Turaga-ni-koro their message no, they will not accept you* (HC04 SOPD Nurse).

The participant talks about the importance of communication, where CPHNs have to take time out to sit and discuss the key health issues and the outcomes if not corrected. The Chiefs and village administrators need all the information so that they can influence the community to accept the strategies of disease control. Similarly, another participant shared that *"Turaga-ni-koro is very supportive, the village health workers, they help in gathering people and then getting the message across"* (HC06 GOPD Nurse).

Outreach

Outreach - "locates populations of interest or populations at risk and provides information about the nature of the concern, what can be done about it, and how to obtain services" (Minnesota Department of Health, 2001, p. 2). The CPHNs in Fiji usually aim to conduct one outreach programme with other stakeholders per month. This outreach includes doctors, dietitians, a dental officer (dentist), and the team from the eye department. Outreach programmes are also conducted with the help of non-government organisations, such as Diabetes Fiji, Fiji Cancer Society, Pacific Eye Institute, Sai Prema Foundation[34], Friends of Fiji, and Medical Services Pacific (MSP).

A DN shared that outreach programmes are conducted by a multidisciplinary team, which provides services such as PAP smears, eye screening and breast examination and NCD screening, which include blood pressure checks, capillary blood glucose, height, and weight. These programmes require advanced planning with village health workers and Turaga-in-Koro. The nurse explained - *"we contact the community health workers [and the] Turaga-in-koro….to provide a house or the community hall premises"* (NS01), for privacy reasons to conduct pap-smear screening for women. The importance of the multidisciplinary team being present on the day for the outreach to be successful was clearly outlined in the following statement from a nurse working in a NS- "*We don't fulfil what we are going for, [if] the dentist is not there or if the dietitian does not come, or if a medical officer is sick, and the nurse will have to do everything with the help of the other colleagues"* (NS01 DN). When specialist expertise is not present, some things are not done. The nurse continued: "*when we say we go whole as a team, the whole team should go so we know the purpose and we know what to achieve as the purpose of going"* (NS01) thus highlighting a fully prepared team is planned with the community and the village administration to enable outreach programmes to achieve their purposes.

The need for community networking and inter-sectoral collaboration with the non-government organisations was not isolated to nursing stations. Nurses working in Health Centres also stressed the importance of prior planning, by submitting a monthly itinerary before the outreach and informing the community leaders. However, in contrast to the focus of outreach

[34] Sai Prema Foundation Fiji is a Non-Government Organisation (NGO) and a registered Charitable Organisation under the Charitable Trust Act of Fiji, founded to serve the poor, underprivileged and needy people of Fiji through Medicare, Education and Social care initiatives.

in NSs, most HC nurses focused on treating or managing sick clients during the outreach programmes. During outreach, *"if there is any new case we do go and assess according to our mental health guidelines and when we assess the patient then we discuss the case with our mental health coordinator"* (HC05 Zone/Mental Health Nurse). Another participant added, *"I [manage sick children through] integrated management of childhood illness when I go out to my communities and do general outpatient"* (HC06 GOPD Nurse). This highlights that most of the time, the outreach programmes provided by HC nurses are devoted to mental health cases, sick children, and those with complications of NCDs.

An HC nurse highlighted the difficulties when managing cases of NCDs during outreach, visiting the clients at home and at the same time meeting the family, who are the immediate care providers. One of the participants shared that:

> *I went out to them and reached up to them because they said they couldn't wait for the time because of the bus schedule they had. When I ask where your son (or) daughter is, they say some went to the farm, some went out to work and some schooling. When I go to their home to meet them, I go [at] the time when their children are at home when they come back* (HC04 SOPD Nurse).

The family members who are immediate care providers play a very important role in long-term care. Home visiting when the client and family are at home, allows the CPHN to spend more time with the client, assess the client's home surroundings, and educate those where the clients reside. These family members assist with taking care of the client at home, helping with wound care, medication administration and maintaining general personal hygiene.

Another participant shared that the doctors run the outreach programmes. All outreach activities are planned and submitted to the Divisional Medical Officer. As for the management of the newly diagnosed mentally ill patient, the zone nurse stated:

> *The whole team goes and assesses according to our mental health guidelines, and when we assess the patient, then we discuss the case with our mental health coordinator [who further] discusses our case with a doctor…. if there is a need for a referral, we urgently refer the client; or if there is a need for the patient to go on therapy, or if there is a need for [the] patient to go on pharmacological therapy, then [the] NP will discuss the case with the doctor* (HC05 Zone/ Mental Health Nurse).

Health centre participants highlighted the time-consuming nature of outreach. One of the participants shared that "we are based at work for eight hours, but we go and visit …. and visiting a patient, it takes two to four hours" (HC05 Zone/ Mental Health Nurse), depending on the patient's status and condition. The participant further added that *"If there is a bedridden case, for dressing or if there is a cancer patient so we need to spend a lot of time with them, and patients for palliative care are visited weekly"* (HC05 Zone/Mental Health Nurse). This highlights the burden of diseases at the community level and the number of people living with NCD complications who need everyday care at home.

Screening

Screening "identifies individuals with unrecognised health risk factors or asymptomatic disease conditions in populations" (Minnesota Department of Health, 2001, p.2). In Fiji, the aim of the CPHN is to screen people above 30 years of age for blood pressure, diabetes, and cancers. This is mainly done during the outreach clinics in the village halls or business houses, or religious organisations invite nurses to screen their members. All the participants reported being actively involved in NCD screening, which included checking height, weight, blood pressure, capillary blood glucose, VIA (Visual inspection under acetic acid) and breast examination. Health centre nurses reported that screening is also mainly conducted in those above the age of 30 years. The SOPD Nurse (HC04) also reported screening diabetic clients to ensure their feet are safe; thus, if clients improve their diet, they can protect and prevent their feet from injuries. The importance of the HC nurse's role in advising clients during the screening process and seeing them again in the community is highlighted by an HC nurse: *"If you screen them today and next month you go and screen them in the community, then they will think, oh this nurse is more into my health, and they will realise they have to do something"* (HC04). There is a need to screen and re-enforce at the community level for interventions to be effective during outreach programmes.

Screening is part of outreach programmes as well and thus requires teamwork, planning and networking at the community level. The screening team consists of dietitians, physiotherapists, nurse practitioners, zone nurses, and village health workers, who work very closely with zone nurses. The village health workers also assist in the screening as they are trained, for example, in the height and weight measurement of individuals. They also help in assessing clients, such

as people with scabies and screens for suspected typhoid cases, while the dental officer conducts dental checkups during the screening. Community screenings programmes are organised with the assistance of CHWs and Turaga-ni-koro (Village Headman) and form the sole focus of CPHNs' work in the nursing station: "*We don't do any work for anything that doesn't come with the business plan"* (NS03 DN). The DN stressed the importance of the business plan, which is developed by the Ministry of Health and Medical Services (MOHMS)

The participants also discussed organising wellness open day programmes, sharing that more activities have been conducted compared to previous years. These wellness open days usually include NCD screening and awareness. Prostate cancer awareness is conducted for men's health. However, during awareness programmes, the majority to turn out were females. The zone nurse stated that: *"I think we need to focus more on our men's health"* (HC 05) after noticing not all men participate in community awareness, when the team visits. Therefore, the team came up with ways such as: "*Male staff take awareness programmes for the male participants, and for the female participants, we have our female staff to create awareness"* (HC05 Zone Nurse/Mental Health Nurse). Another CPHN stated *"Yes, I believe breast screening should be part of our normal daily routines as well as we should be screening for prostate cancer for males, as we see there is an increase in cancer cases in Fiji"* (HC09 SOPD Nurse). Another participant said:

> *We haven't touched on prostate screening here. I mean, I have never learned or gone to a workshop for prostate screening. If we could do that too here on the island to help us detect some of this prostate cancer early, that would be very, very nice* (NS02 DN).

And SOPD Nurse voiced that the CPHN usually screened for diabetes and high blood pressure in the screening process. However, if a patient has any abnormal readings, they are given two weeks intervals to come and have a review after health education on healthy lifestyle, which includes smoking cessation, proper diet, exercise, and responsible alcohol intake. Similarly, a DN shared that cholesterol levels to identify risk for heart disease, are not routinely done as part of the screening programmes; hence opportunities to identify and treat these diseases are missed. The need for cardiovascular screening was further supported with a CPHN saying: *"probably they should start with some sort of cardiac screening or something because we are having a lot of cardiac deaths"* (HC07 IMCI Nurse).

Participants further shared that during screening programmes, health education is conducted in a group setting to create awareness regarding health issues, such as stroke saying that:

> *We involve the doctors in the hospital CWM[35] to explain to the community, or we send the cases home, what is stroke… explain to the patient an X-ray and all that. And then the dietitian is there with physio and with me. If something is wrong, the nurse, koro [community health worker] and me with Turaga ni koro, we are to look after the patient in the village, and [we inform] the [area] health centre for the doctors to understand that the referral will come to them, they have to understand* (HC10 HBCN).

There are two areas where awareness and screening programmes are conducted. Within the Rewa subdivision, the recent awareness conducted had over 261 participants. At the same time, the Lami medical area had over 136 participants in the recent health teaching awareness programmes.

The GOPD Nurse reported that screening is also conducted for business houses who approach the Sister in Charge, and dates are set for screening. Screening data is presented to business houses to implement workplace wellness policies. The participant further stated that prostate cancer examination was possible through collaborative outreaches with Medical Services Pacifika (MSP). Collaborations with MSP for pap-smear screenings were mainly because most women were too shy to have a pap smear in the hall. These screenings were possible with the help of youth groups, woman's groups and church groups, where screening sessions were conducted after the prayer sessions. The Home-based care nurse revealed that screenings are also conducted during home visits. To identify any newly diagnosed conditions within the family, they are referred to the nearest HCs for follow-up clinics.

Despite the work done by the HC participants, there were some drawbacks shared by the interviewees about the screening intervention. These drawbacks included staffing-related issues, inadequate follow-up care after screening, and the lapse in screening exacerbated by COVID lockdowns. Firstly, one of the HC participants shared that screening is not done for the well population due to staff shortage and 12-hour shifts: *"I think with the 8-hour shift when we used to have two nurses, we had time to do screening for the well people."* The participant felt that *"cardiac screening is lacking at HCs as clients with chest pain often come very late"* (HC07

The Colonial War Memorial Hospital is a tertiary care facility in Suva.

IMCI Nurse). Secondly, the Footcare Nurse, suggested that the *"practice in GOPD needs to be improved, more screenings have to occur, and patients who are directly sent home from clinics* [after screening] *need to get followed up"* (HC08 Footcare Nurse)*;* otherwise, they come with diabetic foot sepsis related to poor follow up care. The CPHN further recommended that GOPD doctors, treatment room nurses and DNs need to collaborate so patients can be followed up and appropriate referrals made as soon as possible. Further, they added that the *"amputation rate is exceptionally high currently and practising appropriate follow-up of patients can reduce the amputation rate"* (HC08 Footcare Nurse). Furthermore, the SOPD Nurse discussed that non-communicable disease is on the rise after COVID-19, due to the lapse in screening and awareness during the COVID-19 lockdown. This resulted in a high number of young diabetes and hypertension cases that were recorded in the healthcare facility where "o*ur young diabetic case is a 21-year-old*" (HC09 SOPD Nurse). The Zone/ Mental health Nurse shared that since the screening has been reduced due to the COVID-19 crisis, their focus is on behaviour change. As one interviewee said: *"It's very hard for a person to change behaviour, and once the person has changed, it's a great achievement for us"* (HC05, Zone/ Mental Health Nurse). The participant expressed that behavioural change needs to be strengthened. As for screening, she stated that: "*I think we need to strengthen more on the behaviour change and to screen mostly like for eye screening. For example, there is not much focus on eye screening in the community mostly, we refer clients"* (HC05, Zone/ Mental Health Nurse).

Case Finding

Case-finding "locates individuals and families with identified risk factors and connects them to resources" (Minnesota Department of Health, 2001, p. 2). In Fiji, CPHNs are actively involved in case-finding, keeping track of vulnerable individuals in the community who are at risk and may need assistance. Nursing station participants had their fingers on the community pulse. They were actively going out in the community for case finding on high-risk cases who needed medical help. All the participants knew about cases in the area who needed their help, including diabetic clients who had complications and sick children.

> *I had a very uncontrollable capillary blood glucose case, and then out of the blue, when he went to Labasa town, and then he ended up having one of his big toes amputated, and I heard that he had come to the village, so I just went to take a visit, and I thank him for going to the clinic, and then I had to do the daily dressing and do counselling* (NS01, DN).

Another DN reported only one case of a cerebral vascular accident (CVA) in the community that the nurse visited. There were no diabetic foot sepsis and cancers on the island, as they were all referred to Suva for further management. There was only one case of CVA since most of them were referred to the Divisional Hospital, and they stayed close to the hospital for medical review before returning to the island.

Like NS nurses, HC nurses had an active role in case finding. However, unlike the NS nurses who knew their cases and visited those who needed help, the role of the HC nurse in case finding was more variable. The SOPD Nurses often used their own resources to find cases referred by medical officers saying:

> *Sometimes… the medical officers from other areas call me, and they'll give the names that this patient has been transferred to your station, transferred to your area; then I will go and set up a date then I will just go on Thursday and Friday, or whichever time I am free - I go and see them in the community using my own transport* (HC04 SOPD nurse).

The HC nurses also engaged in case finding by contacting patients who missed clinic appointments or immunisation, either directly or indirectly. One of the GOPD nurses who also looked after a zone and immunised children said:

> *Normally I used to go and look for them during my shift clinic and ask the other mothers around, and the other one, I used to call; if the number is still not working, then I used to go and look for them, and sometimes I even use Facebook. Sometimes [we] have a few mothers who have friends, and then I tried looking for them, and somehow, they like responded back regarding the immunisation status…. few [mothers] came back, like most of them came back after the phone calls, but if they were staying in Lautoka or in the Western then I would just advise them to go to their nearest clinic, and if possible, they could just text back or just respond on the date it was given so I could update the register* (HC06 GOPD Nurse).

The HC nurses also relied on CHWs for contacting clients (case finding) who have missed out on attending clinic appointments: *"We give [community health workers] the name of the patients who are not coming to the SOPD clinic, or even this particular child is not coming for maternal child health clinic or missed immunisation"* (HC04 SOPD nurse). Health Centre nurses also reported working with other health professionals, such as a dietician, to provide home

visits to identify malnourished cases between the ages of 1-5 years and if they required hospital admission. The participant shared:

> *We have many cases of moderate and severe malnutrition cases. So usually, we have cases. For example, in my 1-5 years, we followed them monthly in their clinic, the clinic was on every Monday, and they came according to their progress. If they are progressing with their weight, then we do not call them every week. We call them on a monthly basis, depending on their age criteria too. Like mostly two years and above, babies we call them after three months. For malnutrition cases, we follow them every two weeks, we conduct home visits with the dietitian, and we follow up with them for three consecutive visits – [if] there is no progress, we refer clients directly to the children's ward to discuss with peds [pediatrics], and we also refer clients to social welfare, other NGOs for financial support and sometimes they have family issues in looking after that baby, so we do involve social welfare, and we try to help our clients. We also engage with the Ministry of Agriculture in providing seeds and encouraging gardening so that the nutrition of that family is maintained* (HC05 Zone/Mental Health Nurse).

6.4 Delegated Functions, Case Management, Referral, and Follow-up

Delegated functions include: "1) direct care tasks a registered professional nurse carries out under the authority of a health care practitioner, as allowed by law, and 2) direct care tasks a registered professional nurse entrusts to other appropriate personnel to perform" (Minnesota Department of Health, 2001, p.2). In the Fijian context, tasks delegated to CPHNs mainly include direct care functions, such as giving injections, wound dressings, checking vital signs, managing disease complications, including foot care, palliative care, and other minor procedures, such as wound suturing and incision and drainage are. Delegated functions do not include health promotion, psycho-social client, and family care.

The NS participants spoke very little on delegated functions, as they worked independently, practising within their scope of practice. Most of their direct care roles involved giving injections, dressing, attending to sick clients, intravenous line insertions, blood tests and medication administration. If clients come in severely ill, they usually discussed the case with the area medical officer and referred the client for further management at the health centre level. The health centre participants shared that a- "*dressing takes about 20-30 minutes per client, and in some cases, CHWs help with simple wound dressing for clients at home who had an amputation*" (HC04 SOPD Nurse). On the same note, a GOPD participant said they "*spend*

approximately 20 hours a week on direct care" (HC06 GOPD Nurse) and have three clients with amputations for home visits saying that *"visiting clients at home to change dressing can be very time-consuming"* (HC06 GOPD Nurse). Taking care of clients with wounds was expressed as a time-consuming exercise, and if there was a shortage of GOPD nurses, zone nurses were deployed to the clinics, which then prevented zone nurses from visiting clients who need care at home.

The Zone/Mental Health Nurse spoke of the need to be ready to be deployed for relief work- *"I am also IMCI trained nurse, so we go out with our medications, and we follow up with our IMCI cases; if the nurse is not there [we do the work of a] family planning nurse, clinic nurse or IMCI nurse"* (HC05 Zone/Mental Health Nurse). The participant further shared that when they are called to work in the clinics, they are not able to go out in the community, saying that *"it's not that whatever we have planned we usually achieve, there are some hiccups which we have to accept and then we have to prioritise our work, and like for the clinic it's important to have staff available"* (HC05 Zone/Mental Health Nurse). In this way, the health promotion work planned for the community is neglected at the expense of providing direct clinical care.

There is a high burden of people who require direct care, and with the decentralisation of health services, they have to be seen at health centres before they can go to a base hospital. An IMCI Nurse shared that they had a high burden of cases, which required direct care and nearly 300 cases were transferred to Colonial War Memorial Hospital (CWMH) in one month for admission. The participant further elaborated that in case of an emergency, one doctor will go with the patient down to Colonial War Memorial Hospital, and only one doctor is there to look after all patients, and the nurse will be attending to the case with the doctor there. The nurse said that at the end of the day:

> *It's like we are doing quantity; there is no quality. Because it more of like its clearing the crowd, making people happy, but actually, at the end of the week after 2-3 days, you turn to see the same person again with the same complaint, so it's like probably you are not able to give good advice, patients don't understand what they have to do at home, and they turn to come back. You have the same people getting admitted in* (HC07 IMCI Nurse).

There has been a shift from the focus on health promotion and health education to direct care. The clients' needs are not met, resulting in unnecessary client readmission or nonattendance

at a clinic appointment. The IMCI Nurse pointed out that within a year, a child is seen 12-15 times by the IMCI Nurse with the same condition; sometimes, they come back with a worse situation, elaborating that: *"There is less education, less follow-ups; probably they don't come back for reviews, and you don't see them until they get very sick"* (HC07 IMCI Nurse). The interviewee further explained that because there is only one staff member doing IMCI and the waiting time is extended, mothers don't bring babies for reviews: "*They do come back, and since there is one staff only, they must rush back home, so their waiting time is long; probably that's why they don't want to come in*" (HC07 IMCI Nurse). This indicates how a lack of staffing increases waiting time, and there is a gap in follow-up care.

Most nurses working at the health centre spend a lot of time on delegated functions. A Health Centre nurse highlighted the impact of their direct care role, spending the whole shift doing delegated functions, including doing ECGs, admissions, assisting with transferring out clients, and assisting with the minor procedure from the treatment room. The IMCI nurse added that *"since Valelevu [health centre] was decentralised, it's more of things that we were not doing before, [that we were] doing at Valelevu HC in the last two years [such as]* Streptokinase[36] (STK) *infusion and stabilising a cardiac case* (HC07 IMCI Nurse). Since the patients are there, and there is no ambulance available, we have to stabilise them. One significant change during the pandemic was that emergency department registrars were deployed to HCs for three months and provided lots of in-service training to the nurses. One nurse shared one of her experiences as a direct care provider, saying:

> *Three years ago, when I was doing a morning shift, it was like 7.30 in the morning, and a mother rushed in with a child wrapped in the blanket; as soon as if entered, she gave the child to me; I took the child and asked the mother what happened? She just burst [into] tears, and then the only thing she said was that my baby was not breathing. As per the mother, she last fed the baby around 5 am; in the morning after that, the baby was on the mother's lap, and when she woke up, she noticed the baby had fluids coming out from the mouth and nose, and the baby was not breathing. For a mother, it's very sad to lose a child … we see people dying, but if you see a child dying, it's something very big* (HC07 IMCI Nurse).

[36] Streptokinase dissolves blood clots that have formed in the blood vessels. It is used immediately after heart attack symptoms occur to improve patient survival.

Participants provided direct care and kept a record of the data on the care provided that negatively impacts on their practice, to plan the health promotion work at the community level. This was illustrated by the footcare nurse who schedules two days a week for special outpatients (people living with NCDs), and the other three days for foot care and infection prevention duties after 2pm every day. '*Basically, I schedule my patients according to the level of care they need. So, a maximum of 10 to 15 patients I see per day*" (HC08 Footcare Nurse). The interviewee further explained that end of every month, *"I am supposed to report the number of patients I've seen, the type of wounds they had, and how many amputations we had, so every month I'm supposed to report on that and also send my report to diabetes Fiji"* (HC08 Footcare Nurse). The nurses further added that *"a decrease of 32% was achieved in foot amputations by the last quarter of foot care".* Furthermore, the participant shared that it takes more time to see a patient with a severe callus than a patient with minor issues. The nurse in the morning gives SOPD patients foot care education, and after assessment of the foot, patients are categorised and scheduled for foot clinic. All diabetic patients undergo foot assessments and attend foot clinic. The foot care nurse felt that half of her work is clinical and the other half is health promotion. The nurse believes that the client should be aware because detecting any wound is better than the client ending up with a foot amputation. The nurse also tries to promote health with the clients who have amputations, according to their information level. This health promotion work is with clients who already have diabetes and those who had an amputation. Moreover, the nurse added that for five hours of direct patient care treatment, it takes two-to three hours of compiling data for reporting and bookwork.

Case Management

Case management is a "collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet client needs. It uses communication and available resources to promote safety, quality of care, and cost-effective outcomes" (Minnesota Department of Health, 2001, p.2).

Case management is one of the primary roles of CPHNs, who work very closely with CHWs, village heads, church groups and those who have transport available. The CPHNs meet with these key stakeholders at the community level for planning and facilitating care for those in the rural remote areas. All the participants stated that they were working with CHWs on tracking

unimmunised children, educating them on wound dressings at the community level, replenishing medications for diabetics and hypertensive cases, assisting with early antenatal bookings, and providing monthly data about the community under their care. A DN shared:

> *[CHWs] have to spend two hours a day as part of their work. It's not only just you go and see and talk to women, you have to go to the elderly who need help - those with diabetes, amputees, some with cancer. They can also go and help them if they need any dressing or they need their medication to be replenished, and they are very helpful with my work* (NS01 DN).

The CPHNs work very closely with CHWs in planning and coordinating long-term community care for those who need daily assistance. The CHWs also advocate for these members in terms of getting dressing supplies and medications from the health centres and giving them to the members of the community.

The CHWs assist with planning monthly activities through meetings with CPHNs. There is refresher training for CHWs on safe motherhood, infant feeding, wound dressing and eye care. These skills help in managing cases at the community level. The CPHN also seeks help from truck drivers who go to remote rural areas every day and help deliver dressing supplies and medications to the CHW, thus further helping to manage cases at the community level. Help is also obtained from bus drivers with a DN saying: *"I just call them [CHWs] just check on this patient [or] so and so - even I have to send medications in the bus. I'll just drop it in the 6 pm bus…… I work with them [bus drivers]. They are my good friends*" (NS 01 DN). The CHWs also work with church groups, village heads and schools. This group of health workers link different players in the community to manage cases in the community. As a NS nurse said: *"I'm here for the past nine months, stuck in Suva for COVID, and she's the one who's managing the station on the Island*" (NS03 DN). This means the CHWs are taking full charge of the community when the DNs are away managing cases and getting appropriate help.

Like NS nurses, HC nurses also utilise CHWs to support clients for ongoing care at home and educate the clients and their families to recognise deterioration. The CPHNs manage cases very closely with CHWs ensuring it meets patient and family needs. The Footcare nurse stated that *"CHWs are provided with dressing materials and taught techniques of wound care".* The participant was impressed with the work they did and said: *"They are very good actually with*

their work" (HC 08 Footcare Nurse) and highlights issues related to financial burden and the geographical layout of coming by boat and road transport saying:

> *Because of the difficult [geographical] layout, it's quite far as their financial needs, so what happens is I'll see them on Monday alongside their CHW. Usually, the CHW will bring them. So, I teach them how to look after the patients, and we develop this relationship* (HC 08 Footcare Nurse).

The nurse went on to say:

> *I give my phone contact and my Viber contact. So, what they do is, they take the patient back home until the next Monday, at least alternate days, they're sending me pictures of [the] patient's foot, and they will be messaging me how the patient looks, how the sugar had been, they'll be in close contact with me. So come Monday, if they think this patient, patient [condition] is not good, they'll tell me before Monday. So, I will negotiate with a doctor that this patient is coming on Monday and probably needs admission. So that's how we work [in managing cases]* (HC08 Footcare Nurse).

Moreover, *"CHWs accompany, some of the cases - they accompany them, and they arrange ambulance for the cases. Some of the CHWs are trained how to do dressing, first aid treatment…… and they refer cases accordingly"* (HC05 Zone/Mental Health Nurse).

Similarly, the GOPD nurses shared that CWHs *"help us with home visitation, collecting medication for a patient, or sometimes they bring a very sick patient to our health centre to be seen"* (HC 06 GOPD Nurse). The CPHN described the nurses' Viber group with the CHWs, the Medical Officer and their Sister in Charge where they give information. Nearly all participants expressed working very closely with CHWs, who play a vital role in assisting with the assessment, planning, facilitation, care coordination, evaluation, and advocating for the clients. Moreover, the CHWs managed diabetic cases by being part of the diabetes peer group and ensuring supplies, such as glucose strips and medications were available. The foot care nurse keeps close contact with the CHWs to manage cases effectively. The Zone/Mental Health Nurse stated that CHWs assisted in managing cases by accompanying them to visit clients with mental illness and follow these cases to ensure they have medication. The CHW manages these cases at the community level and reports to the mental health nurses to get paid. The zone nurse stated that:

> *Our village health workers play a very significant role towards assisting us towards achieving our business plan and our targets, and we have for us.... sub-division we have our sub-divisional nurse manager who organises training for [CHWs] every [quarterly] or every six monthly or every year there is a training for village health worker. If any new village health worker comes in, we conduct training for them. if there is [a] current village health worker [who has] been working for past few years, so we do refresher training for them and they submit their report based on what activities they conduct in their area* (HC05 Zone/Mental Health Nurse).

The participants shared that CHWs play a significant role in implementing community-level interventions. However, they cannot administer medications, but they can create awareness and do a village clean-up campaign. The CHWs also check on those who have missed clinic appointments for immunisation to encourage mothers to attend their clinic and check every Maternal Child Health (MCH) record under their care.

Referral and Follow-up

Referral "makes a connection to necessary resources to prevent or resolve problems or concerns. Follow-up assesses outcomes related to the utilisation of the resources" (Minnesota Department of Health, 2001, p. 2). Referral and follow-up are key roles of CPHNs in Fiji. Sick cases are referred from remote rural areas by CHW to Zone nurses, who refer them to the area medical officer and facilitate access to base hospitals. The CPHNs also follow up on diabetic amputation cases who have difficulty in coming for daily wound dressing, palliative care cases, stroke and other bedridden clients who need care at home. Referrals and follow-ups are both important components of CPH nursing, from nursing stations to health centres and to base hospitals.

All participants reported discussing clients' care with the area medical officer before referring on to specialist services that managed, for example, amputations, prosthesis, eye checkups or dental procedures. The CHWs would bring the client to the DN who would make the referral and arrange a transportation pass. If a client refused further treatment (referral), a NS participant said they were required to sign a letter that was witnessed. A DN contended, *"if I had a [high-risk pregnant] mother, I always refer them when they are five months… the boat is scheduled… gives them time to prepare them for leaving"* (NS 03 DN). Referrals from the maritime (islands) are planned to avoid a potential emergency in a remote nursing station.

Referral

The HC participants reported that referral cases were mainly for the following reasons: reproductive health (those who were trying to conceive), social support related to experiences of domestic violence, cervical screening, attendance at skin clinics, rehabilitation services, and diabetes services for footcare and eye care. Clients were also referred to organisations, such as the Bailey Clinic (for groceries), Red Cross, Rotary Club, Disability Centre, special schools[37] and the Fiji Cancer Society. Like NS participants, they referred to within the speciallty service. This included referring children who had missed immunisations to zone nurses, who commonly referred clients in the community to the base hospital for further management.

A CPHN reported that people with rheumatic heart disease, who did not attend clinic appointments, were referred to a zone nurse for follow up, although acknowledged this approach did not improve health outcomes: *"Hardly ever there is a zone nurse that would come back that she managed to get hold of a patient and to actually have their patient to have their dose." (*HC07 IMCI Nurse). The nurse added:

> *they have a Viber group within the central division staff to follow up on our RHD cases and our defaulter cases…. patients who do not agree to have amputation are not sent for further management…. [the] CWM makes a very clear-cut decision if only your patient agrees to come in for the amputation or a debridement, then only [then, they] admit".* (HC07 IMCI Nurse)

Follow-up

Nursing station and HC participants had central roles in following up with people discharged from hospital. Most required long-term care in the community. One nurse described how they facilitated care by visiting the family and assisting them to understand the needs of their family member, who for example, might be palliative. She explained:

> *Since they come to my area, they are also my patient, so I go out and visit them, visit the family…. just some family talk on you know, preparing their life for the next life. …they are in a lot of pain...I usually go run, whether it's early morning, midnight, or afternoon; I go to them and give brufen if the doctor*

[37] Special schools offers children with disabilities the opportunity to attend school close to their homes, in their own communities, alongside their friends and neighbours

> *orders it…. for other analgesics then, I will take it to the patient and inject the patient there at home* (HC04 SOPD Nurse).

Another participant discussed how they worked with clients discharged from the mental health stress unit. This unit discharged clients to zone nurses for long-term care. The nurse said:

> *We go visit them, once [they are] discharged from [the] stress management ward; {the clients are] distributed to specific zone nurses looking after that medical area, and usually it comes from our Divisional Mental Health Coordinator… the discharge summary comes to me and we go and visit the patients with the zone nurse [for] the first visit and then we monitor first two months and then we assign the responsibility to the zone nurses… in between we follow up and collect reports, we assess the progress of the patients, if there is relapse or anything. The nurse does consult us, and we do discuss the case again [with the doctors] … mostly in the Labasa medical area we visit our patients monthly - some patients take two weekly medications like Haloperidol or Fluprazine injection, so we go visit them two weekly or three weekly or monthly… [because] their mood might change anytime, and we need to see that they are in stable condition… [in] their home* (HC05 Zone/Mental Health Nurse).

Participants with mental health caseloads receive coordinated care from the Divisional Office, which has a defined mental health programme. They have a separate referral and follow-up system, and specific doctors accept referrals. This standardises follow-up care, reduces the risk of fragmentation of services and ensures the management of patient records is accurate.

However, clients in rural and remote areas cannot be followed up regularly and are commonly given advice on how they can manage their disease condition. This nurse said:

> *We go and do their dressings at home and advise them on pressure area care for bed sores or if they need any pain relief method or we also advise them on herbal remedies, sometimes for NCD's, because most of the time they are not able to come to the health centre and collect their medication* (HC06 GOPD Nurse).

Complementary and alternative medicines, such as herbal supplements, were taken by patients to manage their symptoms. A nurse reported, "patients are not able to attend appointments and pick up medicines due to the geographical isolation, transportation, and the recent COVID lockdowns in Fiji" (HC06 GOPD Nurse). The CPHNs often supported the use of complementary and alternative medicines as a practical way to assist patients to manage their own conditions, especially when there was a delay in accessing prescribed medicines.

Participants identified two main concerns regarding follow-up. The first centered on shared transport for home visits by home based nurses at health facilities and dietitians. Some nurses thought separate transport was preferable: *"Because that's one thing lacking in our HC, and if they could have a separate transportation just for zone nurses to aid in (home) visitation"* (HC 06 GOPD Nurse). A second concern focused on the difficulties surrounding the follow up of people who were mobile: *"The population in Suva is very mobile - probably the [cell phone] numbers they give, it's been changed; the address they gave [has] been changed, and the system is not updated"* (HC07 IMCI Nurse).

6.5 Health Teaching, Counselling, Consultation

Health teaching "involves sharing information and experiences through educational activities designed to improve health knowledge, attitudes, behaviours, and skills" (Friedman et al., 2011, p. 2). Most participants used the word health promotion to describe their health teaching at the individual, family, community, or systems level. The participants reported on opportunistically conducting health teaching, which included at shift clinics, village meetings, clinic and school visits, while waiting to be seen by the doctor and hospitalised, or in the homes of those providing wound care.

The CPHNs used village meetings and shift clinics as avenues for health teaching. A DN reported, *"I do when I have a chance of going to a village meeting, that's where I do my health teachings when they give me a chance to speak, I speak of whatever I can talk on from NCDs to CDs"* (NS01 DN). This meeting is attended by the Chief, the Turaga-in-koro, and the community members. Health-related issues are discussed, and actions to be taken are planned with the community leaders. Another participant shared that health teaching was done after shift clinics – where the participant speaks to the village people saying that *"when I go out into the shift clinics, I try and do everything, like half the day I do my treatment and the other half I'll try and do the promotion"* (NS02 DN). Yet another participant explained health teaching was previously done with patients while waiting to be seen by the doctor, but only when they were fully staffed: *"before we used to have [full] staffing, we used to have a nurse who used to give health talk{s] to the patients who were waiting for the triage but with the [current] staffing we are not doing this anymore"* (HC07 IMCI Nurse). This participant described health promotion in their health centre saying *"it's just a quantity role; it's not a quality role"* (HC07 IMCI Nurse).

Similar sentiments were described by a Footcare nurse about how caregivers were taught to manage wound at home. She said:

> *I always like to involve their closest caregivers [in health teaching] because these patients won't be coming to me every day, but they will be staying with their relatives. So, the relatives need to know how to manage the wounds at home too. So, I worked very closely with them [for] initial few days. I teach them, I show them how to manage the wound, and from there, I hand it over to them, and they can always call me. I give my contact, and they send me pictures of the patient's wound. So, I assess from there, and then we decide if the patient can continue the scheduled dates or if they can come [for] admission* (HC08 Footcare Nurse).

Another DN from the maritime zone shared a different perspective on working in the islands. The interviewee took time out to provide treatment and, at the same time, educate patients as they might not meet again,due to the geographical layout, saying that:

> *I try to take my time because that's the only time I can see those kinds of patients and when they are coming with injuries for dressing…. so, when [they] have some other questions, any other problems or sickness in school … cause this the only time that we get to know them, and [take} the time [to] meet [with] them compared to other days* (NS03 DN).

Taking a health teaching approach, enabled a DN to achieve full (100%) COVID-19 immunisation coverage on the island, while people in other places were hesitant to be immunised. Opportunities for health teaching were numerous, commonly occurring in the course of healthcare interactions. Participants commonly undertook health teaching at the point of care, with the goal of providing relevant, timely information.

An SOPD nurse, reported health teaching was an intervention undertaken with healthy people on how they could stay healthy, at the school level. Health promotion and awareness programmes in schools encouraged activities, such as planting vegetables to minimise the cost of buying from markets and *"working with school management, that's a good way of doing the health promotion, actually"* (HC04 SOPD Nurse). This participant contended that health promotion at the community level works best, for example, in schools rather than in hospitals and continued:

> *When I usually go to the schools, I usually look into their canteens and from my own observation, like here in … the schools under my medical area they*

> *are not following the school canteen guidelines. Most of them are selling sweet stuff, which is not really a health-promoting canteen* (HC04 SOPD Nurse).

Participants identified health teaching as addressing the specific needs of different communities. Some were formal, while others were informal and opportunistic interactions. One NS nurse explained, *"how we live in the village should be clean, mostly on their personal hygiene having proper toilets, rubbish disposal needs to do the clean ups in order to avoid having communicable disease outbreaks*" (NS01 DN). The nurse further added that health teaching targets groups, such as men, saying during the *"church rally, there is a men's church rally - they will invite me and I usually talk on NCDs because men usually they smoke, drink kava and are physically inactive"* (NS01 DN). Another NS nurse said:

> *a nearby village youth group, asking if I could help them in teaching them first aid [for] teens; they normally have cuts and major bruises from plants in their plantations. So yes, I've gone and help them… to apply bandages and giving of CPR [teaching] just the basics of CPR. That's for the youths… and for the women's groups… [we] teach them about cervical cancer and breast cancer and how to do [prostate-specific antigen] PSA or breast self-examination… I try and teach them the basics of the signs and symptoms of cervical cancer and breast cancer… they can teach their friends and their family members and if they see any signs or symptoms, they can come up to the clinic…. I also do wellness teaching and about hypertension and diabetes* (NS02 DN).

A DN from maritime said that health teaching was planned monthly, according to the Ministry of Health and Medical Services business plan. These teachings are guided by monthly events such as National Deaf Month, Pinktober (cancer awareness month) and prostate cancer. Health teaching activities are based on community health assessment and school inspection. Health promotion involves talks to youth during the weekly church meeting on topics such as "AIDs, STIs, prostate cancer… (NS 03 DN). This nurse also commented, "*the women's group, we talk about breast cancer, cervical cancer, childbearing age, the menstruation cycle, and safe motherhood"*. She explained they did a lot of health promotion work and want to do more work of it: "*every year [we visit schools] to help teach tooth brushing and handwashing and….cleanness of the classroom cleaners"* (NS03 DN).

A common view amongst participants was that health teaching should focus on different groups with higher risk profiles. An SOPD Nurse identified risk groups related to malnutrition, where breastfeeding mothers should be educated. Another participant said:

> *for the reproductive health, I always focus on women's group and the youth group. For the ladies and girls, I need to separate those from the boys because some of them can't ask questions in front of other people… we have to be mindful of privacy*" (HC05 SOPD Nurse).

This participant also said,

> *we go out as a team… we celebrate world cancer day, Pinktober month… each zone nurse has a task to celebrate in the zone… we conduct… cervical screening, breast cancer examination, prostate cancer awareness… we also approach [NGOs] them and we also conduct training as well as outreach programmes, we do mental health outreach with them* (HC05 SOPD Nurse).

The data gathered from the interviews revealed that HC nurses spent considerable time providing health teaching to individuals and families on disease management and the prevention of complications related to diabetes, stroke, palliative care and NCDs. The Zone/Mental Health Nurse said *"for - domiciliary cases, patients and their relatives were educated on medication use and how to do dressings at home"* (HC 05 Zone/Mental Health Nurse). Zone nurses educate relatives on medication concordance at home, especially for mental health patients. Similarly, an IMCI Nurse shared that "*health talks are provided to IMCI mothers on discharge plans, advising them of the danger signs and follow-up care"* (HC07 IMCI nurse). The Footcare Nurse commented on her health teaching role with diabetic clients, saying "*foot care, how to look after your foot, your nail care… and I also give them information on, if the dietitian is not there, on their diet and medication use".* (HC07(IMCI Nurse). Health teaching and health promotion is undertaken on Tuesdays for people with diabetes and hypertension. Clients are informed about risk signs, and when to return to hospital with complications. The participant further commented:

> *most of the time, we just have one physio… when she's not there, then I'm talking about exercise. When dietitian is not there, I'm talking about diet, so what we do is we try and involve all these cadres, dieticians, physios, dental, pharmacy and lab (staff)… we have a counseling session* (HC07 IMCI Nurse).

The participants found health teaching challenging as they often had little time, and the community were not always interested in the messages. A DN said, "*I find it sometimes health promotion is lacking in our work as a nurse*" (NS01 DN). Nurses are working on their plans, data and percentages: *"Like the work as a public health nurse is sometimes lacking"* (NS01). Two days a month are allocated for health promotion work in the village. The nurse reported that she is usually occupied with daily and weekly reports. Similarly, another NS nurse felt that she does health promotion well but needs to invite Medical Officers since the community has seen her for the past eight years, saying:

> *For me, personally, the health promotion role is going on very well, but sometimes they need to hear a new voice because they've been hearing my voice for the past eight years. So sometimes I invite our medical officer or the nurses from other districts to come and talk on my behalf* (NS02 DN).

Counselling

Counselling involves establishing an interpersonal relationship at an emotional level, with the goal of increased or enhanced capacity for self-care and coping" (Minnesota Department of Health, 2001, p. 2). Counselling was commonly practised by CPHNs with maternal-child health interventions. Nurses working at NSs reported counselling antenatal and postnatal mothers on family planning, and clients with mental health problems. The participant said: *"yes, I do counselling for antenatal mothers, postnatal mothers…. I have mental health cases; depression cases I do counselling on them"* (NS 01). Another participant from district nursing reported, *"I do talk with youth, the Talatala [Senior Priest] or the Vakatawa [Priest] here in the island to help me from the spiritual side to come and talk with the youth groups"* (NS02), demonstrating the importance of using religious leaders to assist with counselling the youths to ensure the cultural needs of those living in the maritime islands are met.

The HC participants identified counselling was provided for clients with reproductive health issues, new antenatal mothers, voluntary counselling and testing for HIV infections, family planning, families of malnourished children, and NCD clients with non-compliance to medication and diet. Counselling is undertaken with dietitians and community rehabilitation assistants. The SOPD Nurse counseled clients to motivate them.

> *Some [clients have] already testified in the media on what they've experienced, and some have refused surgery right at the emergency*

> *department. I used to accompany them down to Suva because if I refuse [to go with them to CWM Hospital] …. sometimes they reach there [ED- CWMH], they refuse [amputation] I go in and counsel them, and that's when they agree, OK nurse, I think I have to. I said see, when you will have an amputation, I will be the one to nurse you, and now already, some of them they came back and asked if they could see me, just like some of them cried. I am happy. [They] said if I had disagreed with your advice, I think I wouldn't have come here to see my children again. I would have been dead by now* (HC04 SOPD Nurse).

The SOPD Nurse commented counselling as a community health nurse is a matter of life and death. When clients are counselled appropriately, a life is saved, such as through amputations. Refusing diabetic amputations is very common in Fiji – there have been cases where people die of septicaemia, as they do not consent to lower-limb amputation.

Counselling was also important for a family-centred care approach at the community level, where the family plays an important role in planning care. The Home-Based Care Nurse shared working closely with doctors to organise caregivers for palliative care clients and counselling family members on the importance of providing palliative care. There are cases where family members must be appropriately counselled after the death of loved ones or should be mentally prepared on issues of death and dying. The participant shared a case of breast cancer requiring palliative care. The participant said, *"the husband didn't know that the wife was a category four palliative case"* HC10 (HBCN) as the wife did not tell anyone. Further adding that *"So the worst thing is that when the lady died, then this time, the husband, he didn't even understand what was wrong with wife"* HC10 (HBCN). The HBC nurse had to counsel the husband so he could understand the wife's medical condition and come to terms with the loss of his wife.

Consultation

Consultation "seeks information and generates optimal solutions to perceived problems or issues through interactive problem-solving" (Minnesota Department of Health, 2001, p. 2). As reported earlier, a lot of consultation is done with village chiefs, CHWs and village headman on screening, outreach, and health promotion interventions planning and implementation at the village level. There are formal and informal consultations by the CPHNs – if they need any information about someone who has missed a doctor's appointment or child immunisation, they consult the relevant CHWs. Apart from consulting community leaders, CPHNs are also consulted on health issues regarding the community by other ministries.

The participants shared that the Ministry of iTaukei Affairs consulted the CPHNs on many occasions. As one interviewee said, "*if the Roko wants some data about the community, there are many community programmes or village visits"* (NS01 DN). Other participants reported being consulted by other Ministries (Social Welfare) on Dengue and Leptospirosis data that was used for aiding those affected in the community. The SOPD Nurse stated that the disaster management teams usually consult with CPHNs post-disaster to provide relief: "*we give them the data, names for the families who were affected during the flood or affected during the hurricane*" (HC04 SOPD Nurse). The CPHNs work as the "go-to person" who has all the health and demographic information of their catchment area.

6.6 Collaboration, Coalition Building and Community Organising

Collaboration

Collaboration "commits two or more persons or organisations to achieve a common goal by enhancing the capacity of one or more members to promote and protect health (Minnesota Department of Health, 2001, p. 2). The HC participants collaborated with five broad groups of people in their everyday work. Firstly, the departments within the Ministry of Health and Medical Services, which included medical officers, dietitians, health inspectors, peer educators, the oral health team, the National Food and Nutrition Centre, physiotherapists, pharmacy staff and laboratory technicians. The participants assisted doctors in referring patients to the base hospital.

The HC nurses also collaborated with other government ministries including the Fiji Police Force and the Ministry of Women, Children and Poverty Alleviation/Department of Social Welfare. The police department assists participants in managing and assisting with domestic violence, child abuse and sexual abuse cases. A DN reported working with police officers on raising awareness of illicit drugs, alcohol and STIs. The Ministry of Women, Children and Social Welfare was involved when there was no one to look after clients. The IMCI Nurse reported that some clients need social support, *"I remember last time we had a male who had been sleeping in the hospital for like day and night; he used to stay in the hospital like his home"* (HC07 IMCI Nurse). The GOPD Nurse shared that the *"National Food and Nutrition Centre engaged the CHW with the Ministry of Agriculture whereby they did the training with the CHW to start with container gardening in squatter areas, and seeds were provided*" (HC06 GOPD Nurse).

A project team works closely, or within the Ministry of Health, with developing and implementing community-based programmes, with a focus on mental health programmes, rheumatic heart disease (RHD), footcare and Tuberculosis control. These programmes are internationally funded or receive research funding for implementation at the community level. These programmes work very closely with the CPHNs. The participants previously shared collecting data for these programmes (p. 183) and were able to use it for planning care at the community level. They discussed having a proper reporting structure, where clients were referred from rural remote areas for advanced management at base hospitals. This was well described by the Zone/ Mental Health Nurse saying:

> *I work with the mental health unit, and we undergo mental health training; we facilitate workshops like Mental Health Gap training, and we train nurses; when nurses are trained, they go out and perform their duties. My role is there to monitor and to collect reports [and] to engage them. If they have any issues, I raise them with my Mental Health Coordinator and we also conduct supervisory visits, and we do auditing and [address] other issues that are related to mental health in the community* (HC05 Zone/Mental Health Nurse).

This participant works with nurses in rural remote areas, and with the coordinator. She trains other staff, monitors their progress, and supports them if there are issues, collects reports, submits monthly reports to the Divisional Coordinator, conducts supervisory visits and undertakes audits. The participant ensured collaboration at different levels within mental health services. The participant further shared,

> *Mental health was under the Head of Wellness, and [we have a] Mental Health Coordinator, National Coordinator plus we have a Northern [Divisional Coordinator], so I am the Sub-divisional Coordinator, and we report to the [Divisional] Mental Health Coordinator plus then we report to the Wellness Centre, Head of Wellness and the National Mental Health Coordinator. It's partially funded with WHO and other NGOs but it's under Ministry of Health* (HC05 Zone/Mental Health Nurse).

Other non-government organisations work at the community level with the people at the grassroots level, which has a direct impact on communities. These organisations include Rota Tanks Pacific, Fiji Cancer Society, Medical Services Pacifica, Red Cross, and Diabetes Fiji. One CPHN worked very closely with Rota tanks, to combat school typhoid and water-related issues (HCO4). The Footcare Nurse shared that Diabetes Fiji assists in providing offloading materials, supports the peer groups, and provides support to establish foot clinics at sub divisional level.

The Fiji Cancer Society provided support for cancer, by supporting breast examination, providing free bras and medications for cancer patients and helping them transport to attend clinics. They also assisted Home-Based Care Nurses who were providing care to clients in palliative care. A GOPD Nurse shared the role of Medical Services Pacifica (MSP), who facilitated sessions for children (relating to child rights) and women (relating to domestic violence and family planning), saying that *"sometimes we go with MSP…… they used to have different sessions for children regarding all child rights and the woman use to have a different session like domestic violence and family planning"* (HC06 GOPD Nurse).

The CPHNs also collaborated with community leaders and the community groups, who include the Village Chief, Turaga-ni-koro, CHWs, village chiefs, religious leaders, advisory councillors, youth groups and church groups such as the Methodist church in Fiji. A SOPD Nurse shared that the Turaga-ni-Koro plays a huge role as they can approach the village chief, who will make or call for village meetings, at which point things, such as having a village clean-up campaign, can be put forth and everyone will follow his instructions. She further stressed the importance of including the Village Chief saying:

> *Some villages where they have Chiefs become very challenging because some villages don't listen to Turaga- ni- koro. They have to listen to the Chief. Even if Turaga- ni- koro says OK, let's do cleaning up, then the villagers will say no, we have to listen to the Chief* (HC04 SOPD Nurse).

The Chiefs and the Turaga-ni-koro (Village Headman) had a significant role in COVID-19 vaccination. One Zone/Mental Health nurse reported that vaccinating the villagers/community, for instance the COVID-19 vaccination was easy through contacting the CHWs and *Turaga-ni-koro*. Before visiting the community, the zone nurse informed the advisory councilors (who look after the settlements), when assistance is needed to bring the community together for vaccination. This is supported by a GOPD Nurse who said: "The *Turaga-ni-koro is very supportive, the village health workers, they help in gathering people and then getting the message across*" (HC06 GOPD Nurse). Religious organisations also worked with communities. *"The Methodist church was assisting patients with diabetic amputees ….. by assisting people with wheelchairs"* (HC07 IMCI Nurse). Overall, the findings suggest CPHNs play a key collaborative role, connecting with different groups to ensure that common goals are met that benefit communities and individuals.

Coalition Building

Coalition-building "helps promote and develop alliances among organisations or constituencies for a common purpose. It builds links, solves problems, and/or enhances local leadership to address health concerns" (Minnesota Department of Health, 2001, p. 2). The CPHNs usually build a coalition with community groups and government and non-government organisations that work on health-related issues. District nurses work closely with the CHWs, who assist with planning monthly activities. These monthly activities include outreach programmes for the rural/remote populations where coalition building with NGOs is essential. The DNs invite NGOs, like the Fiji Cancer Society, Medical Services Pacifica, Red Cross, Empower Pacific, and Diabetes Fiji, to facilitate screening and health awareness and to help with clients with NCD complications. The aim of the coalition with other organisations is to promote safe motherhood and infant feeding, health promotion, and foot care and educate the communities on social issues.

Health Centre nurses shared working with religious leaders and Mandalis (religious groups) to implement health promotion activities. The CPHNs ask religious leaders to discuss CDs and NCDs in the church and promote screening and vaccination. The participants reported that these religious leaders have been very supportive. The GOPD Nurse said that: "*sometimes the youths group and women's group and church groups approach us ….. to conduct [screening] especially when they use to have their prayer session, they use to come and ask [for] NCDs screening and all*" (HC06 GOPD Nurse). The Health Centre participants reported on coalition building activities with the *Turaga-ni-koro* and community health workers, who help bring people together and organise health talks. Another example of coalition building was when one of the participants was selected to be the Chair of the Water Committee at the Government station saying: "*I was to ensure that …. all the government workers see they have received good water supply and how to manage water wisely from own home because we rely on water [from] the blowhole*" (HC04 SOPD Nurse). The participant provided leadership and worked in coalition with all others to ensure a safe water supply to all the government stations. These findings suggest that CPHNs get organisations to work together which benefits the community.

Community Organising

Community organising is "the process by which people come together to identify common problems or goals, mobilise resources, and develop and implement strategies for reaching the objectives they want to accomplish" (Centre for Community Health and Development at the University of Kansas, 2017, p. 2). The CPHNs conduct community health assessment to identify problems in the community and develop strategies to solve these health problems. A critical area in which CPHNs organise the community is pre-disaster preparedness. A NS nurse reported conducting community profiling and identifying significant problems in the community. There were four primary areas of community organising identified. These areas included waste and sanitation management, disaster management, collaboration with school management, and implementing COVID protocols in the village. Firstly, the NS nurse, through community assessment, identified the lack of proper toilets in the village. The participant then collaborated with the Ministry of Water and Waste Management and gave an example of how the community worked together to build field latrines. The NS nurse said:

> *This is a long overdue problem after the previous nurses, and so when I came, I told them after the [community] profiling this is the problem [not having proper toilets] this particular problem this village is facing, and we need to stand together and make the toilets. We started the digging and then I had to call these Ministry of Water, Waste and Health Inspectors to come and see and then a company supplied the field latrines, which are there right now* (NS01 DN).

Similarly, another DN shared the experience of organising the community by working with the agriculture department and police officers to ensure animals were kept outside the village. The participant said:

> *We normally liaise with the agriculture officer for animals that are not being kept, especially for pigs, and work with police officers here on the island in awareness for talking to young, the young adult girls on the island about illicit drugs and alcohol and STIs and all those STDs [Sexually transmitted disease]. Also, the district offices here on the island liaising with them - normally awareness campaigns on the island with those groups of people* (NS02 DN).

The participant further explained that they worked with CHWs, youth groups, womens' groups, and Sunday School children on village projects. These projects included a clean-up campaign, planting mangroves in the shoreline, and beautifying the village. A similar kind of work was

done by the maritime nurse, where they worked closely with the ladies' group *(Soqosoqo Vaka Marama)* and the youths, where the nurse and CHW were invited to speak on important health issues. The participant said that:

> *I work closely also with community groups, especially the ladies Soqosoqo Vaka Marama and the ladies because we meet them every fortnight, it's a meeting with them and they always invite the nurse and the CHWs to be present. Because of this, they give time for…. [me] to speak, whatever is needed to be done, the cleanliness of the village or what should not be done, or [any] particular things… . but most [of the] plans they'll work towards together …. just to accomplish the plans* (NS03 DN).

Furthermore, the Zone/Mental Health Nurse shared the experience of organising the community before the disaster stating:

> *When there is a warning of disaster, we go and prepare our community. We first prepare ourselves at the Health Centre at our facility, and then we go out in the community; we work without Turaga-ni-koro, the advisory counsellors and plus our health community members* (HC05 Zone/Mental Health Nurse).

In the same way, the DN organised the community for disaster management and worked closely with the CHWs in moving the community to a safe place. The youth group carried the older adults to the school (which was the evacuation centre): *"The youth group did what they were told to do. They carried the old man from the village to school where we went to, so by the time the hurricane started, we were safe"* (NS01). The CPHNs play a very critical role in preparation for disasters, which has been a problem for many communities. Similarly, the maritime NS nurses reported having a disaster management committee that allocated evacuation centres before the disaster and transferred the young and the old to this safe place. The disaster committee works in a very coordinated way to ensure everyone is safe. One DN described an example of this saying:

> *There were two evacuation centres… one was at the school, and one was at the NS. So, I was dealing with 41 of them at the NS, whereas the school was dealing with the rest of them with the head teacher and village headman taking control* (NS03 DN).

Participants working closely with the community reported no means of communication and working with village leaders to solve the problems. This DN said:

> *After the disaster, we didn't have any communication with the outside world. Before, I used to feel I was left out. There was no place to communicate with my boss. So let them know that I'm still alive. So, during the post-disaster time, I tried to be positive always because I knew that they knew that. I'm OK and don't go over to negative ways* (NS03 DN).

Moreover, the DNs worked closely with the schoolteachers and management. The CPHNs conduct school visits, assess the school, and provide feedback data. The DN stated that:

> *For any school programmes, they will invite the district nurse to come. We usually have meetings monthly meetings with the teachers…. I join them and discuss whatever school I visit. I tell them the result of the school visit. I just tell them the data, and they learn a lot from that* (NS01 DN).

Participants met regularly with schoolteachers and discussed health data to support the school with management. An example of this, was the implementation of healthy school canteen guidelines. As a CPHN said:

> *With the school canteen, I always tell them about the [healthy] canteen guideline[s] which they knew, and after I discuss them with them then, they look back at their school canteens, and now they are not selling any more junk food. That was one of the issues we talked about. … We work as a family even I can say that, so we work very closely with the school* (NS01 DN).

Similarly, another DN also reported working very closely with district school staff and sharing resources available on the island to achieve the planned goals. The nurse can share an internet connection (data) to make calls and send reports with the help of the head teacher. The DN said *"if I need to send data or even need to make a call [or] if I need to send a particular report every month, I normally ask them for internet from the head teacher"* (NS 03 DN). Participants stated the school also assists with photocopying and printing and sending data from the island to the Divisional Office.

The community was also well organised to work together to implement COVID-19 protocols during a large gathering in the village. A DN explained that with the assistance of the police, the community understood the nurse's role and supported people wearing a mask and isolating, saying:

> *With this Public Health Act [in place] during this Covid-19, and we just had a funeral last week, and people were coming this far. He was a very well-known*

> *man, so everyone here just came. And we cannot chase people when they come to the funeral. So, I just advised them to see we are working now under Covid-19 act, so if you come, please just come, pay your respects and go back or don't stay in a group. Stay in different houses; they were not even coming with masks on. I had to call the police…. on the day of the funeral. I can understand people in the village. In the morning, I came down [to the village] and said, see you can't have breakfast here…. so, I asked them politely if we could just take the breakfast to their houses rather than all eat together, so they listened* (NS01 DN).

The participant further explained that to control this gathering, the Chief was involved, who was very supportive of the nurse. The nurse further reported attending community events (without a uniform), in an effort to be part of the community rather than a person with authority who can enforce the Public Health Act of *no gathering*. This is culturally acceptable, and the participant was able to organise the community, minimising the spread of COVID-19.

6.7 Advocacy, Social Marketing, Policy Development and Enforcement

Advocacy

Advocacy is the act of promoting and protecting the health of individuals and communities "by collaborating with relevant stakeholders, facilitating access to health and social services, and actively engaging key decision makers to support and enact policies to improve community health outcomes" (Ezeonwu, 2015, p. 123). The CPHNs assist individuals, families and the community to receive the assistance they require. Three main areas of advocacy were identified: 1) advocating for clients who need further medical care; 2) seeking assistance from NGOs on behalf of the individuals who need support; and 3) clients becoming health advocates.

Participants reported advocating for clients to seek care from medical officers and other specialist care. This nurse said:

> *I have gone for one shift clinic, and this lady was there, and she was complaining that the child had a lump on her neck, so what I did like they were financially not stable, so after I finished my shift clinic, I got her back to the HC with me to be examined by the doctor and to be referred to ENT for further management* (HC06 GOPD nurse).

A Home-Based Care Nurse shared her role in advocating for the client's health needs and well-being. Due to bed blocks in the wards and hospitals in general, long-term admissions of post-

operative clients cannot be accommodated. The HC nurse considered the best option was palliative care saying:

> *And I'm really trying my best; if there's a cancer patient coming to me what I'm doing now, I explain everything, and I make sure that relatives that they have a family purpose, and I tell them this is exactly what will happen. Prepare - it will happen* (HC10 HBCN).

Participants reported seeking help from NGOs on behalf of their clients. One SOPD nurse reported writing to diabetes Fiji to get wheelchairs whom her clients were saying: *"I have written [a] few letters to Diabetics Fiji to request for wheelchair - yeah [for a] few of my amputees"* (HC 04 SOPD Nurse). The nurse went on to share how she discussed approaching social welfare to assist patients with disabilities. She further discussed her role in helping school children by saying: "*sometimes they say we… don't have money to buy their lunch but there were instances where we sort help from social welfare so they assisted in buying school bags and shoes for the children so they can go to school"* (HC06 GOPD Nurse). The nurse further adding: "*they use to give an excuse like they don't have a birth certificate so I assisted in getting the birth certificate for the child" [so they can go to school]* (HC06 GOPD Nurse). Another SOPD nurse shared a similar experience of seeking assistance from the Lion's Club and Rotary Club for arranging wheelchairs and crutches for amputees and other cases with disabilities. Lastly, a SPOD nurse shared how patients become health promoters themselves after they have been able to manage their illnesses, saying:

> *Some of the patients help me like doing the health promotion. Some of my patients they'll go with me and preach to the families, you know I have been having this [disease/condition], and I follow the strict diet from the nurse, and they will change* (HC04 SOPD Nurse).

The nurse elaborated on the formation of diabetes peer groups with the help of Diabetes Fiji, where people living with diabetes, are advocates for healthy living. These findings suggest CPHNs advocate for clients who need further specialist medical care, by seeking assistance from NGOs on behalf of the individuals who need support, and becoming health advocates and advocating for the prevention of NCDs.

Social Marketing

Social marketing is a process "that uses marketing principles and techniques to change target audience behaviours to benefit society as well as the individual" (Lee & Kotler, 2016, p. 9). Participants reported working on women's health, safe motherhood, family planning and the importance of coming to the clinic for immunisation. The CPHNs used principles of social marketing techniques by using village Chiefs and other community leaders to influence the community at meetings. Through the combination of collaboration, coalition and community organising roles, the CPHNs used social marketing to influence health at the community and systems level.

One participant shared using social media only once to invite women to use the church page – but did not use it again due to internet problems. This participant said:

> *I had done it once [posted on Facebook] and I had put it on the church page [but] we have internet problems in our area. I did it once and that was the last time, too……. most of them don't have smartphones* (NS01 DN).

Although it was challenging to keep everyone connected, a Zone/Mental Health Nurse reported using Viber groups with CHWs to achieve the COVID-19 vaccine targets saying said:

> *we have community health workers, who have used this Viber platform to pass information from one person to the other person… we are getting our vaccination target and the number of people who are already vaccinated through Viber groups. So usually for each group we have created a Viber group. We share information in the group, and it's helpful* (HC05, Zone/Mental Health Nurse).

Policy Development and Enforcement

Policy development places health issues on decision-makers' agendas, and establishes a plan for the resolution, determines needed resources, and results in laws, rules and regulations, ordinances, and policies. Policy enforcement compels others to comply with the laws, rules, regulations, ordinances, and policies created in conjunction with policy development (Minnesota Department of Health, 2001). As previously outlined, the CPHNs assist communities in developing local village policies, such as the smoke-free hall and healthy and school canteen guidelines. An SOPD Nurse described how the community assessment data was used for developing health policies saying:

> *I participated in a community assessment in that's just how many people were living in the house and smoking and how many pregnant mothers were in the village were in the house, and then after I did the community health assessment, I presented that data to the community … OK, this is half of the village smoking, and half of this numbers is the childbearing age. So, they all come up to this hall to do village meetings, and half of this hall is being used by people who smoke, and they smoke inside the hall. All these people are being exposed to smoking, the children, the elderly, the pregnant mothers, and then we come up with a meeting, and they say, OK, why can't we have this village as a smoke-free hall. When they come, we develop a health committee that can watch out for the hall and those who smoke inside the hall. Once that is done, a network team from Suva come to the community and do a workshop for two weeks, especially on health-promoting activities to be done in the community, especially focusing also on tobacco and the effect of tobacco in the hall* (HC04 SOPD Nurse).

She further explained the outcome of this village bylaw whereby the Chief and the members supported this initiative of having a smoke-free community hall.

> *Yes, the Chief too was smoking, and then he said OK, I am gonna take the lead. I am gonna go and smoke in a smoking space. He went out and included all the youths, even some women who go out to the smoking space to smoke there, and we told them they could reduce and then we did NCD screening, and then we told them the effects of smoking, and they have to reduce or quit and two of them managed to quit. That was an achievement* (HC04 SOPD Nurse).

Similarly, a Zone/Mental Health Nurse worked together with other zone nurses and was able to implement the smoke-free zone for their zones. The success of this smoke-free initiative in this community was well received. In contrast, another DN reported that they tried to have a smoke-free hall, but this did not work well since the Tobacco Control Unit closed in Labasa. It is hard to have a smoke-free hall since: "*Even the chief smokes himself and finds it hard to stand and go out and smoke"* (NS01 DN).

The participants also spoke about using the *Public Health Act* in managing COVID 19 using public health activities and enforcing the COVID protocols at the community level. A DN further shared using the Public Health Act to avoid large gatherings to control the spread of COVID during a funeral in the village. This was possible with the help of the police officers and the village Chief. Another DN reported that canteen guidelines were very closely followed with support from the community.

Similarly, to the previous example, the SOPD Nurse presented data from the dental department regarding school students to the school management. After this presentation, changes in the school canteen included opting for local fruits and healthy snacks and enforcing the healthy school canteen guidelines (HC 04 SOPD Nurse). A Zone/Mental Health Nurse reported "*my school has removed the canteen actually from their school; there was a breach of canteen guidelines, so they have gone with the idea of no canteen at their school*" (HC05 Zone/Mental Health Nurse). This perspective indicates the role of leadership (village chiefs and school management) in ensuring health-promoting settings, such as village halls, schools, and village boundaries are possible only with their support.

6.8 Chapter Summary

In summary, the strength of CPHNs' surveillance lies in extensive monthly data collection across practice levels, supported by strong networks with CHWs and community leaders. However, the data is often inadequately analysed for community-level healthcare planning. Mental health and foot care programmes effectively analyse separate data. Disease outbreak concerns include common LTDs after disasters and water and sanitation issues. Successful control involves community involvement and teamwork. Outreach primarily targets advanced disease stages, focusing on educating families for home care. Challenges include staffing and COVID-19 disruptions. Close collaboration with CHWs facilitates health promotion and disease prevention, leading to valuable referrals to external organisations.

Health teaching is mainly opportunistic during routine healthcare encounters. While formal and informal health teachings to different risk groups did occur, health teaching was mainly focused on NCD management and child immunisation. The absence of other health professionals, such as physiotherapists and dieticians, adds to the time constraints of CPHNs. This limits their ability to provide health teaching to the clients.

The results provide important insights into community organising work in the area of sanitation management, getting the community together pre and post-disaster, working with schoolteachers and management and lastly, getting the community to cooperate on implementing the COVID-19 protocols.

The findings related to policy development and enforcement show that there is a need for community data such as smokers, childbearing age women, and school dental carries data to advocate for policy development. This was evident in developing smoke-free village halls and implementing healthy school canteen guidelines. Moreover, the enforcement requires government authorities to take charge, as one participant pointed out the closure of the Tobacco Control Unit and the failure to implement the smoke-free halls initiative. Having presented an insight into the work of CPHNs, the next chapter explores the changes to their role and their challenges.

CHAPTER 7 CHANGES TO ROLE AND CHALLENGES

Having outlined CPHNs' roles and interventions related to health promotion and direct care in the previous two chapters, this chapter will discuss the CPHNs' role change and the challenges they face. This chapter will answer two research questions:

1. How do CPHNs perceive that their role has changed within the past ten years and what do they attribute these changes to?
2. What are the greatest difficulties faced by CPHNs in their everyday work?

The qualitative analysis sought to answer the first question and describes how the CPHNs' role has both expanded and extended over the past 10 years. The qualitative analysis sought to answer the first research question and describe how the CPHN's role had both expanded and extended over a 10-year period. Interview transcripts were read multiple times so that the researcher could become familiar with the content. Significant features of the data were identified and highlighted because they related to the research question; codes were systematically assigned to these features. These codes were then examined to identify patterns and themes, grouping related codes together to form overarching themes. Themes were reviewed to ensure they accurately represented the data, which included checking the relevance of coded extracts and the whole data set. A thematic map of the analysis was generated. The thematic analysis undertaken to answer the second question identified six main themes.

The analysis undertaken to answer the second question identified six main themes: 1) increased work; 2) adapting to an increased population size and service demands; 3) resource constraints; 4) limited transportation; 5) challenges due to COVID 19; 6) insufficient infrastructure, facilities and working without a doctor. This section will further discuss and explore each theme within a range of contexts. This is followed by the findings related to professional development, training needs and education, the demands of rural and remote nursing, and respecting community attributes.

7.1 The Changing Role of Community Public Health Nurses

The CPHNs highlighted significant changes to their roles over the past 10 years, which included both an expansion and extension to their roles, as a result of the spill of hospital care into the

community increasing the need for disease management and acute care work. How their role has extended and expanded will now be presented.

7.1.1 Role expansion and extension

Role expansion occurs when individuals choose to incorporate a broader set of responsibilities into the personal definitions of their roles, treating these responsibilities as expectations rather than discretionary activities (Morrison, 1994; Parker et al., 1997). Most participants highlighted issues on expanded roles within the scope of practice. As one CPHN said:

> *My role has changed a lot and I have a lot of work to do now. We go and conduct mental health counselling, and we have to do our proposal, our programmes and we have to conduct our own training; so, it has definitely changed a lot compared to previous years* (HC05, Zone/Mental Health Nurse).

The expanded roles of CPHNs were similarly described by nurses who recently commenced working as, for example, a Maternal Child Health Nurse, Integrated Management of Childhood Illness Nurse, General Outpatient Department Nurse and Special Outpatient Department Services Nurse along with providing domiciliary care, and community NCD screening. A CPHN explained: *"health is advancing so there were new services that were brought in, such as foot care, motivational interviewing… all these were not there before so the roles of a zone nurse… actually we started having more parts to play"* (HC06 GOPD Nurse). With the new immunisation administration policies for meningococcal measles and rubella, the nurse added *"I do IMCI when I go out to my communities and GOPD"* (HC06 GOPD Nurse). Another interviewee added that JADELLE (contraceptive implant) insertion "*that's not in my job description but I have been certified because it's a minor procedure"* (HCO4 SOPD).

The expansion of CPHNs' roles created immediate challenges. One participant contended "*I got trained [with footcare] and there wasn't any room for me to do diabetic foot care… [we] looked for sponsors, prepared the room [footcare clinic] and got diabetes Fiji involved*" (HC08 Footcare Nurse). In 2014 the diabetic foot clinic was established, however this created new challenges. Nurses described spending *"20 minutes on each patient"* (HCO4 SOPD) saying *"I take 30 SOPD patients every Tuesday, and that is the only day I do SOPD*" (HCO4 SOPD). The opening and closing hours were no longer the same as clients came in their own time. As one CPHN said *"gone are those days - they [now] say that this is my time; you have to come in this time…. For*

me I wait for them" (HC04 SOPD Nurse). Flexibility was essential to ensure that patients' needs were met.

Further expansion of the CPHNs' role was apparent in NCD management, using the Package of Essential Non-communicable (PEN) disease interventions. As one nurse said:

> *There's a vast change that has happened in SOPD clinic, previously like, back in 2007, and eight when I started, we just used to take folders of SOPD clients and just take a normal [blood] pressure and capillary blood glucose [and] height and that would be it; we will give the folders [client records] to the medical officers. Over the years the PEN model has been introduced, whereby each patient is colour coded. And we fill in a triage form, which is very detailed, and they are able to do the risk assessment for clients. And at the same time, we are able to tell the clients where they are at the moment; like a green folder would indicate a healthy lifestyle and [red or brick colour] sort of not a very good colour, so that they need to take care of themselves… over the years, many programmes have been implemented, such as PEN model, IMCI, specialised care nursing; Pap smear nurses are being trained…. so, these are the changes that have taken place…. initially, there was just a SOPD nurse and outpatient nurse, and they used to do treatment, dressing, and just not triaging patients. But over the years many programmes have come through* (HC09 SOPD Nurse).

Expansion of services was described by another nurse:

> *Accessibility of health services in Valelevu Health Centre is why people in Suva and the Nausori corridor prefer going; [it] provides all the services such as pharmacy, haematology lab, x-ray, dental service, MCH and SOPD service, which makes it a one-stop shop…. this is the only HC that's open at night from Lami up to Nausori; this is the one that you will get it in the middle [of the night]* (HC07 IMCI Nurse).

Although there were benefits to introducing new programmes, there were also challenges, particularly in health promotion interventions. The CPHN continued saying:

> *It takes around 15 minutes to triage a new patient and code them so, and then we have to run a GOPD together with SOPD that's quite challenging…[and] we have … less time to go out in the community because most of the time we are held back in the clinics…I feel at times we are not given enough time, and I believe we should have a specialist or health promotion nurse [who] should work with Ministry to do this role so that they can make communities aware of their roles and have more time to explain what we are trying to tell the communities; sometimes due to timeframe, we are not able to do that* (HC09 SOPD nurse).

New programmes and services provided at HCs have increased, another HC participant contended. Nursing practice had also expanded at the urban HCs due to an inability to transfer patients to the base hospitals as a consequence of transport problems. A further example of CPHN role expansion was the administration of Streptokinase (STK) infusions, previously undertaken at coronary cardiac units. The nurse explained: "*I think ever since we started our STK infusion last year, we only ended up with one patient that started to bleed; otherwise, all others were very successful"* (HC07 IMCI Nurse).

The transfer of hospital care to Hospital in the Home (HITH) nurses for home-based care nursing reflected an expansion of role. Many patients required long term care and support. Participants reported managing clients with NCD complications of non-communicable diseases, such as amputation, strokes and palliative care. As one CPHN explained:

> *Looking after all the patients discharged from the hospital that really want to be taken care of at home and training the home-based nurses in all the Health Centres…we attend to category 4 patients - those are the very sick ones from the hospital with HITH, bed sores, very bad cases that [have a] nasogastric tube, and we have a catheter - an indwelling catheter…. HBC nurses' roles are challenging as they provide care to the complicated cases which have been discharged from the hospital and, at times, neglected by family due to poor prognosis* (HC10 HBCN).

A shift of nursing workload from the maritime islands to the mainland was noted. As one CPHN nurse said: *"in my community today, [compared to the] past year I think [people living with complication of NCD] has decreased because majority of them have moved to Suva to the mainland"* for further management and follow-up care (NS02 DN). The shift of care from the maritime islands increased the direct care interventions for individuals by urban and peri-urban nurses. As one nurse said:

> *Yes, there is lot of cases now having diabetic amputations and once the patients are discharged from hospital. - there is a HITH team based at hospital… so the HITH team usually look after that patient for one or two months and after that we takeover that patient and go and visit them* (HC05 Zone/Mental Health Nurse).

Not only have CPHNs expanded their role in the last 10 years, they have also extended their role. Extended roles imply performing activities previously assumed by doctors, which require further training as they historically have not been within the nursing scope of practice (Magennis et al., 1999). As one CPHN described:

> *Previously, all the debridement was done by the medical officers. So, after we got trained with the Diabetes Fiji on footcare, we were taught on how to do simple debridement and offloading techniques… after my training, I am doing all those* (HC08 Footcare Nurse).

Most participants reported a common extension of their role was intravenous (IV) cannulation to administer intravenous infusions: *"If the doctor says … you can cannulate, I can cannulate, even though it is not in my job description"* (HC 04 SOPD Nurse). Another CPHN told of *"being trained to cannulate patients competently after completing the internship programme"* (NS03, DN).

Nurses based at NSs work in isolated communities and extend their practice on the basis of client need. An NS nurse commented: *"The roles that health inspectors do we also do, the midwife we do as a district nurse. Even dispensing medication and some antibiotics that we are not supposed to prescribe without the consent of a doctor, we do"* (NS01 DN). Another CPHN described doing procedures that were previously done by doctors, like ear flushing, applying back slabs and wound suturing to avoid overcrowding of waiting rooms. An IMCI Nurse explained:

> *Doctors send patients to the treatment room and write in the pink slip and ask the nurse to prepare and then call me; by the time you run to call the doctor and prepare and leave and wait, it is another half an hour to 45 minutes… since the waiting area is small – we just clear the patients [by doing the procedure]* (HC07 IMCI Nurse).

7.1.2 The Spill of Hospital Care in the Community

The Home-Based Care Nurse discussed how the hospital care of patients who required long term nursing care spilled in the community. A nurse described how a patient was discharged for home-based care:

> *She has been post-op from the hospital - she's been lying down there for almost four months or five months and the doctors… were telling me 'see you have to take this case because we don't have any beds for this lady'* (HC10 HBCN).

The work was described as time consuming with this nurse reporting *"two to three hours on average on providing home-based care to each client".* When caring for patients who have had a stroke, the nurse is challenged to assist clients with physical activity. *"I don't have, no*

dietician… community rehabilitation assistant… after this pandemic till now we don't have any physiotherapist, dietician or community rehabilitation assistant" (HC10 HBCN).

The nurse described further challenges of home-based nursing saying, "*there are lots of undiagnosed people I came across with cancer where people will deny that they have cancer and share that they are living with that condition and did not share with the family*" (HC10 HBCN). This is illustrated in the following example of a palliative care client's child saying: *"she didn't even tell us what was wrong with her - she's hiding from us…. I was just telling the doctor that is another…. big barrier. And I'm really trying my best, if there's a cancer patient the family understands the condition"* (HC10 HBCN). The burden of home-based care was further highlighted:

> *I was a HITH nurse; when I see cases discharged from the hospital to the community, like the nurses in the area, they do not understand public health…. [zone nurses] don't understand why these cases are [discharged] home to [monitor] their vitals, and that's it* (HC10 HBCN).

The HBCN further reported CPHNs were not well versed in the home-based nursing of those requiring long-term care.

7.2 Challenges Faced by an Increase in Nurses Work

The interventions that expanded and/or extended the role of nurses often created challenges. These included increased work, adapting to an increased population size and service demands, resource constraints, limited transportation, challenges due to COVID 19, insufficient infrastructure/facilities, and working without a doctor. This section will further discuss the professional development, training needs and education, the demands of rural and remote nursing and respecting community attributes.

7.2.1 Increased work

Expanding and extending the activities nurses undertook, increased the work expected of nurses. One participant described that besides being a Footcare nurse:

> *I also do SOPD (Special Outpatients) nurse, I have been multi-tasked, like I have been certified being a PEN model trainer and implement PEN model too and also IMCI". Further adding other roles included "assisting with GOPD, cervical cancer screening and family planning* (HC04 SOPD nurse).

Being available to respond to emergencies could mean having no or limited availability for other work; this was also a feature of nurses working in rural/remote and maritime settings. As a CPHN said: "*when they go out in the community, they always think of the NS, which is closed – and in case an emergency appears at the NS*" (NS01 DN). When a DN was on leave or not working for other reasons, the relieving CPHN is required to take responsibility for a further 600 people in the nearby islands accessible by boat. A CPHN described the work associated with caring for more people residing in one of two islands:

> *So, in relieving duties, if there is case on the other island with bad weather conditions with heavy rain, I can't say no when they come for serious cases, I go with them with heavy rain and waves, we go stabilise the case* (NS03 DN).

These nurses were not reimbursed for the work related to relieving other nurses.

There were expectations placed on nurses to achieve targets. When describing PAP smear targets, one CPHN nurse said:

> *We have to work towards achieving these targets… it is very challenging…. for example, Pap smears in a month - I should conduct 11 pap smears and… just before my leave… it was only seven. So, for last month, and I am only [one]… we have very poor turnout of ladies. I feel that we should have more ads on TV and you know, like to educate ladies or radio programmes so that they can vote for the screening. It's very hard to ask the ladies to come forward. Sometimes we go out in the community only one or two members come in. So, it may be its attitude, or it's maybe lack of knowledge that patients don't come in for a smear* (HC09 SOPD nurse).

The HITH nurses described the work associated with transfer of hospital patients to HITH as time consuming. When caring for patients who had experienced a stroke, the HC nurse had to explain, "I don't have, no dietician… community rehabilitation assistant… after this pandemic till now we don't have any physiotherapist, dietician or community rehabilitation assistant" (HC10 HBCN).

Participants discussed that Zone Nurses must work in one geographical area so that they can understand the health promotion roles and the direct care. A CPHN said: "I'm based at Health Centre, and I have been working as a community public health nurse, I am a zone nurse and I look after …. Zone, I also work [as a] mental health nurse for the sub-division" (HC05 Zone/Mental Health Nurse).

When discussing her high workload, one home-based nurse thought zone nurses must be maintained because they understood the geographical areas and the populations they served, but was concerned that there was a tension maintaining quality of home-based care in the face of a need to provide more care. The nurse contended:

> *Cunningham and Valelevu zones were too big in population size… the only thing is that the nurses should maintain Cunningham zone nurses… in the field….so she will know [her] area…. because they have lot of other things to do* (HC10 HBC Nurse).

This increased demand on CPHNs' work heightened the awareness of the risk of being abused and threatened with a nurse saying:

> *When you are in the emergency room, the triage nurse comes to help in the emergency room if CPR is going on - she leaves triage to come and assist the emergency room… when she goes back to continue triaging, she is scolded by the public because she is missing, and people say it to your face 'you will be sued' because you were late in giving injection while attending other patients. No matter whatever you do throughout the day, even if you don't get time to eat, if people swear at you and even walk out, it's like whatever you did the whole day is a waste* (HC07 IMCI Nurse).

Many CPHNs responded that the increased workload was difficult to manage:

> *We have so many roles to play so we use other means to also conduct to get our profile data, so we use our village health workers to collect our data. We also have Sangam [38][college of] Nursing, so students [nurses] are attached in our zones… so, they are very helpful towards doing community profiling for our zones* (HC05 Zone/Mental Health Nurse).

Similar sentiments were voiced by another nurse: *"the health promotion role of nurses has gone down because of the various new programmes introduced by the Ministry of Health"* (HC10 HBCN). The participant further suggested a solution that they should work in their zones, focusing on wellness and health promotion. This shift in nursing workload compromised the CPHNs' health promotion roles in the zone. As the nurse describes:

> *Yes, let the zone nurse be in the zone and other departments who can take up their roles like for wellness women if there is a wellness screening for women, like for Labasa, we don't have a wellness for women like Suva - if there is separate screening centre they will especially engage in other things. We also*

[38] Sangam College of Nursing – is a nursing school in Fiji.

> *have Medical Services Pacific [39] in Labasa so they are another NGO that is very helpful towards maintaining women's health. If there is an organisation like that, who looks after separately, each department's do their role, definitely the workload on the zone nurse will be much less than what we are experiencing now* (HC05 Zone/Mental Health Nurse).

7.2.2 Adapting to Increased Population Size and Service Demands

Increases in the population was associated with an increase in the demand for services. This forced a change in how CPHNs provided care in the community and at the health facilities. As one nurse reported:

> *zone nurses are in a very challenging role as they look after probably more than 15,000 people in their zones. …But what I see in here with such a big number in the population and one nurse looking after a zone, it's very difficult. It's like the population in Suva is very mobile, probably the numbers they give, it's being changed, the address they give, it's being changed and the system is not updated. The zone nurses are not able to go and visit all of them because looking after a 15,000 population that's far too big* (HC07 IMCI Nurse).

The CPHNs noted that with an increase in population there were different types of cases presented at clinic, which created challenges. The SOPD nurse said, *"the two main issues were transportation and time management"* (HC09 SOPD Nurse). People came early so they could be seen and get transport home. The participant said:

> *previously we used to do five days of SOPD but now things changed so two days of SOPD clinic so there is like overcrowding in the outpatient. When the clinic gets heavy, and somebody tries to go home early they will come and fight with us and it had happened so many times. I'll give you an example - there is this lady who came late to pick the number it was 27 or 28 and she came when there was 26 people who are waiting from 7' o clock so she wanted to go early so what she did was she came to me and said 'I want to be seen first' and after that she created a big scene when we told her no she has to wait…. the waiting time is another issue, and these patients get aggressive* (HC08 Footcare Nurse).

The majority of participants reported that arranging specific days to conduct clinics would assist the CPHN to ensure delivery. For example, a clinic on Tuesday would manage hypertension and on Thursday would manage diabetes. In this way a patient could attend both clinics if necessary: *"Actually, at times when we have a lot of clients and we have outpatient and we have*

[39] MSP exists to enable women, youth and children to have greater access to reproductive health care for successful family planning; and to support vulnerable populations in the Pacific.

emergencies, we try to rush things." (HC09 SOPD Nurse). One DN had scheduled clinic days, saying:

> *Tuesday is my MCH clinic and family planning all at once… Wednesdays I go out to the community either do my shift and Thursday and Friday is my outpatient and I do my 5S (sort, set in order, shine, standardise, sustain) cleaning up (washing and cleaning)* (NS 01 DN).

Organising the days based on the services provided, was one-way CPHNs managed these clients, so they did not have to wait for long. Participants described the workload, including recording patient data, as time consuming particularly after providing clinical care to a large number of patients. Nurses spoke of being overloaded: *"lots of data recording and reporting "* (NS01); *"reports need to be updated as the [monthly] supervisory visit"* (HC05) adding:

> *There is a lot of bookwork to be done, so sometimes one day is not enough for us so sometimes we have to take our books and do it at home. Usually, a supervisory visit is conducted monthly; or quarterly we need to update our reports and have an accurate report; we need to complete our bookwork, so we try to manage that on Friday, and [any] leftover, we take it home* (Zone/Mental Health Nurse HC05).

In response to the increased clinical work and reporting, some CPHNs reorganised their work. As one nurse explained: *"If I take reports everyday then it takes few hours for me to compile the report at the end of the month, normally one whole day"* (HC04 DN). Another nurse shared that *"after four-five hours of direct care, it was time that they updated their daily workbook"* (HC06 GOPD Nurse) or updated their home visitation workbooks saying: *"So, like if we are updated with our data then it's not a problem when it comes to recording"* (HC 06 GOPD Nurse). This nurse spoke of the bookwork taking little time saying, *"only half an hour to update after the activities are done and the PHIS takes about one hour"* (HC06 GOPD Nurse).

7.2.3 Resource restraints

The lack of resources included medications, medical supplies, and transportation. One nurse stated there was "*no provision for dangerous drugs like morphine tablets or elixirs in the islands and maritime zones"* (NS01 DN). Similarly, one nurse voiced: *"the patients [come] for the supply from the hospital because normally we don't touch dangerous drugs but if they really need help then we try and seek help from medical officers"* (HC06 GOPD Nurse). A NS nurse described how medications were late due to boat schedules. She was concerned about a psychiatric client in a rural remote nursing station saying:

> *medication is normally given for three months. For me, after two months I normally order again, medication depending on the boat schedule. Sometimes the boats don't come every fortnight, sometimes it's late. [I] always try to call health centres to supply the medication on time…. but it doesn't because it depends on the boat* (NS03 DN).

Another CPHN explained the shortage of drugs led to poor compliance with medications among clients with non-communicable diseases: *"we are currently facing shortage of NCD drugs during this pandemic"* (HC09 SOPD Nurse).

In addition, private pharmacies are not available in rural remote areas, however if they were available, affordability is an issue as described by another participant:

> *Currently, we are facing some shortages of NCD drugs… it's a rural setting, most patients are not able to afford these medications…. sometimes patient[s] adjust to their own medication since they have limited supply…. instead of taking two they might take one. Mostly we have farmers and some labourers…. they earn $20 or $15 per day, which is not enough for them to buy medication… one sheet of Metformin is around $3 to $4 in the pharmacy* (HC09 SOPD Nurse).

Low or poor adherence to medication, due to patient financial stressors and delays in accessing supply, negatively affected timely administration of medications and therefore treatment. As one participant said, "*our vaccines and our medications - at times we have to wait for them to arrive [by ship]"* (NS02 DN).

The same ship also brings gas and other supplies for cleaning the surgical equipment, such as dressing trays in maritime islands. A DN further explained: "*I lack resources in especially in my area, so normally have to [sterilise equipment] using the SVM [solution for cleaning] for gas supply and the pots for sterilising my equipments - I normally use my own"* (NS02 DN). Another nurse added that *"sometimes we run out of dressing materials, sometimes we run out of anti-biotics, blades, dressing tools"* (HC 08 Footcare Nurse). All these shortages negatively affect the services CPHNs provide.

Additional to supply resource constraints, resource constraints related to inadequate staffing necessitated CPHNs prioritising their work and time. As one nurse explained: *"When I go out into the shift [clinic], I try and do everything, like half the day I do my treatment and the other half I'll try and do the promotion"* (NS02 DN).

The HC staff also expressed concern about outpatients who could not access specialist health services. As a CPHN said: "*there is a staff shortage. Sometimes I am being pushed into other departments and I have to close the foot clinic… these patients coming from far for the foot clinic they get disappointed"* (HC08 Footcare Nurse). This was further supported by another nurse who said:

> *The family planning nurse that was there for very long, probably for more than 10 years, she was sick, so she passed away. The second one who was working with her was the one who took over the family planning until she migrated. We had one but to everybodies surprises she migrated and now it's nobody. So, they just left a zone nurse for looking after the family planning. And it hasn't been sorted as to who would be the next trained person to look after family planning* (HC07 IMCI Nurse).

Due to the COVID-19 pandemic, medical registrars were posted to health centres to manage cases at the health centre level, which increased the patient load. As one nurse reflected *"the patient load has increased, but the staffing has not increased"* (HC07 IMCI Nurse).

Participants discussed the increase in diagnoses of long-term conditions, which resulted in an increase in the number of health programmes. As one nurse reported: *"There are lots of programmes that the Ministry wants us to run, demanding us to introduce and implement, but the main problem here is (insufficient) staffing"* (HCO3 DN). Participants were always on standby to get the work done in the different departments – integrated management of childhood illness, special outpatient department, general outpatient department and maternal child health clinics.

The impact of resource constraints in hospitals and increased service demand created greater burden for CPHNs. As one participant stated we have *"four staff doing 12 hours shifts, and each shift has 12-14 admissions with only seven beds available"* (HC07 IMCI Nurse). There are three nurses on a night shift who need to manage the entire health Centre. As the CPHN described:

> *One nurse is at the procedure room, and one is at the triage. If we have one case taken down to CWMH, the procedure room nurse comes in to take the case and the two nurses that are left - the one at the triage and the emergency room they cover treatment room as well…. [we] triage approximately 150 to 170 [in one shift] and that's like documenting the entire folder and in the register - we see up to 100 to 110 cases in a shift* (HC07 IMCI Nurse).

With clients staying long periods of time before they go to the base hospital, nurses are required to work long hours to provide continuous care. The nurse further explained that 12-hour shifts were exhausting, *"we expect there should be more manpower to run a 12-hour shift because after 8 hours shift you are hungry, and your mind is not functioning"* (HC07 IMCI Nurse). A further frustration related to discontinuing the overtime allowance, which stopped in 2019: *"before we are given remote allowance, and we were allowed to claim overtime, but it has stopped"* SOPD nurse (HC09).

With the increased demand placed on CPHNs working in urban health centres, work considered non-nursing, but undertaken by nurses, had become increasingly challenging. A nurse stated, "we have to do our own CSSD- we have to sterilise our own trays for the next day" (HC09 SOPD Nurse). Furthermore, a nurse added:

> *At the moment we have recorders who pull out folders, who do our filing but sometimes during night shift we don't have any recorders, we don't have any cleaners in the nights so you cover for the recorder, you cover for the cleaner as well and in case if there is any emergency at night, because we have two medical officers, if one turns to take emergency down to CWMH and there is another CWM emergency back at the CWM, back at the [Health Centre], we turn to be attending to the case with the doctor that's in there* (HC07 IMCI Nurse).

7.2.4 Limited Transportation

The DN working in the coastal areas required boats and vehicles to visits clients who needed care at home. While CPHNs were willing to go out to the community, they did not always have transport to visit clients, which was a significant problem. As one nurse said:

> *when we are not able to attend, for example, when there is a transport issue, and we cannot attend that client on that particular day, we do feel that our client has been neglected and we haven't done right to our client* (HC05 Zone/Mental Health Nurse).

Similarly, another nurse explained that clients rely on the HBC nurses *"to visit them at home and the failure to visit clients on allocated time [since there is no transport] causes the clients to lose trust in the HBC nurses"* (HC10 HBCN).

One nurse from the maritime zone shared how difficult it was to transport patients saying:

> *transporting cases from my station to our subdivision hospital by boat, with this it takes us three to four hours to take a case across with tide with the*

> *waves with the weather conditions. We had to think of all that before transferring a case - if it's a stable case sending them alone or if there is a need to accompany [them], while taking them across to Lakeba Hospital* (DN 03).

Furthermore, transport issues meant many patients were not coming to a clinic. As a CPHN said:

> *I would love to go out and do outreach in community, which I've been doing. So, I could take my service out to the communities like some [patients with] diabetic wounds, they are not able to come to the clinic due to transportation issues. So, I would love to take my service out to the community*.(HC09 SOPD Nurse).

7.2.5 Challenges Due to COVID-19

Most CPHNs reported service changes during and after the COVID-19 pandemic outbreak and during the lockdowns. One DN voiced: *"during this Covid-19 time we hardly, maybe less than twenty patients in a week… so for one patient we can talk like thirty minutes or an hour [when] I see a patient"*. The DN further explained that:

> *People who have small ailment like headache or small cut will not come to the clinic… people finding it difficult or maybe they are scared to come… I have seen the [cases] stop coming to the clinic especially my SOPD cases* (NS01 DN).

Similarly, another NS nurse said, "*I see less patients at the station and normally when I go out then to the villages then I normally see them at their own villages…so they come less to the station*" (NS02 DN). Fewer patients were coming to the NS, and they only presented if there were emergencies. A DN revealed working in Suva saying, *"I'm here for the past 9 months stuck in Suva assisting with the COVID-19 vaccination"* (NS03) meaning the health facility has no nurse.

The Home-Based Care Nurse explained how COVID-19 increased the nursing workload:

> *After this COVID-19 there is lot of young cases, newly diagnosed stroke cases. Some of the cases in hospital during COVID-19 and doctors referred those cases to me* (HC10 HBCN).

The nurse further voiced that *"patients preferred to go to the private hospital because the foot clinic was closed during the second wave of COVID-19 in April (2021)"* (HC10 HBCN).. Due to the closure of clinics, the SOPD nurse stated the introduction of online consultation during the COVID-19 pandemic meant some clients might be still scared to come to the clinic saying:

> *Ever since I been certified as foot care nurse, I've been connected on Facebook and messenger. With the clients like some with Viber, they viber me their wound or they viber me they don't have insulin, I don't have this tablet, if you can pack it and send it to this person or give it to this person when they come, or if sometime, I have transport then I drop it to them…. because of this COVID-19 there is lot of restriction of movement. I was consulting the diabetic Fiji what if, can we develop a social media platform like viber or Facebook messenger, nobody agrees with me but for me I have found an effectiveness of it because ever since I have been certified for foot care, I been using this platform to communicate with them. They will take a photo for the foot or wound from home and show me this is the progress of this wound. It works* (HC08 Footcare nurse).

7.2.6 Insufficient Infrastructure, Facilities, and No Doctors

Health Centres are now used to admitting patients, which is a new practice since COVID-19 and an increased number of cases that require admission. Some HCs did not have all the facilities to support admissions and operated from 8am to 5pm. A CPHN told of patients admitted at the facility, which did not support admission, saying:

> *Facilities don't have a patient's bathroom, sluice room, bathroom [for] male/ female/ children, they use the same bathroom. We order our meals through Colonial War Memorial hospital and sometimes we don't have drivers to pick [up] their meals. At night, when staff eat, and the patients are hungry and complaining, we turn to give our food or share* (HC07 IMCI nurse).

The IMCI nurse (HC07) added:

> *It's very challenging at the moment when the CWMH emergency department is full and we are not able to take our cases down. Some patients stay here for more than 72 hours and then the admissions coming in, we don't get beds for them, probably we have to look for the chairs for them to sit on while waiting for a bed to be free…. seven beds cannot cater for 15 patients, so that patient will be sitting outside or in a chair. The nurses have to prioritise cases according to their severity: For diabetic foot sepsis, if they come in the morning, they can still wait for the whole day. At the moment CWM makes a very clear-cut decision, if only your patient agreeing to come in for the amputation or a debridement then only admit. If the patient doesn't want to come for the procedure, [amputation] please let them sign out and they can go on oral antibiotic and come for daily dressing or whatever their plan is* (HC07 IMCI Nurse).

Another challenged face by the HC nurse related to overcrowded facilities and lack of patient privacy was how the patients presenting problems changed between being seen by the nurses and seen by the doctor. As a CPHN described:

> *we don't have any privacy. When patients come in when you triage them, they tell you different stories…. Everybody is listening to their problems. When the same person enters to the doctor's room their problems totally change. So, their examination and diagnosis will change as well* (HC07 IMCI Nurse).

Lack of medical staff in remote rural areas created numerous challenges for nurses, particularly when patients required emergency management. One DN reported that *"abdominal pain, injury or delivery, emergency delivery, could be early in the morning, those are the cases I face early in the morning or assault cases"* (NS01). Another nurse shared:

> *I have done a home delivery alone. It was way back in 2014 and I it was a very scary experience because I was here, I was stationed at [named] nursing station and our drill to go to another village, which is out at another [named] nursing station because the nurse was on leave. So I had to go and help delivery up there. So, it was a bit challenging and scary because I had to do everything manually and with the help of the village health worker* (NS02 DN).

The CPHN highlighted emergency cases attended by the participant, *"sacral region abscess, query meningitis, liver abscess right upper quadrant mass…DFS [diabetic foot sepsis] and schizophrenia"* (NS03 DN). The participant further stated *"If I'm given a chance to study nurse practitioner, I would appreciate that chance. Because out in the island we are dealing with those kinds of cases, stabilising transferring them* (NS03 DN). Another nurse stressed the need for specialised skills in managing emergencies in the islands, saying: *"with my experience I can cannulate a child, the worst experience ever I had [to] encounter and it was to [insert an] intraosseous in a child… I manage to do it and I managed to save this child"* (HC04 SOPD Nurse).

Thinking critically and broadly was identified as essential when working alone and attending different cases. As one nurse said:

> *I get exposed to different cases, different problems, different sickness where it needs critical thinking and where you learn about your cases and you come around with a management [plan]. It's kind of good experience but you are alone there, there is nobody with you [so] you have to come up with your own management [for] different cases so it's challenging compared to the hospital bed side nursing.* (NS03 DN)

7.2.7 Stressors and Supports

Staff burnout, physical abuse from the public, and pressures placed on them because they were unable to provide services negatively affected CPHNs' well-being. The Footcare nurse voiced the clinic gets overcrowded by patients because it only runs for two days, increased waiting

time and resulting in clients fighting with the nurse to be seen early. The IMCI nurse similarly expressed being busy when people do not want to wait. This participant shared an incident about being physically abused saying: "*a drunken client threw a lit cigarette on a staff, and he almost threw a fist on a staff"* (HC07 IMCI Nurse).

Another participant said that multi-tasking caused burnout, mainly due to the demand:

> *multi-task[ers] like playing many roles like foot care, family planning nurse, IMCI nurse and zone nurse, so many things you have to do in the public health level but being multitask at public health level can be very frustrating at times. We have burnout, especially when public demand from us and at times our work, it's left. If work is left out and more stress the next day* (HC04 SOPD nurse).

The ongoing challenges affecting nursing staff has had a negative effect on CPHNs' mental and physical health. As one nurse said:

> *we had a colleague working with us… came down from [hospital name deleted] I don't know why she was put into a very heavily populated place. She couldn't cope with us. She got sick, went back to the hospital, got admitted in and out from the hospital, we have seen her like that for some time* (HC07 IMCI Nurse).

Nurses working at NSs experienced loneliness saying, *"I go to the village meetings"* (NS02 DN) after hours to relax and connect with the community to overcome loneliness. Similar thoughts were shared by another DN who said *"working alone sometimes I feel… lonely but then, I normally hang around with the youths just to forget that lonely life"* (NS03 DN). Participants shared that working with the community gave them a chance to understand and overcome feeling lonely at the NS.

Participants spoke of accommodation and safety issues while working as CPHNs. A nurse working at a nursing station where accommodation is not fenced – and has washroom facilities outside said:

> *I don't know if it was a person or spirit because I was staying alone at home and there was a knocking at the door, and I checked there was no one there. Ok, I felt really scared and threatened* (NS02 DN).

The Home-Based Care Nurse spoke of male nurses or nurse practitioners saying- "*yes, it makes difference [ensuring] our safety and another thing they really help when we discuss cases*" (HC10 HBCN),' since the nurse practitioners are available during the home visit.

Weather events also caused CPHNs' stress: *"My health centre is located in a flood prone area. So, every year I have to face this challenge before disaster preparedness and after disaster. It's one of the greatest challenges that I still face"* (HC09 SOPD Nurse).

Despite the many challenges, participants spoke of their families and community being a source of support while working as CPHNs. A NS nurse felt part of the community, and the community accepted the participant as part of their family. One participant said *"my husband is very supportive, and we have our own transport and if there is any emergency he helps"* (NS01).

Similarly, another NS nurse shared that her family was very supportive and she received calls every Friday from the sub-divisional team. This stopped for a while due to COVID – as everyone was busy. For another participant, family on the mainland were very supportive. The participant stated: *"Sometimes when the supplies are not enough, I normally call home and ask them if they can help me through, if they can support by buying and sending it over to the island"* (NS 03). The DN voiced getting moral support saying, *"get a network or go online or receive call from my parents and they are my major moral support"* (NS 03).

Nurses working in HCs emphasised the importance of family supporting their work. The Zone/Mental Health Nurse (HC05) said:

> *my family supports me…. I have my children, husband, and mum so they are very supportive. I am fortunate that they always support whatever work and activity I do. Now during this vaccination, we don't go at 4.30pm, we usually go beyond 7, 8, 9pm and submitting reports and attending briefing and discussion and meetings, they [family] are able to manage and take over the role that I am supposed to [do at home]* (HC05 Zone/Mental Health Nurse).

Similarly, another CPHN said: *"[my] husband is a staff nurse and supports her with household duties".* Since the couple lives in the same compound as the health care facility, it is straightforward for them to organise work. Despite the many challenges the participants face, the family and community are a great source of encouragement and support.

7.3 Professional Development, Training, and Education

A lot of new roles were established alongside training that supported role expansion. This training included managing rheumatic heart disease, tuberculosis cases, integrated management of childhood illness, special outpatients, maternal child health and domiciliary cases. As one nurse said *"I usually do some readings on POLHN (Pacific Open Learning Health*

Network) …. and we have our Viber page for our health centre, we have our medical area where we use to discuss (cases)" (NS01 DN).

However, training wasn't without difficulties as one nurse said:

> *For me, personally, it was very difficult because we don't have a good [internet] connection here on the island and our boat doesn't normally go every week. So, I had to travel by fiberglass boat, to the mainland to attend classes. It was a bit challenging, but at the end, I managed to complete the studies and I'm thankful for my lecturers and work colleagues on the island. It was very challenging work [when] you're studying here from this end [maritime island]* (NS02 DN).

While training was available in some areas, CPHNs expressed a need for more training than was provided. The nurse said *"right now for [professional] development the normal workshops that have been provided…. I'm planning to start studying this year…. as I want to get specialised in the emergency department"* (NS03 DN). There is "*no speciality [training] in foot care nursing in Fiji currently despite that they started working as a foot care nurse* (HC03 SPOD).

In one participant's zone, there were many NCD cases within the Fijian and Indian communities where supporting lifestyle behaviour change was difficult and there was never enough time to handle more complex issues. A participant suggested that each job needs specialisation saying:

> *it's wiser to do specialised nursing like for mental team, if there is a separate team to look after- that's what we are encouraging our supervisors to have, a separate mental domiciliary visit team and now it is coming up so slowly we are progressing up* (Zone/Mental Health Nurse HC05).

Similarly, the SOPD nurse shared that:

> *I believe specialisation could help us more - specifically trained nurses would be able to give the best care to the client. We might be able to talk a little bit on foot [care] - we might not have all the knowledge that is required to disseminate to our clients. They might have a little bit knowledge … but not a thorough knowledge on what we can give to our community, and they can benefit from it* (HC09 SOPD nurse).

However, the Foot Care Nurse felt that the zone nurses must know everything to attend to any cases: *"So, if they are jack of all trades, they'll know what they're talking about, to these patients, at least they will provide the best care to the patients according to their needs"* (HC08 Footcare

nurse). This notion was supported by a SOPD nurse who was on call 24 hours, seven days a week, saying:

> *Especially after hours, the patient comes in even for children, come in sometimes - the IMCI is very effective and very useful for us who have been trained in IMCI. It's very important for us to use these for IMCI to use this guideline to follow an order to save a child* (HC04 SOPD Nurse).

A CPHN wanted more training for disease management explaining that:

> *I have come across like health is advancing so there were new services that were brought in, such as foot care, motivational interviewing. All this were not there before so the roles of a zone nurse, we started having more parts to play* (HC06 GOPD nurse).

Similarly, further training to enable provision of a more comprehensive family planning service was suggested by one participant who said:

> *If we see our family planning, family planning is just run by our nurse; we don't have a trained personal for family planning. Like a nurse who does JADEL insertion and removal, we don't have trained personnel. It is just like she is doing a family planning service in a sense; she is just giving the injection and replenishing their tablets; for other procedures they are being referred to Makoi because Makoi has a qualified family planning nurse, or they go up to the wellness centre* (HC07 IMCI nurse).

There were some training courses that were successful, for example, in the area of disaster management. A disaster management workshop included disaster preparedness strategies, such as food preparation, moving to higher grounds, and staying in a house for relief. A CPHN described what she did following training in this area:

> *I usually come back and sit with them during the village meeting and sit with the Turaga-ni-koro and the village elders on how we can activate, whichever the hall or another house, a house in which they can stay for the flooding and even what foods to prepare, the equipment, and during disaster we usually focus them not [moving] around during hurricane[s] and even floodings* (HC04 SOPD Nurse).

7.4 The Demands of Rural and Remote Nursing

Apart from training, participants spoke about some non-nursing work such as *"fixing the door, cleaning the NS" …. and "maintaining the compound clean"* (NS02 DN) with one participant saying, *"I don't have anyone else to work with. I just work closely with the community youths' groups"* (NS03 DN).

A further challenge related to parents not accompanying children for treatment, which had legal implications. As one nurse said *"I've gone to the village meeting, advising the parents to bring the children. They do that in a week and after a month again, they'll go back to the old habits just sending the children back alone*" (NS02 DN).

The male nurses working alone faced difficulties when the examination of a female client was required. A nurse raised concerns regarding patient consent: *"Consent is very important, so if they come without a CHW, I have to look for another female worker"* (NS03 DN).

Poor network and mobile connectivity due to geography impacted communication with family and the outside world. As one nurse said:

> *We use mobile phones, and sometimes our network is not very good, and we have to come outside from the station in order to call, and if there is no network, we have to go to nearby village which is about 10 kilometers from here to make a call* (NS02 DN).

Poor networks were especially problematic during disasters. As one CPHN shared experiences with a disaster team:

> *we don't really work together…. like I mean is we don't work closely together because after this tropical cyclone YASA, we don't have any network in the island, even internet, landline not even any mobile network… so what we did, which I worked closely with my disaster and community, closely with our village headman, just trying to come up with issues to deal with problem at hand"* (NS03 DN).

A rural remote nurse working alone said:

> *I had to go and help delivery up there… it was a bit challenging and scary because I had to do everything manually… with the help of the village health worker… we did the home delivery; we came took our birthing bundle from the station and we went by Fiber (boat) to the village - it's about another 10 kilometres from my station* (NS02 DN).

7.5 Respecting Community Attributes

The CPHNs shared fundamental values when working with village Chiefs, village headmen and CHWs, who were seen as leaders in the community. The CPHNs work in diverse environments and are the sole healthcare providers for rural, remote communities.

A DN discussed networking with CHWs and bus drivers to ensure clients living with the non-communicable disease get their medications by some means. She said: *"When you in the community you hitch the boat or bus or the gravel truck"* (NS01 DN). The DN tried all means to ensure that clients were kept in contact and that medications were supplied, working with CHWs saying *"those with diabetes, amputees or cancer. They can also go and help them if they need any dressing, or they need their medications to be replenished and they are very helpful with my work"* (NS01 DN).

The CPHNs must provide holistic care in partnership and collaboration with community involvement. Cultural sensitivity and competence is an essential attribute of community nursing. A DN said: *"being flexible and persevering with a forgiving heart since patients can come at any time to the clinic"* (NS02) adding:

> *They do come after hours just for sometimes for just the toothache or just mild fever, and now sometimes you have to keep reminding them after hours is emergencies only, but then I just have to attend to them since they have made it up to the station* (NS02 DN).

Furthermore, a CPHN stressed the importance of being *"appropriately dressed to visit the villagers…. saying "the nurse has to be respectful and mindful of the words they use and their tone when addressing village elders and village chiefs"* (HC04 SOPD nurse).

The nurse's approach to clients was vital as reflected in their decision-making. A SOPD nurse reported that *"some of my patients only listen… based on how [I] am approaching them…. I have to come down to their level and [explain] and I managed to save 20 feet…. from amputations"* (HC04 SOPD nurse).

A CPHN was appointed to a leadership role as the Chairwoman of the Water Committee, elaborating on her appointment as a community leader, saying:

> *I was very active and also submitting the data and identifying the problems early and ensuring that because our HC we rely on the water a lot, apart from other departments in the government station, because water is very essential* (HC04 SOPD Nurse).

The SOPD Nurse said that *"being polite, loyal and maintaining confidentially as their values"* is essential in working a community and knowing clients (HC09, SOPD nurse), which is the case

when working in the community for so long. The importance of trust is reflected in the village support for COVID-19 vaccination as a nurse described:

> *In our vaccination campaigns, when a zone nurse goes, no matter whoever goes, but when the zone nurse goes, people feel very open towards the zone nurse that they come and share up. When we go to the villages to vaccinate the villages, the number is more [good turnout of villagers] compared to if different members or staff goes in our team visits* (HC05 Zone/Mental Health Nurse).

Many of the CPHNs felt part of the community:

> *Yes, of course in these 10 years mostly I know every member in the community. Whenever they meet outside, like in religious function or in shopping, they usually greet and now it's like a family to me. I have seen if they have any issues, all of them got my contact and they do contact me and they ask me, share their ideas and their problems* (HC05 Zone/Mental Health Nurse).

In addition, one nurse reported that:

> *I think the health centre, the public trust me and my husband, more than the medical officer because they [medical officers] keep changing and they're not able to form that relationship with the doctors…. any case maybe for if it's a STI if it is presenting, they'll go [to my husband] … if it's a female with some personal problems, they would come to us. So not only nurses, we can [manage] social counselling and other stuff like domestic violence, we do advise and talk to these people. So, they have a lot of trust* (HC09 SOPD Nurse).

The trusting and respectful relationship CPHNs had with the community was reciprocated *"Whenever we say something, the communities are always there to help us out."* (HC09 SOPD nurse). These values and attributes make the CPHNs a valuable member of the community who can influence the community leadership decision-making on health issues to improve health outcomes for communities and population.

Participants also voiced the importance of flexibility especially when they did not have proper transportation as access healthcare. Maintaining continuity of care needs flexibility as a DN voiced that most patients come to the clinic according to the tide saying:

> *because of the setting, most of them they come and prefer coming during high tide because we live in a coastal area so if they come 5pm or 6pm - that's normal to me and I understand it's a tide. Even if I don't have any patients in the daytime, I will know its low tide - that's normal for me. If they come after*

4, 5, 6, or 7 that's normal for me because I understand they come with the tid. (NS01 DN).

7.6 Chapter Summary

In summary, the findings highlighted the role changes in healthcare, including expansion and extension of roles, the spill of hospital care into the community, and the diverse responsibilities of CPHNs. However, these changes also come with some challenges. There is more work to do because of the increased population size and service demands. Resources are limited, and transportation is not well-developed. COVID-19 has also posed additional challenges. Moreover, there are not enough facilities, and sometimes there are no doctors available. To tackle these challenges and serve their communities effectively, CPHNs need to focus on their professional development, training, and education. They also need to understand the specific needs of rural and remote areas and respect the attributes of the community. These strategies help them address the difficulties they face and provide better healthcare services. Having presented both the quantitative and qualitative results, the next chapter will discuss the implications of these results on CPH nursing in the Fijian context.

CHAPTER 8 DISCUSSION AND CONCLUSION

8.1 Introduction

This chapter briefly summarises the key study findings from chapters 5-7 (section 8.1) that address the overall research aim, "to investigate the type of work (interventions) undertaken by CPHNs in Fiji to determine the degree of shift from a broader health promotion and primary prevention focus to a narrower focus on providing direct patient care". Section 8.2 prioritises discussion of key study findings in relation to the reviewed literature.

Chapter 5 answered the research questions: What are the social and demographic characteristics of CPHNs working in Fiji?; What types of interventions undertaken by CPHNs relate to providing direct patient care?; What types of interventions undertaken by CPHNs relate to providing health promotion and primary disease prevention?; What levels of population-based practice (individual, community, or systems) are undertaken by CPHNs in different geographical locations?; and What are CPHNs' perceptions of their knowledge and clinical preparation for undertaking their current role?.

Chapters 6 and 7 answered the research questions: What are the ways that CPHNs undertake interventions, either autonomously or as part of a team, at different levels of population-based practice?; How do CPHNs perceive their role has changed within the past ten years?; What are the reasons that they perceive have contributed to this change?; and What are the greatest difficulties faced by CPHNs in Fiji in their everyday work?.

8.1.1 Summary of key study findings

Most CPHNs had more than 6 years of nursing experience, 20% worked alone 'all' of the time and this included nurses (13.5%) who worked in rural remote and maritime areas. Most roles were generalist roles, with some specialist roles identified in areas, such as maternal child health, long-term condition management and mental health. Fewer than 10% of CPHNs had a postgraduate qualification, although about twice this number were engaged in professional development. Education and training needs ranged across acute and long-term condition management; primary disease prevention (screening); and health promotion activities such as creating health settings, developing healthy public policies and disaster preparedness.

The CPHNs undertook different types of direct care (18) and health promotion and primary prevention (54) activities. Direct care interventions included changing dressings, giving injections, managing disease complications, and providing palliative care. The most common health promotion and primary prevention activities included disease surveillance, screening, family planning, maternal child health advice, and giving childhood immunisations.

Geographic region was associated with frequency of CPHN interventions. Statistical associations were defined as 'large' (41 of 72 interventions), or 'moderate' (28), or 'small' (3). The CPHNs performed health promotion and primary disease prevention activities mostly on a quarterly basis rather than a daily and weekly basis, undertaking acute care more frequently on a daily and weekly basis.

Extensive surveillance work was undertaken monthly at all levels - individual and family, community and system. However, data were not analysed to support nurses' work in disease control; disease outbreaks were common, especially after disasters, such as cyclones and floods. Water and sanitation issues were managed with input from CHWs, community leaders and communities. Nurses' outreach focused on managing advanced disease and supporting families to manage these diseases at home.

Challenges included managing staff shortages and the COVID-19 pandemic outbreak. The CHWs were key to facilitating health promotion and primary prevention and supported referrals to external organisations. Health teaching was mostly opportunistic during routine care except for planned teaching to groups, for example, NCD management and immunisation. There was an absence of other health professionals (physiotherapists and dieticians) that CPHNs perceived increased their workload. The CPHNs played an important role in community organising and implementing COVID-19 protocols, which was successful because they were trusted by the communities at large.

The expansion and extension of CPHNs' roles occurred in response to high levels of service demands influenced by the spill of hospital care into the communities. An increase in the population and those with long term conditions, inadequate facilities, the unavailability of doctors, and insufficient resourcing of services all posed challenges.

8.2 Key Study Findings

The most important study findings are discussed in sections 8.3 to 8.10 under the following areas: changing roles of CPHNs in Fiji (section 8.3, p.248); generalist CPHN role: specialisations emergence (section 8.4, p.251); programme-based funding (section 8.5, p.256); challenges faced by CPHNs in Fiji (section 8.6, p.258); working in rural remote maritime areas (section 8.7, p.263); working relationships with others (section 8.8, p.267); workforce planning (section 8.9, p.269); and CPHN model in Fiji (section 8.10, p.271). Similarities are highlighted between the roles of CPHNs in Fiji and other Pacific and developing nations.

The significant shift in the focus of CPHNs' work, to direct care activities, was attributed to the alarming increase in NCDs and related complications. The CPHNs increasingly provided more acute and home-based care for those with chronic complications requiring long-term community care. While the wide-ranging activities undertaken by CPHN confirm the importance of remaining a generalist clinician, this co-existed with a need to increase specialisation in areas, such as that of long-term condition management for patients with high complex health needs. Funding of health programmes in specialist areas was often at odds with providing more comprehensive primary health care. New specialist roles were mainly in acute care, funded by international donors who supported service provision. Challenges included health workforce shortages, inadequate infrastructure, and transportation issues impacting service provision.

The CPHNs working in rural remote and maritime areas reported challenges that were geographic, professional, personal and cultural. Despite these challenges, CPHNs formed close working relationships with others that enabled them to provide healthcare. The absence of comprehensive workforce planning for CPHNs meant that the demands on their time were often approached in an unplanned or ad hoc manner that could further exacerbate the fragmentation of services. Comprehensive primary healthcare, rooted in health promotion and primary prevention, was not possible in this context, which repeatedly gave way to acute need. Fiji would benefit from a CPH nursing model that also includes health promotion and primary prevention activities, in order to build the health and wellbeing of the Fijian population.

8.3 Changing Roles of CPHNs in Fiji

The NCDs and the high burden of related complications has significantly increased the workload of CPHNs in Fiji. This study identified that most nurses taught patients with diabetes how to self-manage their symptoms and care (86%); provided palliative care (82%); undertook diabetic foot care (78%); visited patients after a diabetic amputation to teach dressing techniques (75%); and provided care to patients attending a SOPD (70%), among other activities. Participants in this study, on a daily and weekly basis, performed much more direct care and less health promotion and disease prevention, than was expected. The increased workload associated with providing direct patient care negatively impacted CPHNs' ability to undertake health promotion activities. This is consistent with research on CPH nursing roles in developing countries that have been significantly influenced by the impact of NCDs (DeCola et al., 2012).

Type 2 diabetes mellitus (DM) resulted in 938 lower limb amputations in Fiji from 2010 to 2012, of which 15.9% had not been diagnosed with having DM (Kumar et al., 2014). In 2012, it was reported that approximately two amputations per day were performed at the Colonial War Memorial Hospital due to DM (Turagava, 2012). Waloki et al. (2014) identified 328 patients in Fiji, who between 2010 to 2012, were admitted to hospital after having a stroke and who were discharged to care in the community. These patients had complications related to NCDs and required considerable clinical care from CPHNs. Health systems worldwide are facing a shortage of nurses and other qualified health workers, and increasing costs, while simultaneously attempting to improve service quality and safety, meet health goals, and facilitating more equitable access to services for those who are the least well served and experience the most material deprivation. New Zealand researchers contend primary health care nurses will play a greater role in the provision of health services currently managed by secondary or hospital care, as well as in the prevention of disease (Sheridan et al., 2009).

Consistent with the findings of this doctoral research there is an international shift from health promotion and primary disease prevention to direct patient care to meet community healthcare needs (Beaglehole et al., 2008). Providing home-based care to clients with greater complexity over a longer period has resulted in nurses' role extension and expansion, however this has been without additional necessary resources. As a consequence, many health promotion activities occurred in an ad hoc manner, if they had been undertaken at all. Most of the work undertaken by CPHNs was direct patient care, which was at the expense of health

promotion and primary prevention in both urban and peri urban areas. This shift away from early primary prevention for conditions like diabetes, where complications such as lower limb amputations can be prevented, has increased health inequities for the most vulnerable populations.

The current study found CPHNs were engaging in more individual-level interventions, with a direct care focus in home-based community settings. These findings are similar to those reported in an earlier Australian study by Brookes et al. (2004) which identified a shift in CPHNs' role away from health promotion and towards direct patient care. They argued that the Victorian State government had contributed to the shift of focus of community health nurses work from a preventative, educational and holistic approach to one that focused on direct clinical care. Kemp et al. (2005b) examined the changes in community nursing in Australia from 1995 – 2000 and similarly concluded that there had been a shift from primary health care to short-term clinical care in the community, attributing the shift to acute care policies that sought to reduce acute hospitalisation. As nurses provided more acute and home-based care, further specialised nursing skills were required. Smith (2000) also reported that "recent policy changes have seen primary health care dominated by primary medical care and the participants expressed their concern that community health services needed to be re-oriented to a primary care model" (p. 118).

A national study commissioned by the New Zealand Government reported on developments in primary health care nursing since 2001 and found that primary health care nurses needed resources and expertise to refocus their work towards population-based disease prevention, appropriate screening, opportunistic action and early interventions (Finlayson et al., 2009). These authors further stated "a population-based approach requires health professionals to take a broader approach to health care, recognising the need to prevent and manage disease and to promote health for their local populations, rather than just treat those who appear in the waiting room" (pg.8). In this study, nurse participants raised concerns about their minimal health promotion role suggesting that a separate team of CPHNs should primarily focus on providing a robust and efficient health promotion and primary prevention service. It is evident that for more than two decades community healthcare demands have caused CPNHs to increasingly prioritise direct care at the expense of health promotion and primary prevention.

The changing role of CPHN's to provide direct care at the expense of health promotion was further supported in another New Zealand study of 48 practise nurses. These nurses identified themselves as health promotion specialists, with health promotion as a central part of their role. However, they were too busy with their expanded role undertaking illness-related nursing care to find time to engage with health promotion interventions (Pullon et al. 2005). These authors argued that if health promotion was to be retained, sufficient government funding was required to support enough practice nurses to take on both the direct care and health promotion roles.

Similarly, Watts et al. (2004) and Patterson et al. (2007) reported on the practice nurse (PN) role in chronic disease management. However, in contrast to Pullon et al. (2005), they identified that not all PNs were interested in expanding their role and that role expansion should be considered within the context of the specific needs of an individual general practice, the nurse's level of competence, and their willingness to accept the responsibility. This is consistent with a study by O'Neill and Cowman (2008), among community nurses in Ireland, who reported that participants felt that with numerous demands and diverse caseloads, the preventative aspect of their role was underutilised. However, the findings of this qualitative study using focus group methodology cannot be generalised to the wider nursing population. Furthermore, Watts et al. (2004) identified that the nurse's role in coordinated care was very demanding and without formal recognition and remuneration might not be sustainable.

Studies reporting on the shift from health promotion and primary prevention to increased direct patient care, have important implications for roles such as that of the CPNHs who have traditionally had a substantive role in all of these areas. Without community-based interventions to prevent disease and promote wellbeing, there is a risk to the overall health of the population. Sheridan et al. (2015) explored the relationship between population health, determinants of health, and health system restructuring through an analysis of Government documents and interviews with senior health managers, clinicians, government policy advisors and academics. The study found that over two decades, the broad concept of population health, synonymous with the determinants of health, had been reduced to a narrow concept measured by a limited number of quantifiable health targets, motivated by financial incentives. The study concluded that it was only by adopting a more comprehensive understanding of population health that the determinants of health could be addressed and the burden of

disease reduced; they contended an increase in medical spending would widen inequality of health outcomes.

8.4 Generalist CPHN role: specialisations emerge

This study identified variations in CPHNs' views regarding the need for specialisation within their broad generalist role. The rationale for those who supported specialisation was to better enable them to improve care by providing more focused care. In contrast rural remote and maritime participants were of the view that they should know and do everything, as sole practitioners.

The CPHNs identified specialisation in the areas of chronic disease management, such as foot care, palliative care, emergency care, mental health care, home-based care, and motivational interviews, while some viewed specialisation in delivering comprehensive family planning and Integrated Management of Childhood Illness (IMCI). These findings were consistent with those of Finlayson et al. (2012) where funding arrangements, aligned with the introduction of the New Zealand Primary Health Care Strategy in 2001, led to the expansion of nurses' role in general practice. Since the implementation of the Strategy, nurses' roles and competencies in chronic disease management and improving access to vulnerable populations had increased. These nurses, however, worked in primary care/general practice and while they undertook health education interventions, did not undertake wider health promotion interventions. Not surprisingly, CPHNs working as zone nurses and in rural, remote maritime areas in the current study, maintained a generalist approach that supported comprehensive primary health care was essential. They strongly contended an overemphasis on a single area of specialisation would not serve them or their population well. Research supporting this notion, suggested specialisation in primary care could lead to fragmented care, with reduced provision of broader health promotion and primary prevention interventions (Marshall & Luffingham, 1998).

The current study found that CPHNs who focused on single programmes, such as Diabetes Footcare, Mental Health Nursing, Integrated Management of Childhood Illness Nursing, and Home-Based Care Nursing had data available for decision-making, clear lines of communication were well-connected to nurse practitioners and doctors, who they contacted to assist with management. They showed more autonomous practice and had access to training and workshops at Sub-Divisional and Divisional levels. Research identifying the advantages of nurses

undertaking specialist roles cited better patient care, improvements in CPHN knowledge and better communication between hospital and community care providers (Gardiner et al., 2012).

For specialist nurses working in the community, Davidson et al. (2001) identified that cardiovascular nurses were well positioned to champion the implementation of evidence-based, patient-centred programmes in Australian communities, which was recognised as an effective community model. Similarly, a study of specialist community nurses caring for patients with human immunodeficiency virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS), found that with dedicated HIV funding for specialist care, both general community nurses and patients benefited from specialist input (Layzell & McCarthy, 1993).

These findings are consistent with the systematic review by Gardiner et al. (2012) exploring factors supporting good partnerships between generalist and specialist palliative care services, including research from the United Kingdom, Australia, New Zealand, and Canada. They identified five key factors that enhanced partnership, which included: "good communication between providers of care, opportunities for education, clear definition of roles and responsibilities, access to specialist palliative care and coordinated and continuous support" (p. 355). Given the strengths of specialised programmes, it appears that CPHNs in such roles are meeting the needs of many within the Fijian population.

Despite the recognised potential of the specialist nature of some current CPHN work, others highlight it is not an appropriate model for sustaining primary health care. Some of these reasons included deskilling, fragmented care, and a narrow focus on individualised care with a loss of the broader public health nursing roles, which are essential parts of CPH nursing. Marshall and Luffingham (1998) highlighted that CPHNs were expected to work at population-focused intervention levels with a broader holistic approach using all the resources available in the community. These authors contended too many specialised nurses in a general area may lead to a deskilled workforce and fragmented care. Moreover, they expressed concern that specialist nurses with unclear and poorly defined roles, acted as a barrier to an effective working relationship with generalist nurses, which negatively impacted the quality of patient care. The risk was of specialist nurses making all the decisions in a specific area of care, without sharing knowledge, and preventing generalist nurses from taking responsibility, which they argued led to deskilling the generalist nurse. Haron et al. (2019) in a national study of 824 (80%) response rate of Israeli public health nurses found 70% of the participants undertook individual-

level interventions and performed fewer population-health-focused activities, such as community needs assessment and implementing community-based projects.

Specialisation may lead to a loss of generic nursing skills resulting in specialist nurses with knowledge and skills in selected areas, unable to participate in the common interest of the patient at a more holistic level (McGee et al., 1996). It has also been argued specialisation requires resources and highly trained specialised nurses do not necessarily have any bond obligations to serving developing Pacific countries. They may consider migrating which will affect the country's health systems.

The presence of many specialist roles within CPH nursing, leads to the dominance of an acute care clinical focus. Ervin (2007) questioned whether the advanced practice of a specialist community health nurse was a (good) fit or misfit. The author stated the "promise for infusing more health promotion and primary prevention into the health care system may be difficult, as primary care nurse practitioners substitute more for physicians" (p. 461). The authors highlighted the reduction of appropriate primary prevention and early detection, providing the following example: in the United States "42% of patients who smoked and were hospitalised with acute myocardial infraction received counselling to quit smoking while in the hospital" (p. 461). The advanced practice nurses focus was on the individual and family providing direct care, but did not provide care that was community-focused.

The lack of nurses with graduate degrees working with social determinants of health and the resulting health disparities in underserved communities could be costly to society as a whole (Canales & Drevdahl, 2014). They argue there is a greater need to focus the CPHNs' role on health promotion and primary prevention.

The South Pacific Chief Nursing and Midwifery Officer Alliance (SPCNMOA) meeting report 2018 outlines a discussion of specialisation in the Pacific. The report highlighted that Australia had 52 different nursing specialties, although, several of them had a very narrow focus which had the potential to restrict practice impacting workforce flexibility and service delivery. This is an important point that small developing Pacific Island countries must consider when deciding on specialisation, which may narrow the service delivery and impact accessibility to healthcare services.

The working groups at the SPCNMOA meeting identified five key questions. The first surrounded urgent clinical/primary health care training needs, which they identified as: mental health, midwifery, child and family health, diabetes, critical care, accident and emergency, emergency disaster preparedness and recovery, non-communicable disease, oncology, palliative care, data management, perioperative care and management and leadership. They recognised the need for speciality practice to reduce the burden of illness caused by NCDs, but did not recognise health promotion and primary prevention as areas for speciality education in primary health care. The focus was instead on managing illness and related complications. This was a service demand-driven, whereby CPHNs would be tied to clinics rather than undertaking community-based population-focused interventions. Generalist roles with generalist knowledge and skills were well recognised in rural remote maritime areas. For CPHN generalist roles to be strengthened, sufficient funding and appropriate policies must support practice.

The finding of the current study highlights a lack of leadership at the policy level for CPHNs who were not consulted in policy development and reviews that impacted their work. These findings are consistent with a study by Smith (2000) of 40 generalist community nurses who identified issues with specific health policies, resource allocation and funding. Smith reported power and control was exerted over the work of generalist nurses, who were less powerful than medical and health administrators who controlled resources and influenced policy.

Career progression requires postgraduate qualifications that support engaging with audits and using research and evidence to inform practice. A low proportion of CPHN participants (9%) in the current study had a postgraduate nursing qualification in community nursing or public health. About three quarters had a Bachelor of Nursing qualification (78%), but much fewer engaged in professional development (18%), with many still completing a Bachelor of Nursing bridging programme (12%, lateral entry). Most CPNHs were female (88%) and it is likely that they had competing demands on their time from family and other primary carer roles.

McCullough et al. (2022) identified remote area nurses as having a generalist scope of practice that should be formally recognised as a specialist nursing practice area. They manage acute and chronic conditions, emergency responses and health promotion in isolated communities across Australia. The authors found remote nurses' clinical knowledge and skills were not well prepared for the advanced generalist scope of practice in the remote context. In the current study in rural remote and maritime areas, the CPHN is a “specialist–generalist” role and wanted

to expand their work and train as nurse practitioners with a broad scope of practice. McCullough et al. (2022) concluded remote area nursing requires knowledge and skills developed on the job, with formal learning, such as that of nurse practitioner education which extends nurses' practice, including in the area of health promotion.

However, Finlayson et al. (2012) found PHC nurses who worked in general practice had the ability to provide more services and functioned more autonomously, when they had expanded roles. Patients' needs were met and more doctors' time was freed up, resulting in services being more cost-effective; which also led to greater job satisfaction. Moreover, the study supported the work of Nurse Practitioners (NPs) in PHC. Because NPs had in-depth clinical and contextual knowledge of their speciality areas, the NPs were deemed well-suited to work in PHC. This knowledge enables them to respond to the health needs of their communities and deliver appropriate and affordable treatments and improved access to care, as well offering patients another choice of health provider. Registered in the Nurse Practitioners scope of practice, they are independent practitioners and registered prescribers. Officer et al. (2018) argue NPs perform most tasks undertaken by doctors and can improve access to care, particularly in high-risk and rural communities.

There is a strong argument for the education and training of CPHNs in Fiji that supports a specialist-generalist role, as described by (HC04 SOPD Nurse), to better enable them to provide care in rural and remote maritime communities that are often underserved, because there are so geographically isolated. In contrast, urban nurses specialising in, for example, diabetes foot care and non-communicable disease management, were required to provide care to more people and wanted to focus their work in this area of specialisation.

The Australian government, through the Office of the National Rural Health Commissioner, recently developed the National Rural and Remote Nursing Generalist Framework 2023-2027, which recognises the generalist nurse whose actions seek to improve access to culturally safe and sustainable healthcare, reflecting the principles of social justice. The Framework has four main domains: culturally safe practice; critical analysis; relationship, partnership and collaboration; and capability for practice. These nurses are responsible for continuous, coordinated and comprehensive health care, including after-hours emergency care (Connolly, 2023). The recruitment and retention of nurses working in rural remote areas is vital and factors supporting retention have been identified as: "diversity of clinical care and professional

collaboration; high accountability in the scope of practice and engagement, with trust from colleagues; and local community and respect for individual contribution and capability to healthcare teams" (Connolly.p12). In the Fijian context, CPHNs who are generalist nurses must be resourced and supported to advance their practice and develop specialist skills, if they are to continue to work as sole practitioners in isolated geographical conditions.

8.5 Programme-Based Funding

Programme-based funding was initiated as a solution mainly from MOHMS and international donors, to improve maternal and child health, chronic disease management, and provide other types of care for different populations in Fiji. The funding allowed for the creation of new roles and for ensuring the sustainability of public health programmes. It fueled the transformation of healthcare services, mainly providing acute care.

The findings of the current study show that well-funded programmes influenced healthcare services and new roles for CPHNs. Programme-based funding led to wider service provision at the community level. Participants described programmes, such as diabetic foot care by Diabetes Fiji, rheumatic heart disease screening by Cure Kids, tuberculosis, HIV and AIDS prevention and control by the Global Fund, Package of NCD control and mental health by the World Health Organisation.

The findings of the current study show public health programmes impact people's lives. These funded programmes had capacity for acquiring building resources and equipment, that increased their performance. They also had solid data collection and analysis mechanisms with robust reporting systems. This allowed footcare and mental health nurses to access data for supporting decision-making at the Sub-divisional level. Programmes were commonly well-structured, and networked by nurses working from nursing stations who coordinated care with tertiary care providers. Programme funding was reliant upon effective public health programme performance, external funding impact and the evolution of CPH nursing services.

Donor funds given through performance-based funding ensured close monitoring and utilisation of funds. Low-Beer et al. (2007) stated that "performance-based funding provides clear incentives to achieve results and has been used by organisations such as the Global Fund to fight AIDS, tuberculosis and malaria" (p.1308). The success of these vertical financing systems, however is dependent on the ability of the funding to strengthen the health system

more broadly, to address the country's health needs. An investment in the CPHNs' role could strengthen the health system and improve healthcare in rural remote and maritime areas.

This study identified that external funding significantly influenced disease-specific interventions, enabling focused efforts in addressing serious health issues in Fiji. External funding is based on programme evaluation that measures performance. This study identified the Integrated Maternal Childhood Illness (MICI) programme as one of the nursing roles in urban and rural remote and maritime areas. However, some children were seen more than ten times by IMCI nurses, without seeing the doctor. They should have been referred for more comprehensive assessment by a doctor rather than being seen by the IMCI nurse. The targeted interventions enable focused attempts to address health issues and make resources available to provide care. However, once external funding ceased, the public health care had to sustain efforts to enable continuity of care. Shediac-Rizkallah and Bone (1998) warned that "throughout the world, considerable resources are spent implementing community-based health programmes that are discontinued soon after initial funding ends" (p. 87). A systematic review by Herlitz et al. (2020) on the sustainability of public health interventions in schools, identified 24 studies with 18 interventions. The results show that no intervention was sustained in its entirety, although all had some components that remained. The authors found that to sustain public health interventions, it was essential to have support from senior leaders, positive impact on community engagement and wellbeing, staff confidence in delivering health promotion and confidence in its value. Barriers to sustaining these interventions included resource constraints, insufficient funding, and staff turnover.

The findings of the current study suggest that prior planning for sustaining externally funded CPH nursing services is vital for a successful public health system in Fiji. Cekan and Ishola (2019) contend that operational level sustainability is ensured by embedding sustainability early in the project cycle, community ownership, capacity building, collaboration, leadership, and quality post-evaluation. Shediac-Rizkallah and Bone (1998) provided directions for the sustainability of community-based health programmes, which included: community health programmes based on the community needs; sound planning to enable sustainability by ensuring local capability and availability of resources; and building on successful existing programmes rather than spending on new programmes.

The availability of funding can facilitate the evolution of new CPHN roles. Aid-driven projects have assisted with staff development and infrastructure, and an example from this study was the establishment of footcare clinics at the sub-divisional level providing individualised acute care. However, to maintain a sustainable model, these projects should not only focus on individual care but rather consider a more comprehensive health care approach.

8.6 Challenges Faced by CPHNs in Fiji

This thesis identified multiple challenges faced by CPHNs working in urban/peri-urban, rural, remote, and maritime areas. These challenges were related to increased population and service demands placing a significant strain on the healthcare system, affecting the workload and responsibilities of CPHNs. The main challenges faced by CPHNs in the current study included: high service demand and limited staffing resources; building staff capability and infrastructure; and a failure to analyse data collected by CPHNs. Similar findings were reported by Finlayson et al. (2009), who found: "nurses were unable to access resources to develop services; the employer–employee relationship made it difficult for nurses to argue for change; lack of support and motivation for employment of Nurse Practitioners; heavy workloads; lack of educational opportunities; lack of nursing leadership and mentors; lack of a career pathway and educational framework; lack of physical space and some nurses were not being keen to upskill" (p. 2).

8.6.1 Service Demand Versus Staffing Resources

The current study identified the shortages in staffing, both in terms of nurses and doctors. The increase in the proportion of the population with chronic illnesses in Fiji, has created more service demand on the healthcare system. Resource constraints have increased the staff workloads and placed greater responsibilities on CPHNs.

Staff migration has resulted in an unprecedented shortage of healthcare workers post-COVID-19 (Magick & Pareti, 2023). Care provided to seriously ill patients admitted to hospitals, drained an already small nursing workforce that lacked training in specialised care. Patients were discharged earlier to community health nursing agencies, thereby transferring the demand for care to services that were also inadequately resourced. Magick and Pareti (2023) quoted the President of the Fiji Nursing Association, Dr Alisi Vudiniabola, who said "the impact [the shortage of nurses] has had on patient care is unbelievable" (p. 3). Dr Vudiniabola stated the

effect could be felt not only in hospital wards and clinics, but also in outreach programmes, health promotion programmes, and home visits. She said, “If we don’t address the issues facing the community, you will get a full hospital. If you see a hospital full of patients, then you’ll know something is wrong in the community” (p. 3). Increased service demand has led to CPHNs shifting to providing direct patient care, and taking a narrower focus on health and wellbeing, which has been significantly impacted by the decentralisation of health services in Fiji.

The first wave of decentralisation of health service in Fiji occurred in 2009, with six health centres in the Central Division increasing opening hours from eight to 16 hours per day seven days a week (Mohammed et al., 2016). By February 2011, adult outpatient services provided at a divisional hospital (CWHM) were discontinued. This resulted in a second wave of decentralisation, where health centres became patients first point of contact before being referred to secondary and tertiary hospitals. This resulted in a 300% increase in the utilisation of services provided by health centres. While Mohammed et al. did not describe the impact this transfer of services had on the CPH nursing workforce, this thesis found decentralisation created multiple challenges for CPHNs working in urban health centres, who were required to provide direct patient care in facilities that were not set up for admitting patients or providing 24/7 care.

In Fiji, the shift of nursing care to community nursing is similar to the shift that occurred in Australia 20 years earlier (Kemp et al., 2005). Between 1995 – 2000 more adult clients were receiving more clinically-focused care and were discharged into community care, without an increase in the nursing workforce or without nurses sufficiently prepared to undertake more acute care. This shift negatively impacted nurses’ ability to meet their workloads and there was a loss of a holistic primary health care focus, that included health promotion. In Fiji, insufficient nursing staff to meet nursing care demands is further hindered by the emigration of nurses to other countries. Recently Fiji's Minister for Health, Dr. Atonio Lalabalavu, reported in Parliament that 807 nurses resigned from the Ministry in 2022, reflecting one-fifth of the entire Fijian nursing pool. This left 3000 nurses in Fiji to provide both hospital-based and community services (Magick & Pareti, 2023). The loss of nurses was attributed to better opportunities for professional development in other countries, and poor working conditions and pay in the Pacific Islands.

Brown and Connell (2004) found the migration of nurses from Pacific countries was not only related to income, but reflected dissatisfaction with the terms and conditions of government work, which included lack of career pathways, promotion opportunities and access to modern technology and training. These same factors have contributed to the migration of nurses from other countries. MacLean et al. (2014) reviewed seven years of primary care nursing workforce research from 2005 to 2012, and identified three key issues in the United States: lack of a sustainable healthcare workforce caused by poor workforce planning; poorly constructed payment incentives; and geographic maldistribution worsening the nursing shortage in rural and disadvantaged urban areas. This study further highlighted reasons for nurse migration in less developed countries, which included poor salaries, ill health among care providers, long hours of work, large workloads with too many clients, and government instability. A Canadian study found CPHNs felt devalued by both nurses and the public as their roles were invisible and not well defined (Schofield et al., 2011). In the current study, despite CPHNs playing an essential role in providing direct care to patients, it is at the cost of providing health promotion within communities. The provision of acute direct care and health promotion and primary prevention in the community, can only occur if staff are available to provide this care.

8.6.2 Building Staff Capability and Infrastructure

The current study identified the lack of education and training of CPHNs as a significant challenge. Internationally, nursing education has focused on acute care. With the shift of acute care from the hospital to the community, nurses did not have the educational preparation to support the shift (Kenyon, et al., 1990). This reflects the finding of an Australian study of nurse activity (Cioffi et al., 2007) that identified the top four activities were: wound care, direct care activity, assessment and medications. These nurses were mainly community-based and had not been educated to undertake care that was complex. Kenyon et al. (1990) suggested that adequately preparing nurses to work in the community, required teaching skills to assess the individual and the community, decision-making skills, case management, health systems management, teaching and leadership. These same issues were raised by nurses in the current study who worked alone. They emphasised the need for independent decision-making skills and managing cases without doctors.

Nurses working in rural, remote and maritime areas face several challenges in undertaking continuing professional development. Some of the challenges identified in the current study

included distance, internet connection issues and not having enough time to study. Colquhoun et al. (2012) similarly found the demands on child health nurses in the Solomon Islands, required prolonged periods away from work and family, expensive courses, overseas travel, and the education often lacked relevance.

While there are many challenges limiting professional development in rural remote and maritime areas, those working in these areas suggested being trained as nurse practitioners, which would better prepare them for the clinical conditions they were required to manage independently. Having nurses with advanced knowledge and skills working in rural remote and maritime areas, such as nurse practitioners, would improve access to care, and alleviate pressure on doctors in urban settings. This approach could contribute to the attainment of universal health coverage and reduce hospital use, while also reducing the inequalities in patient health outcomes between urban and rural remote populations.

Insufficient infrastructure, lack of transportation facilities and lack of medical supplies also pose a significant challenge to the work of CPHNs. For the healthcare needs of the Fijian population to be met, there is a need to better use the resources available to develop infrastructure. The current study identified infrastructural issues, such as not having a proper kitchen or washroom in Health Centres, lack of space and privacy and delays in medical supplies. Furthermore, clients would not tell CPHNs the real reason for attendance when being triaged. Without kitchen facilities to provide meals, people went without food, although CPHNs shared meals with families while waiting for admissions to the base hospital. A shortage of medicines and equipment, long hours of work, fatigue and burnout caused nurses to emigrate for better working conditions (MacLean et al., 2014).

Other studies (Halcomb et al., 2008) have reported a lack of space limiting a patient's ability to consult privately with nurses. Private areas are needed for clients to receive self-management support, risk factor modification and counselling. Infrastructure is a critical component in encouraging increased standards of treatment and well-being for all patients, as well as a positive experience with healthcare institutions (Luxon et al., 2015). The current study found nurses lacked transport to visit patients, who required home-based care or to transfer sick patients to base hospitals. Not visiting patients caused mistrust among these patients who required home-based care and patients had to wait at health centres for longer periods before they could be assessed for appropriate care. Nurses in rural and remote Canada identified

transportation and communication as common issues in geographically isolated areas (MacLeod et al., 1998).

8.6.3 Failure to Analyze Data Collected by CPHNs

Apart from transportation, managing health-related data was identified as problematic. The CPHNs need robust online data systems to collect and analyse data for use in planning health promotion strategies. The current study identified that while CPHNs collected a large amount of data related to the community work they performed, it was not always analysed and they received very little feedback to support health promotion planning at the community-level. All collected information was paper-based and sent from medical area levels to the Sub-divisional level and then to the Divisional level for entry into the electronic database for analysis. Whilst the CPHNs could see the value of data collection, it was time-consuming, diverted their attention away from direct patient care and health promotion.

"Inadequate feedback" is not unique to Fiji. AbouZahr & Boerma (2005) reported that in health systems in many parts of the world, decisions are made, despite the absence of reliable information and health systems rarely function systematically. Similarly, Kimaro and Nhampossa, (2004) highlighted that the major challenge to the sustainability of health information systems in developing countries, is the "misalignment of the interests, roles and responsibilities of those involved in the process (donor, developers and MoH), suggesting the need for effective partnerships between those that collect data, those that develop systems and the MoH, who are fundamental for the sustainability of health information systems.

A sustainable health information system in Fiji is not without its challenges, given its geographical setting, poor network, and lack of grid electricity in rural remote and maritime areas. There are a number of specific issues facing Pacific nations like Fiji when it comes to information and communication technology (ICT) systems including power supply and connectivity. Soar et al. (2012) in a study of the sustainability of health information systems in Fiji, identified that a common problem with health information systems was inconsistent power supply in outlying islands. This was supported by a study on the understanding of the role of technology in health information in the Pacific Island countries that reported that four key challenges faced by ICT systems included: telecommunication infrastructure, human capacity and training, affordability, and appropriateness (Lewis et al., 2012). These challenges are

significant because, as the authors stated, "ICT can improve access for geographically isolated communities, provide support for healthcare workers, aid in data sharing, provide visual tools linking population and environmental information with disease outbreaks and its effective electronic means for data capture, storage, interpretation and management" (p. 145). The authors further suggested that the potential benefit of a patient information management system (PATIS), is still yet to be fully realised. With robust infrastructure development in Fiji and good connectivity, data can be collected online. The availability of electronic tablets/smartphones can make data collection and submission easy. Njuguna et al., (2014) compared smartphones to paper-based questionnaires for routine influenza sentinel surveillance in Kenya in 2011- 2012. The study identified that data collected using smartphones, produced fewer incomplete data, fewer errors, and inconsistent responses and delivered data faster. Participants in this study were using Viber to keep in contact with CHWs in managing cases and were willing to use technology. The combined challenges faced by CPHNs are interconnected, as insufficient infrastructure, resource scarcity and lack of training add to the difficulties in meeting the increased population healthcare demands.

8.7 Working in rural remote maritime areas

The CPHNs working in rural remote maritime areas highlighted several challenges that affect healthcare delivery. These challenges are distinctive in the Fijian context as these nurses are providing primary health care, health promotion, acute care, chronic illness management and emergency care. They work alone to establish community networks for the successful implementation of health programmes. Some of the key challenges discussed in this section include physical geographical, professional, personal, and cultural challenges. This section will specifically focus on the challenges of rural remote and maritime nurses.

8.7.1 Physical Geographical Challenges

The CPHNs face challenges in reaching remote communities which may result in delayed care. These areas have small populations that are dispersed over vast distances where clients may forgo care or present late (Humphreys et al., 2008). The current study identified that increased workload and being sole practitioners made district nursing challenging. Stuart et al., (Stuart et al., 2008) found Scottish district nurses felt overwhelmed with the workload as they did not have any control over the number of patients under their care and they struggled to meet patients' needs. These authors Stuart et al. (2008) highlighted the increasing number of older

people and those living with chronic complications in the community, which was prioritised over administrative paperwork, computer work, checking emails, attending meetings and making telephone calls. The current study identified that rural remote and maritime nurses prioritised acute hands-on care, over all other work.

8.7.2 Professional Challenges

Undertaking long hours of nursing and non-nursing work can lead to stress and burnout, and impact well-being and work-life balance (Rapport & Maggs, 1997), which was reported among district nurses in the current study. They reported working long hours, often missing lunch and other breaks, working after hours and on public holidays in response to approaches by community members and heavy caseloads. They often felt unable to escape the demands of the role. The stress was heightened by a lack of communication within the system and broader issues related to their everyday working environment, lack of a career structure and dissatisfaction with promotion prospects. Nurses working in rural remote maritime areas, where patients would come depending on the tide and the availability of transport, was a unique setting and placed high demands upon these nurses. These nurses had to travel to other islands, if for example a nurse needed to take sick leave, which increased their own workload. Administrative responsibilities and a lack of resources (Rout 2000) were identified by CPHNs in rural remote and maritime areas. Having non-nursing staff to assist with administrative and other paperwork reduces the burden of workload (McVicar, 2003). It may also support these nurses who described feeling lonely and isolated, including from time and opportunity to engage in education. The provision of good working conditions is essential to prevent nurses from burnout, enhance job satisfaction, and improve the quality of care delivered in rural remote and maritime areas.

Studies on rural remote nursing suggest that CPHNs working in nursing stations, are to be recognised as specialist generalists as they work alone with lots of responsibility to do clinical and non-clinical work (McCullough et al., 2022). Many CPNHs in the current study would benefit from further education and training to prepare them better to manage emergencies, especially in contexts where they are sole practitioners. Strengthening legislative policies that signal resources and programmes to support nurses extended practice, is paramount. Nurses in the current study wanted to administer IV antibiotics and IV fluids for example, to provide a necessary local service and address unmet need.

8.7.3 Personal Challenges

Safe accommodation to be able to maintain personal security, especially in rural remote areas, was considered a reasonable expectation of “good working conditions”. The CPHNs who lived alone or in isolated settings felt unsafe. Some nurses reported having washroom facilities outside and accommodation that was not fenced, causing them to feel unsafe and afraid. With the international shortage of nurses, Fiji needs to retain its current nursing workforce nursing. Kingma (2001) identified that personal safety was one main reason for nurse migration.

A systematic review of factors influencing the recruitment and retention of registered nurses in adult community nursing, identified both individual and organisational factors including a lack of appreciation by managers, work pressure and working conditions (Chamanga et al. (2020). Low morale due to “continuous changes, poor referrals, heavy workload, lack of capacity to cover absences, career uncertainty, blame culture, poor management, lack of support from seniors, unpaid hours, and cuts in staffing levels”, were experienced by district nurses in Australia and the United Kingdom

The CPHNs in Fiji also need strategies to support them to maintain their mental health and general well-being. Fagin et al. (1995) examined the factors that caused stress in community psychiatric nurses - professional isolation, ineffective communication, and inadequate support, supervision, and training. Coping with stress included efficient time management, planning for team meetings, improvements in communication, consultation, and support networks. Kumar et al. (2015) highlighted that nurses used humour as a coping strategy to switch off from work.

In the current study a way of coping was to be a part of the community. The CPHNs worked closely with the youth groups, and mothers' clubs and took part in community events to keep themselves occupied. These CPHNs formed a therapeutic relationship with community members and felt that they were part of a wider family. A key factor enabling CPHNs to work successfully with the community was their understanding of the values, beliefs, and culture of that community. The CPHNs who lived at home with their families, felt that supportive partners enabled them to cope with work in communities, especially where there are cultural community challenges.

The current study identified cultural safety and cultural awareness as key to providing care that was acceptable to a community. District nurses at the community level played an important

role in safeguarding patients' values and beliefs, as a means to providing culturally safe care. Gaining trust and effective communication increased community members' acceptance of interventions, such as vaccination. An appropriate cultural orientation that prepares nurses for working with communities, is likely to affect job satisfaction and a nurse's effectiveness in their role. An example from the current study, surrounded community members' acceptance of COVID-19 vaccinations and nurses accompanying people with diabetes for amputations because the CPHNs were trusted. Acceptance by the community, improves the retention of nurses in remote and rural areas as they get support from community groups. Reeve and Lavery (2023) contend that cultural beliefs and values are extremely important in the lives of individuals, families, and the community and influence decisions about the management of chronic disease management.

The current study identified many examples of CPHNs in rural remote and maritime areas working as part of the community, and the community trusting them with decision-making. Community health workers and community leaders spoke freely about treatment plans with CPNHs who often stayed in the community for a long time. They maintained high trust relationships with patients which contributed to improving patient health outcomes. The CPHNs were approached for assistance with issues, such as, water shortages, domestic violence, and for community projects. Rapport and Maggs (1997) reported patients in a large British study preferred to talk to nurses over other health professionals. They felt comfortable discussing medical problems and other anxieties with nurses who were familiar with the patient and their family and visited them at home. Stuart et al. (2008) reported district nurses took on work perceiving other agencies did not meet patients' needs.

The finding from the current study and the supporting international literature suggests the importance of building culturally competent relationships among patients and CPHNs. This implies that CPHNs need to be well prepared before working with the communities, so they can confidently deal with cultural differences. However, in some communities that Peckover (2007) identified, district nurses lacked confidence when discussing issues of ethnicity and cultural differences. The author suggested that there was a need for further educational and practice developments to enable district nurses to provide more equitable care to clients from culturally diverse backgrounds thus ensuring that individual care and advocacy are fully realised. By contrast, findings from the current study, showed that Fiji's CPNHs were well-

versed in community values and sought to provide culturally safe care. Most of the nurses working in rural remote and maritime nursing stations were iTaukei (indigenous Fijians) and when they referred patients for further management, patients generally followed their advice.

8.8 Working Relationships with Others

The current study identified that CPHNs worked very closely with CHWs, community leaders, youth groups, civil societies, and other non-government organisations. Most of the CPHNs highlighted the work they did with CHWs - community organising, community outreach, screening programmes, case findings, disease outbreak investigation and health teachings. CPHNs and CHWs are part of the community and are well-positioned to promote collaboration at the individual, family and community levels, which support interdisciplinary practice and bring services to where people live. Closely working with CHWs makes services available at the community level, promoting accessibility to equitable health services in line with promoting universal health coverage.

Universal health coverage is a key focus of MOHMS to ensure that Fijians can access essential healthcare without facing financial hardships. The principles of universal health coverage include equity, comprehensiveness, quality, financial protection, accessibility, and sustainability (Asante et al., 2017). The CPHNs working with CHWs at the grassroots, are key healthcare providers in developing countries, that put these principles into action. A systematic review describing the extent of equity within CHWs' programmes (McCollum et al. (2016), found CHW programmes promoted equity of access and utilisation of services by reducing inequities related to place of residence, gender, education, and socio-economic position. Factors promoting greater equity of CHW services, included "recruitment of most poor community members as CHWs, proximity of services to households, pre-existing social relationship with CHWs, provision of home-based services, free service delivery, targeting of poor households, strengthened referral to facilities, sensitisation and mobilisation of community" (p. 2). With community networking, collaboration and partnership, CPHNs can draw on the expertise and available resources of different stakeholders. They can act as a point of entry for other stakeholders who may need disease-related data for different zones and medical areas for planning and implementing health-related programmes. O'Neill and Cowman (2008) in a study of PHNs argued "effective teamwork revolves around communication, regular meetings, openness, respect, clarity around individual contributions and knowledge

management" (p. 3007). The CPHNs and CHWs working together can play an even greater role in improving overall population health and reducing health inequalities in Fiji.

Collaboration and teamwork with other stakeholders allow CPHNs to focus on broader systems health issues and matters related to interdisciplinary practice. This was evident in the current study, as the CPHNs worked with dieticians, health inspectors, dental officers, community rehabilitation assistants and other government agencies. Collaboration with interdisciplinary teams was perceived to improve patient care with enhanced access to wide-ranging services, but required sustained commitment to ensure team efforts regarding information sharing was consistent (O'Neill & Cowman, 2008).

The current study found that with a shortage of staff, CPHNs played multiple roles during outreach and screening programmes and were not always able to get input from other members of the multidisciplinary team. While O'Neill and Cowman (2008) contended PHN's were concerned about the lack of physiotherapy and occupational therapy services, in the current study, a reliance on CHWs and other community leaders to assist with referrals and accompanying patients to health facilities, reduced the burden of work and engaged the community in care.

Participants in the current study perceived community embeddedness was an important aspect of CPHNs' success and that it was also important for CHWs to be trusted by the community. Of 122 reviews (75 systematic reviews and 34 meta-analyses), 83 were from low-or middle-income countries and reported "positive CHW programme outcomes include community embeddedness (whereby community members have a sense of ownership of the programme and positive relationships with the CHW), supportive supervision, continuous education, and adequate logistical support and supplies" Scott et al. (2018, p. 17). The meta-analysis found efficient integration of CHW programmes can strengthen sustainability and promote collaboration between CHWs and other stakeholders. Programmes with CHWs were well accepted by the community and had a sense of ownership over the programmes (Rapport & Maggs, 1997). When CHWs were embedded in the community, nurse workloads diminished and CHWs' credibility increased (Kok et al., 2015). The CPHNs networking with external organisations can assist individuals and families at a deeper level. Close engagement with community leaders and other government ministries can support a deeper understanding of community needs and preferences. Planning community projects in consultation with the

community members who are partners in the project, is linked to sustainability. In the current study, the building of community toilets and declaring smoke-free halls were identified as community -level interventions. Close working relationship formed a richer therapeutic relationship with individuals and families empowered to address their health and well-being. An interdisciplinary approach commonly addresses broader health determinants and ultimately contributes to a more holistic healthcare. In urban and peri urban settings where CPHNs are mostly providing direct patient care, there is an increased likelihood that health promotion activities at the community level will be greatly reduced. Multiple demands on nurses' time and high caseloads, have been found to limit preventative care by public health nurses (O'Neill & Cowman, 2008). If CPH nursing in Fiji is expected to undertake health promotion and primary prevention activities, a level of health system restructuring will be required.

8.9 Workforce Planning

The healthcare landscape is shifting from hospital-centred nursing to community home-based nursing. This shift raises concern about the roles and activities of CPHNs in health promotion and disease prevention. The current study found zone nurses looked after a population of about 150 in rural remote areas and up to 18,000 in urban areas. Higher numbers were often not manageable, requiring reforms addressing the ratio of CPH nurses to the population. O'Neill and Cowman (2008) suggested that "developing the capacity of nursing in the community should support individual and family health and contribute significantly to reducing demand on acute services" (p. 3010). Having these services ,such as foot care, palliative care, integrated management of childhood illness and home-based care, has increased the acute care roles of CPHNs. Shorter hospital stays and chronic illness have raised the demand for community nurses. This rise has not been accompanied by adequate workforce planning, resulting in structural challenges and a shortage of skilled nurses in the community sector (Blay et al., 2022). This shift highlights the concern about how CPHNs balance their acute care roles, and health promotion and disease prevention activities. The demand placed on CPHNs makes clear the need for workforce planning and development. Blay et al. (2022) further suggested that "there is an urgent need for nurse managers globally to refocus nursing recruitment to the community sector to maintain quality and ensure the sustainability of the nursing workforce" (p. 154).

In this study, the shift in role focus was attributed to the increase in NCDs and the availability of funding for workforce training in specific areas. Lack of workforce planning can hinder the CPHNs' role in providing comprehensive primary health care. The increase in demand for services cannot be mirrored against an increase in workforce. In fact, the juggling of multiple roles by CPHNs has contributed to confusion and a lack of understanding about their overall role. This confusion emphasises the need to clarify which roles can be delegated to other health workers and which roles need to be further developed, to enhance or maintain a holistic primary health care approach. There is mounting evidence that health care assistants (HCAs) can increase efficiency and effectiveness (Hurst, 2008), especially when working in collaboration with CPHNs.

To address issues of multiple roles and role confusion, CPHNs must evaluate the impact of their work and assess how new or enhanced roles can be aligned with the community's needs. For most CPHNs, insufficient participation in decision-making, and holding little power or influence, has limited their ability to determine their futures. The professional healthcare culture in Fiji is one where nurses follow doctors' orders. Few CPH nursing leaders are involved in policy development. Few CPHNs hold postgraduate qualifications and there are limited educational opportunities in the field of CPH nursing. Robertson (2004), highlighted Issues affecting CPHNs including the "biomedicalization of the health care system, lack of federal funding for community/public health nursing education and practice, changes in the infrastructure of public health departments, and the shortage of PHNs" (p. 497). As CPHNs take on more acute care responsibilities, they must be part of the decision-making process ensuring that their expertise on community and systems-focused interventions is maintained.

Many experts concur that managing the healthcare requirements of populations and communities demands advanced skills attained through graduate-level education. They also highlight the scarcity of adequately trained leaders in the rapidly changing field of community nursing (Greene & Kelsey, 1998). Effective workforce planning and examination of role evolution are critical for addressing the challenges posed by the demands of acute care. Despite the recognised role of a CPHN, it has not been given much attention. District nursing is a service that is generally valued, while receiving little explicit recognition of the skills and knowledge required to undertake this role (Goodman et al., 2003).

8.10 CPHN Model in Fiji

The findings of the current study recognise CPHNs as the essential primary healthcare workforce within the Fijian health system, who play a central role in health promotion and primary disease prevention. However, CPHNs need a clearer role definition and workload model to support the provision of primary health care that by definition incorporates health promotion and primary prevention. The Fijian Government must be explicit about the overall health system model of health and healthcare, and the allocation of resourcing required to support the health system.

The Alma Ata Declaration (WHO, 1978) called for a re-orientation of health services to focus on primary health care, and this was endorsed by the Ottawa Charter (Irvine, 2005; WHO, 1986). Walley et al. (2008) contend that the principles agreed at Alma-Ata 30 years ago, are as relevant today. Nevertheless. "Health for all" was not achieved by the year 2000, and more recently, the Millennium Development Goals (MDGs) did not meet the 2015 targets set in most low-income countries. Going beyond the MDGs' central focus on social determinants, are the Sustainable Development Goals[40] (SDGs) with a wider focus on the economic, social and environmental determinants of sustainable development. The SDGs have a target of 2030 and have set global priorities for people, planet and prosperity, and universal peace (Walley et al. 2008). Sustainability requires reliable disaggregated data and statistics to support the analysis of development challenges, measure progress, and make evidence-informed decisions.

Challenges to the sustainability of primary health care were identified by Walley et al. (2008) as: "insufficient political prioritisation of health, structural adjustment policies, poor governance, population growth, inadequate health systems, and scarce research and assessment on primary health care" (p. 1001). A call for the revitalisation of primary health care through increased community participation, also included CHW's linked to enhanced primary-care institutions and first-referral services. The SDGs build on from the MDGs in seeking to explicitly reduce inequality and place a focus on those left behind on the path to sustainable development (Walley et al. 2008).

[40] Millennium Development Goals to Sustainable Development Goals: Laying the base for 2030 provides an overview of progress on the Millennium Development Goals (MDGs), compiles potential baseline data for the Sustainable Development Goals (SDGs) and highlights SDG localization and monitoring issues.

Pacific leaders developed a Healthy Islands vision known as the Yanuca Island Declaration in 1995 and this commitment was reaffirmed in 2015 (WHO 2015a). The Yanuca Island Declaration on Health in Pacific Island countries and territories prioritised: children are nurtured in body and mind; environments invite learning and leisure; people work and age with dignity; ecological balance is a source of pride; and the ocean which sustains us, is protected[41]

This vision is rooted in the Pacific spirit where the family (*Whānau*) and community values are the foundation of our culture - a strength that should be nurtured. The Yanuca Island Declaration requires action in areas directly related to the work of CPHNs at individual, community, and systems levels. The CPHNs' responses include: strengthening programmes such as the Expanded Programme on Immunisation (EPI), Package of Essential Noncommunicable Disease Interventions for Primary Health Care (PEN), child nutrition, baby-friendly hospitals to promote breastfeeding, child development and monitoring, collection and timely reporting of health-related data, supporting the continuum of care, responding to disease outbreaks and infectious disease surveillance, and engaging with stakeholders - households and schools to ensure universal access to safe water and sanitation. The CPHNs are key to implementing these activities not only in Fiji but in other Pacific Island countries. To ensure this work continues, the CPHN role needs to be more clearly defined to reflect the sum total of work undertaken.

While the Yanuca Island Declaration outlines what Pacific leaders want to achieve, there is little commitment to resourcing the CPH nursing workforce. Attention to recruitment, retention, education and training, and remuneration is vital if nurses at the frontline are to implement the Declaration. A report by (WHO, 2015b) on the first 20 years of the vision of 'Healthy Islands in the Pacific' identified the following barriers to implementation: an increase in population size, population growth, rural population needs, limited resources available for health, NCD epidemics, double and triple burdens of disease, and local capacities. These findings are consistent with the experiences reported by CPHNs in the current study.

Another important study finding was a lack of CPHN leadership and longer-term planning, which has resulted in CPHNs filling necessary gaps in immediate care. They are providing acute

[41] The first four statements were agreed upon at the 1995 Health Ministers meeting at Yanuca Island, Fiji; the last statement concerning the ocean was added after the 1999 Health Ministers meeting in Palau.

care rather than reorienting health services to meet the primary preventative needs of communities. This has been widely referred to as addressing the “tyranny of urgency". Although some acute care is planned, such as home-based care, palliative care and the integrated management of childhood illness, much is undertaken in direct response to immediate need. The increasing complexity of chronic care programmes, for example, has not been matched with the education and training to develop advanced clinical knowledge and skills (Cioffi et al., 2007).

There is a need for CPHN roles to be re-scoped to more appropriately respond to current and future health service demands. The need for generalist roles in rural remote and maritime areas is well recognised. Urban areas need CPHNs to focus on maternal child health, disease management with broad perspectives and primary prevention and health promotion. The WHO (2014) report that active participation by community nurses in health promotion practice must occur where people live and work, is to be sustainable and produce positive long-term health outcomes for individuals and communities. Health promotion and primary prevention are an integral part of primary health care and nurses are a growing part of the primary care workforce (Keleher & Parker, 2013). Primary health care principles were supported by the Ottawa Charter for health promotion (Potvin & Jones, 2011) and advocate social justice, equity and community participation (Keleher & Murphy, 2004).

Fiji would benefit from a comprehensive primary health care model that integrates notions of health promotion, primary disease prevention and primary care. Rural primary health care models that ensure consumers have access to acceptable quality treatment and maintain fair costs must also be tailored to the needs of the local community if they are to be effective and sustainable (Humphreys et al., 2008). Based on the findings of the current study, a CPH nursing integrated model of care is presented (see Table 35 and Table 36).

Table 35 Community Public Health Nursing Integrated Model of Care

Context / Model of Care			
Urban / Peri-Urban (Discrete Services)	Maternal Child Health Nurse	Chronic Disease Management Nurse	Health promotion / Primary Prevention Nurse Zone Nurse / District Nurse
Rural (Integrated Services)	Maternal Child Health Nurse Chronic Disease Management Nurse		Health promotion and primary prevention focus Zone Nurse / District Nurse
Rural Remote and Maritime (Comprehensive Primary Health Care)	Maternal Child Health Nurse Chronic Disease Management Nurse Health promotion and primary prevention focus Zone Nurse / District Nurse		

Table 36 Three Key Areas of Community Public Health Nurses Focus

Context	Maternal Child Health Nurse School Health Nurse	Chronic Disease Management Nurse	Health promotion and primary prevention focus Zone Nurse / District Nurse
Focus on	Mother and Child	General Outpatients and Clients with Chronic Diseases	Wellness
Aim	Healthy baby and mother fully immunised till school age	Increase quality of life with proper self-management strategies.	Reduce salt sugar and fat. Smoking cessation and encouraging physical activity
Key areas of work	Expanded Programme on Immunisation (EPI)	General Nursing	Community Outreach and Screening
Programmes	Infant Child feeding / Breastfeeding Family Planning Integrated management of Childhood illness Antenatal and Postnatal care	Package of Essential Non-communicable Disease Interventions for Primary Health Care (PEN) Cardiovascular risk assessment Footcare Palliative care / Home Based Care. Community Mental Health Nursing Emergency care	Motivational interview and behaviour change School Health (RHD screening in schools) Disaster Management Healthy communities and healthy workplaces
Partners in Care Intersectoral approach	Mothers CHWs	Family Fiji Cancer Society Diabetes Fiji Non-Government organization and Civil societies	Ministry of Education Ministry of Rural Development

8.11 Conclusion

8.11.1 Overview of Thesis

Health systems are experiencing an increased burden of chronic disease, that is impacting the role of CPHNs in Fiji. The shift in the CPHN role, especially for nurses in urban/peri urban areas, is towards providing more acute care, often to individuals with long term NCDs, and away from health promotion and primary prevention activities. The "sum of the work" of the CPH nursing workforce needs to be considered with regard to future health care need. Without attention to the health promotion and primary prevention aspects of this role, there is a risk that they will be so reduced as to be ineffective at the level of the population. As the population grows, and long-term conditions increase, the need for direct patient care will also increase. This has the potential to overwhelm the CPH nursing workforce and render them only able to respond to urgent need. If there is a will by Government, and the nursing profession, to deliver primary health care – health promotion and primary prevention – then the CPHN role will need to be redefined. The role of other health workers, such as CHWs, while not the focus of this thesis, confirms them as an important workforce to considered as part of wider future health workforce planning.

The current study found that CPHNs wanted to undertake health promotion and primary prevention, alongside direct patient care. However, the overall volume of work was often too great and the more immediate need for (acute) direct care took precedence. In rural remote and maritime areas, nurses were so embedded in communities that working with community leaders and others, resulted in more support to undertake health promotion and primary prevention activities. Nevertheless, there is a large risk that the CPH nursing workforce will, in the near future, have little or no capacity to undertake health promotion and primary prevention activities. Health workforce planning must factor in the overall capacity of CPHNs to undertake such work in the context of increasing long term disease. There is an urgent need for the Fijian Ministry of Health and Medical Services to consider the unplanned effect if nurses default to a reductionist approach to health promotion and disease prevention. There is a grave risk to individuals and communities if this work is not undertaken. The CPHNs in the current study have strongly argued for continuing this work but their role would need to be re-scoped if this were to be the preferred outcome. Alternatively, if health promotion and primary

prevention is considered essential, but nurses do not have the capacity to undertake this work, another workforce will need to be trained. The health workforce challenges that this thesis highlights, can only be addressed by the Ministry of Health and Medical Services reassessing resourcing, strengthening infrastructure, and developing plans that include education and support for CPHNs, especially those in rural remote and maritime areas. There is an opportunity to provide education online, and to train nurses regarding policies, procedures and guidelines. Nurses need to practice as generalists, but with specialist knowledge and skills that relate to their employment role and the needs of the communities they are serving.

Data captured by public health information systems can support CPHNs' decision-making with regard to health promotion planning. The CPHNs need to be supported to use data to better inform the actions they take to manage NCDs and CDs. More effective and efficient use of the whole nursing workforce can occur through targeted interventions that focus on communities and systems.

8.11.2 Strengthens and Limitations of the Study

This is the first study describing the work of CPHN in Fiji using a valid tool, the Public Health Interventions Model, as a framework for data collection and analysis. This study used a mixed methods research design, with quantitative and qualitative data contributing to a comprehensive understanding of the work CPHNs in Fiji and the challenges they face. The mixed methods design was a strength with diverse participants providing survey data and subjective experiences. The survey response rate was high (73.6%). A recent systematic review found that postal surveys among healthcare professionals (doctors), yielded an average response rate of 60.4% (Meyer et al., 2022). A study reviewing mail survey response rates among nurses found these to range from 21% to 81% (VanGeest & Johnson, 2011).

Of the participants who worked at nursing stations (14%), almost two-thirds (63%) from rural remote and maritime areas, responded to the survey. Given the poor network coverage in rural remote and maritime areas, an online survey was not a viable option. Study methods were appropriate and robust with the use of paper-based survey forms, pre-labelled envelopes, and follow-up reminders after two weeks contributing to the high participation rate. Survey forms were mailed to participants and mail that was not received was returned to the sender (author) allowing accurate recording of responses. A *Koha* or *Va-Vina-Vinak* (gift) of a digital

thermometer was included with each survey questionnaire in recognition of participants' time and as a way of expressing appreciation.

Secondly, collecting the survey data in the first phase of the research, enabled the researcher to identify CPHNs who might select to take part of the in-depth interviews. This provided flexibility and data from the quantitative results to be further explored in the qualitative study. Data from the survey guided the development of the interview questions. The validity of the study increased with the qualitative in-depth interviews providing a source of information in addition to the quantitative survey data that was statistically analysed.

Thirdly, a survey was distributed pre-COVID-19 pandemic lockdowns, and in-depth interviews were conducted post-COVID-19, which allowed for actual issues confronting CPHNs to be highlighted.

The study also experienced challenges, primarily because the survey sought participation from all CPHNs in Fiji, including those in rural, remote and maritime areas. The researcher used a paper-based mail questionnaire to overcome this, and for interviews conducted online the participants and researcher persevered, sometimes needing to reconnect to manage intermittent internet problems. A potential limitation was the use of a survey self-report method that can introduce the risk of social desirability bias. While the degree of any possible effect is difficult to ascertain, the study findings are informed by data from two sources which has the potential to reduce any effect. The survey data was also subject to response bias. However, this was a national study of CPHNs with a high response rate, which minimises the chance of non-response bias. Creswell and Plano Clark (2011) suggested that it was sometimes difficult to select participants for a second phase of a study, such as the interviews in the current study. An advantage in the current study was that only ten in-depth interviews were required and the researcher had informed the participants in phase one of the possibility that they could be invited to participate in the second study phase. The researcher was able to identify participants from the survey data who would be suitable to interview, on the basis of their roles in the different health divisions (see Table 34, p.183).

In Chapter 5 (quantitative results) the chi-square analysis for "Summary of nurses' work: public health versus direct care at all levels of intervention" (Table 31 and 32, p.173 to p.175) Tables 31, 23, p.169) could not adjust for paired data. We investigated adjusting the chi-square

analysis for paired data e.g., the McNemar test. However, this test is available for 2x2 or 3x3 tables and the data analysed was for a 4x2 Table. Not adjusting the chi-square for paired data, decreases the chance of detecting a significant association i.e., it lowers the statistical power; which decreases the chance of detecting a significant association While this is a limitation, it does not change the findings. The p-values were already significant (p =< 0.05) and adjusting for paired data would have increased the significance levels, not decreased them.

8.11.3 Recommendations

A comprehensive analysis of CPHNs' roles clearly identifies the need for planned resourcing to support the shift from hospital-based, to community home-based care. Other workforces, such as enrolled nurses and HCAs, could play a greater role in primary health care enabling CPHNs to continue to provide health promotion and primary disease prevention. The role of advanced practice nursing roles, such as nurse practitioners in rural remote and maritime areas, could reduce the need to transfer patients to urban centres. Facilitating CPHNs' access to advanced practice education, would provide a career pathway for nurses, but must also be supported by technical infrastructure. Along with the establishment of rural clinical guidelines, postgraduate studies on health promotion and coordinated home-based care with qualified professionals, is recommended. To better understand the CPH nursing contribution to healthcare and the wider remit of public and population health, it is recommended that further research in this field is undertaken to confirm these findings and/or extend knowledge of health promotion and the work of CPHN.

The following recommendations and key points relate to access, quality and equity of health services; universal health coverage; and the professional development of the CPH nursing workforce in Fiji.

CPHN role and model of care

- Recognise health promotion and primary disease prevention as central to the CPHN specialist area of practice.
- Implement a CPHN model of care that allocates time (FTE) to health promotion and primary disease prevention at the individual, community, and system levels of population-based practice.

- Support opportunities for promotion within the nursing profession and adequately remunerate CPHN positions.

Workforce

- Determine the nurse (and allied health) workforce that will provide direct patient care, including in homes, and the role and time (FTE) CPHNs will contribute.
- Grow nurse practitioners and nurse prescribers advancing registered nurses' knowledge and skills to work in urban, peri-urban, rural, remote and maritime primary health care settings.
- Grow enrolled nurses and HCAs extending knowledge and skills to work in urban, peri-urban, rural, remote and maritime primary health care settings.

Education and training

- Incentivise CPHNs to enrol in postgraduate education in primary health care (direct clinical care) and public health (health promotion and primary disease prevention).
- Develop and implement a career pathway of CPHNs that retains nurses and attracts new nurses to this specialisation.

Data quality and access

- Improve data quality by improving infrastructure and management to enable CPHNs (and other health workers) to input, and access, information to support nurses' decisions planning and implementing care, especially in rural, remote, and maritime areas.
- Use high quality data to inform CPHN workforce planning in the provision of direct clinical care, health promotion and primary disease prevention.
- Provide remote access via a personal device (e.g., mobile phone or tablet) for CPHNs to access patient data, make referrals, and maintain information continuity when home-visiting, eliminating location and time constraints.
- Develop and implement clinical guidelines to support best clinical practice in the management of common conditions.

Evaluation and research

- Assess the appropriateness of CPHN education and training for the range of roles they undertake. This may lead to development of new education and training programmes.
- Continue to monitor the mix of direct clinical care and health promotion and primary disease prevention provided by CPNHs across the range of settings in Fiji (urban, peri-urban, rural remote and maritime).
- Evaluate CPHNs practice and patient health outcomes.
- Investigate how technology, such as telehealth or use of smartphone apps (such as Viber and Facebook), might help CPHNs (and other health workers) to manage long term care, make referrals, and undertake follow-up care.

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Appendices

Appendix A Ethics Approval

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Date: 07 December 2020

Dear Kishan Kumar

Re: Ethics Notification - **NOR 20/08 - Understanding Community Public Health Nurses work in Fiji and the challenges they face.**

Thank you for the above application that was considered by the Massey University Human Ethics Committee: **Human Ethics Northern Committee** at their meeting held on **Thursday, 22 October,**

Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Professor Craig Johnson
Chair, Human Ethics Chairs' Committee and Director (Research Ethics)

Fiji Human Health Research and Ethics Review Committee

MINISTRY OF HEALTH AND MEDICAL SERVICES

Date: 13/07/2020

Mr. Kishan Kumar
School of Nursing
Massey University
New Zealand.

Project Title: "Understanding Community Public Health Nurses work in Fiji and the challenges they face".

FNHRERC Number:	14/2020
Primary Investigator(s):	Mr Kishan Kumar, School of Nursing, Massey University.
Supervisor(s):	Prof Nicolette Sheridan, Massey University, New Zealand.
Co- Supervisor(s):	Dr Alison Pirret, Massey University, New Zealand. Dr Taisia Huckle, Massey University, New Zealand.

Dear Mr. Kumar

This is to inform you that the Fiji Human Health Research Ethics Review Committee (FHHRERC) has granted scientific, technical and ethical **approval** to your proposal titled *"Understanding Community Public Health Nurses work in Fiji and the challenges they face".*

As the Principal Investigator, it is **your responsibility to ensure that all the people associated with this particular project area aware of the conditions of this approval and copy of the final report is also submitted to the Ministry of Health and Medical Services at the conclusion of your project for our records.**

The following conditions apply to your approval. Failure to abide by these conditions may result in suspension or discontinuation of approval and/or disciplinary action.

1. **Variation to the project:** Any subsequent variation s or modifications you may wish to make to your project must be notified formally to the Chair, FHHRERC for further considerations and approval. If the Chair considers that the proposed changes are significant, you may be required to submit a new application for approval of the revised project.

2. **Incidence or adverse events:** Researchers must report immediately to the Chair FHHRERC anything which may affect the ethical acceptance of the protocol including adverse effects on subjects or unforeseen events that may affect continued ethical acceptability of the project. Failure to do so may result in suspension or cancellation of approval.

3. **Monitoring:** Projects are subject to monitoring at any time by the Committee.

4. **Annual/Final Report:** You must submit a progress report at 6 months of your study and an annual/final report at the end of the year or at the conclusion of the project if it continues for less than or more than a year. Also you are to present the evidence back to the participating institutions.

Please quote the FHHRERC number and the name of the project in any future correspondence.

If you have any further queries or require any additional information, please do not hesitate to contact the

Secretariat on telephone: (679) 3306177 ext. 340170 or email: fijihealthresearch@gmail.com .

We wish you all the best in your study.

Dr Eric Rafai
Head of Research Innovation
Ministry of Health and Medical Services

Appendix B Participants Information Sheet

PARTICIPANTS INFORMATION SHEET – SURVEY

PROJECT TITLE:

Understanding the work of Community Public Health Nurses in Fiji and the Challenges, they face.

Introduction: My name is Kishan Kumar and I am a doctoral student in the School of Nursing at Massey University, Auckland, New Zealand. This information sheet is prepared for the purpose of conducting data collection activities within my Doctor of Philosophy degree programme. This is an academic research project aimed to understanding the work of Community Public Health Nurses in Fiji and the challenges they face.

Project brief: As part of the study, I will be conducting a national survey targeted at Community Public Health Nurses working at health centers and nursing stations. This will be the first national survey of Community Public Health Nurses on their contribution to direct patient care, disease prevention and health promotion. The data will assist in highlighting the valuable work of Community Public Health Nurses, difficulties they face, and the educational in-service training they might benefit from.

Invitation: I would like to invite you to participate in my research project titled "Understanding the work of Community Public Health Nurses in Fiji and the Challenges they face." A brief summary of this research project follows. The completion and return of this survey will imply your consent to participate in the study.

Recruitment method: All the community public health nurses in Fiji will be sent a survey questionnaire with a pre-labelled envelope, which will be returned to the researcher. All the data collected will be kept confidential. Your names and EDP numbers will not be asked. Your experience and the work you are doing as CPHNs needs to be recorded and valued. Your participation in this study will be highly appreciated. In return for your time, you will receive a clinical digital thermometer for your contribution to this study which is enclosed with the survey questionnaire.

Participant selection criteria: You are eligible to take part if you are working within one of the following nursing groups: zone nurses, district nurses, maternal child health nurses, family planning nurses, foot care nurses, integrated management of childhood illness nurses, special outpatient nurses, general outpatient nurses, school health nurses, antenatal care nurses,

home-based care nurses and tuberculosis liaison nurses. Nurses working at sub divisional hospitals providing bedside nursing care will not be included in this study as this study is focussed on community nursing only.

Justice and safety: Community Public Health Nurses from all ethnicities and religions are welcome to participate, but must work at a health centre or nursing station. Your participation in this study is voluntary and you will not be paid. The information you share will be safeguarded and will only be used for research purposes. Your anonymity is ensured to minimise risk to you. No personal information will be collected, and all collected information will be kept confidential. No names will be included in the research report as part of the overall results. A summary copy of the final report will be available to you upon request.

Project Procedure: This survey may take 20 to 25 minutes to complete. The survey questionnaire will be distributed from January 2021 to May 2021 to all CPHNs in Fiji. Questionnaires received after the 30th of May 2021 cannot be included in the analysis. This study aims to collect data on the daily work of CPHNs. The researcher does not anticipate any physical or psychological risks from answering the survey questionnaire.

Data Management: Hard copies of the data will be securely stored in a locked cabinet and electronic data will be stored in password protected computers. The transcripts will not include your name or employment number. All your information will be anonymous. After analysing the data, all hard copies will be safely stored at a secure Massey University data storage room for 5 years, and then destroyed in accordance with Massey University regulations. The findings of the study will be presented at nursing forums and a copy of the full thesis will be made available online from the Massey University.

Your Rights: You are under no obligation to accept this invitation. If you decide to voluntarily participate, you have the right to:

- decline to answer any particular question;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your names will not be asked in the survey
- be given access to a summary of the project findings when the study has concluded;

Need assistance to communicate?

If you need any help, please feel free to communicate with me. My contact details are given below.

Researcher: Kishan Kumar
Doctoral candidate, School of Nursing, Massey University, Auckland, New Zealand
E-mail: k.kumar@massey.ac.nz
Phone: +64 [redacted]
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Supervisors

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Dr Alison Pirret School of Nursing – Massey University	Co-supervisor	A.M.Pirret@massey.ac.nz
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Committee Approval Statement

This study is further reviewed and approved by the Fiji Human Research and Ethics Review Committee National Research Ethics Committee, Approval number FNHRERC-14/2020. For any concerns you can contact Dr Eric Rafai, Head of Research Innovation, Ministry of Health Fiji.

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 20/08. If you have any concerns about the conduct of this research, please contact Dr Fiona Te Momo, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x 43347, email humanethicsnorth@massey.ac.nz.

PARTICIPANT INFORMATION SHEET – IN-DEPTH SEMI-STRUCTURED ONLINE INTERVIEWS

PROJECT TITLE:

Understanding the work of Community Public Health Nurses in Fiji and the Challenges, they face.

Introduction: My name is Kishan Kumar, and I am a doctoral student in the School of Nursing at Massey University, Auckland, New Zealand. This information sheet is prepared for the purpose of conducting data collection activities within my Doctor of Philosophy degree programme. This is an academic research project aimed at understanding the work of Community Public Health Nurses in Fiji and the challenges they face.

Project brief: As part of the study, I will be conducting in-depth semi-structured online interviews with CPHNs in Fiji for approximately 35 to 45 minutes. The purpose of the in-depth semi-structured online interview is to seek clarification and verification of CPHNs work at different intervention levels. This study aims at understanding community public health nurses on their contribution to direct patient care, disease prevention and health promotion. Your contribution as CPH nurses will be of great value in shaping community public health nursing in Fiji.

Invitation: I would like to invite you to participate in my research project titled "Understanding the work of Community Public Health Nurses in Fiji and the Challenges they face." A brief summary of this research project is given following.

Recruitment method: Community public health nurses at four different centers will invited to participate in online interviews undertaken by the researcher. All your information collected during the interview will be kept confidential. Your names and employment numbers will not appear in any report. Your participation will be highly appreciated for this study.

Participant selection criteria: The participants will include nurses working as zone nurses, district nurses, maternal child health nurses, family planning nurses, foot care nurses, integrated management of childhood illness nurses, special outpatient nurses, general outpatient nurses, school health nurses, antenatal care nurses, home-based care nurses and tuberculosis liaison nurses. Nurses working at sub-divisional hospitals providing bedside nursing care will not be included in this study as this study is looking and community nursing only.

Justice and safety: Nurses from all ethnicities and religions are welcome to participate who are working as CPHN at health centres and nursing stations. Your participation in this study is voluntary, and you will not be paid. The information you share will be safeguarded and only be used for the purpose of this research. Your anonymity is ensured to minimise risk to you. No personal information will be collected, and all collected information will be kept confidential;

no names will be included in the research report as part of the overall results. A summary copy of the research will be provided to participants on request.

Project Procedure: The in-depth semi-structured online interviews will be undertaken between July to September 2021 in Fiji. This study aims to collect data on CPHNs' daily work; thus, the researcher does not foresee any physical or psychological risks to you. These interviews will be video recorded via zoom. The information being obtained during the interviews relates to the types of interventions undertaken by nurses and the level of population-based practice of those interventions (individual, community or population-based level).

Data Management: Hard copies of the data will be securely stored in a locked cabinet, and electronic data will be stored in password-protected computers. The transcripts will not include your name or employment number. All your information will be anonymous. After analysing the data, all hard copies will be safely stored at a secure Massey University data storage room for five years and then destroyed in accordance with Massey University regulations. The findings of the study will be presented at nursing forums, and a copy of the full thesis will be made available online from the Massey University.

Your rights: You are under no obligation to accept this invitation. If you decide to voluntarily participate, you have the right to:

- decline to answer any particular question;
- withdraw from the study before, during or up to one month after a site visit that included recording observations and field notes.;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used in any reports.
- Be given access to a summary of the project findings when it is concluded;

Need assistance to communicate?
If you need any help, please feel free to communicate with me. My contact details are given below.

Researcher: Kishan Kumar
Doctoral candidate, School of Nursing, Massey University, Auckland, New Zealand
Email: k.kumar@massey.ac.nz
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Supervisors

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Appendix C Participants Consent Form

Understanding Community Public Health Nurses' work in Fiji
and the challenges they face

PARTICIPANT CONSENT FORM – IN-DEPTH SEMI-STRUCTURED ONLINE INTERVIEWS

I have read, or have had read to me in my first language, and I understand the Information Sheet attached. I have had the details of the study explained to me, any questions I had have been answered to my satisfaction, and I understand that I may ask further questions at any time. I have been given sufficient time to consider whether to participate in this study, and I understand participation is voluntary and that I may withdraw from the study before, during or up to one month after the online interview that included later transcription and analysis.

1. I agree to participate in this study under the conditions set out in the Information Sheet.
2. I agree to participate in the observation under the conditions set out in the Information Sheet attached.

Declaration by Participant:

I _____ hereby consent to take part in this study.

Print full name

Signature: _____ Date: _____

Appendix D Survey Questionnaire

FIJI COMMUNITY PUBLIC HEALTH NURSES SURVEY 2021

Please tick your answers

PART 1: Socio Demographic Characteristics, Qualification and Experience

1. Division
   - ☐ Central
   - ☐ Western
   - ☐ Northern
   - ☐ Easter

2. Sub-division
   - ☐ Ba
   - ☐ Bua
   - ☐ Lomaiviti
   - ☐ Cakaudrove
   - ☐ Kadavu
   - ☐ Lakeba
   - ☐ Lautoka / Yasawa
   - ☐ Lomaloma
   - ☐ Macuata
   - ☐ Nadi
   - ☐ Nadroga / Navosa
   - ☐ Naitasiri
   - ☐ Ra
   - ☐ Rewa
   - ☐ Rotuma
   - ☐ Serua/Namosi
   - ☐ Suva
   - ☐ Tailevu
   - ☐ Taveuni
   - ☐ Tavua

3. How do you describe your health setting from which you operate?
   - ☐ Health Centre
   - ☐ Nursing station

4. Are you
   - ☐ Male
   - ☐ Female
   - ☐ Gender Diverse

5. Which ethnic group do you identify yourself with
   - ☐ iTaukei
   - ☐ Fijian of Indian descent
   - ☐ Fijian of Other descent
   - ☐ Other

6. Age
   - ☐ 20 – 24
   - ☐ 25 – 29
   - ☐ 30 – 34
   - ☐ 35 - 39
   - ☐ 40 -44
   - ☐ 45 - 49
   - ☐ 50 – 54
   - ☐ 55 – 59
   - ☐ 60+

7. Which of the following best describes the geographical location of your Community public health nursing practice?
   - ☐ Urban/ Peri Urban (City or town e.g. Suva Nausori Corridor)
   - ☐ Rural (outside main cities or towns e.g. Korovou / Rakiraki)
   - ☐ Remote Rural (interior highlands e.g. Naitasiri, Navosa Nadarivatu)
   - ☐ Maritime (islands)

8. What is your current Primary role? (Please tick only one)
   - ☐ GOPD Nurse Clinic Nurse
   - ☐ IMCI Nurse
   - ☐ ANC Nurse
   - ☐ Family Planning Nurse
   - ☐ MCH Nurse
   - ☐ Zone Nurse
   - ☐ District Nurse
   - ☐ Footcare Nurse
   - ☐ SOPD Nurse
   - ☐ Mental health nurse
   - ☐ Eye care nurse
   - ☐ School Health Nurse
   - ☐ Home based care nurse
   - ☐ Palliative care nurse
   - ☐ TB Liaison Officer

9. What are your other roles? (You can choose more than one)
   - ☐ GOPD Nurse Clinic Nurse
   - ☐ IMCI Nurse
   - ☐ ANC Nurse
   - ☐ Family Planning Nurse
   - ☐ MCH Nurse
   - ☐ Footcare Nurse
   - ☐ SOPD Nurse
   - ☐ Mental health nurse
   - ☐ Eye care nurse
   - ☐ School Health Nurse
   - ☐ Home based care nurse
   - ☐ Palliative care nurse
   - ☐ TB Liaison Officer

10. What is your first nursing qualification?
    - ☐ Certificate in Nursing
    - ☐ Diploma of Nursing
    - ☐ Bachelor of Nursing

11. What is your current nursing qualification?
    - ☐ Certificate in Nursing
    - ☐ Diploma of Nursing
    - ☐ Bachelor of Nursing or Bachelor of Public Health Nursing

12. Do you have a Post Graduate Qualification?
    - ☐ Yes – if Yes go to question 13
    - ☐ No – if No go to question 14
13. What postgraduate qualification(s) do you have? (You can tick more than one)
    - ☐ Post Graduate Certificate/ Diploma in Midwifery
    - ☐ Post Basic Certificate/Diploma in Public Health Nursing
    - ☐ Post Graduate Certificate/ Diploma in Mental Health Nursing
    - ☐ Post Graduate Diploma in Nursing Management
    - ☐ Master of Nursing
    - ☐ Post Graduate Certificate in Public Health
    - ☐ Post Graduate Diploma in Public Health
    - ☐ Post Graduate Diploma in Eye care
    - ☐ Master of Public Health
14. Are you currently studying towards a health or nursing qualification?
    - ☐ Yes – if Yes go to question 15
    - ☐ No – if No go to question 16
15. What is the health or nursing qualification you are enrolled in?
    - ☐ Bachelor of Nursing
    - ☐ Post Graduate Diploma in Midwifery
    - ☐ Post Graduate Diploma in Public Health Nursing
    - ☐ Post Graduate Diploma in Mental Health Nursing
    - ☐ Post Graduate Diploma in Nursing Management
    - ☐ Master of Nursing
    - ☐ Post Graduate Certificate in Public Health
    - ☐ Post Graduate Diploma in Public Health
    - ☐ Post Graduate Diploma in Eye care
    - ☐ Master of Public Health
    - ☐ Masters in Eye care
16. What is your highest level of qualification?
    - ☐ Certificate
    - ☐ Diploma
    - ☐ Degree
    - ☐ Post-Graduate
    - ☐ Masters
17. Number of years nursing experience
    - ☐ Under 2 years
    - ☐ 2-5 years
    - ☐ 6- 10 years
    - ☐ 11- 15 years
    - ☐ 16 – 20 years
    - ☐ 21- 25 years
    - ☐ 25+ years
18. Number of years in Community Public Health Nursing
    - ☐ Under 2 years
    - ☐ 2-5 years
    - ☐ 6- 10 years
    - ☐ 11- 15 years
    - ☐ 16 – 20 years
    - ☐ 21- 25 years
    - ☐ 25+ years
19. Do you have a current job description?
    - ☐ Yes – if Yes go to question 20
    - ☐ No – if No go to question 21
20. Does your current job description reflect what you do in your everyday work?
    - ☐ Yes
    - ☐ No
21. Can you access doctors and or other health experts to help you make clinical decisions?
    - ☐ Yes
    - ☐ No
    - ☐ Sometimes
22. If you have answered No – what are some difficulties in accessing doctors or other experts

_____

_____

_____

23. Do you work alone at your health facility? (Exclude doctor visits)
    - ☐ Always
    - ☐ Sometimes
    - ☐ Never
24. If you are a Zone nurse or District nurse, please answer the following questions.
    - ☐ Population size: _____
    - ☐ Not Applicable **Please continue to Part 2**

PART 2: COMMUNITY PUBLIC HEALTH NURSING ACTIVITIES

	How often do you do this activity? **Surveillance, disease and health investigation, outreach, screening, case finding.**	At least once a day	At least once a week	At least once a month	At least once in 3 months Quarterly	Never	Not Applicable
1	I track children on the MCH register who default immunization and visit them at home to immunise them.						
2	I collect health related data on new cases of disease and report using public health information system						
3	I send quarterly reports to the subdivision for public health information system (PHIS) reporting						
4	I assist screen suspected TB cases that present to my clinic (by EMS or PPD test)						
5	I inspect children for lice and scabies in the community						
6	I provide disaster awareness information to my community						
7	I work with disease outbreak teams on identifying communicable disease cases						
8	I refer clients with life threatening conditions to the doctors that are identified during the outreach programmes						
9	I visit my community to conduct breast examination and provide information on mammography						
10	I work with other stakeholders to facilitate community outreach programs						
11	I conduct pap- smear screening (either VIA or smear method)						
12	I provide wellness screening for my community (BP, CBG, height, weight check)						
13	I conduct voluntary confidential counselling and refer for testing of HIV/ AIDS in my community						
14	I work with the Divisional Wellness Centre to planning screening programmes for my community						
	Delegated functions, case management, referral and follow-up						
1	I provide Integrated Maternal Child health services						
2	I provide direct patient care such as changing dressings and giving injections						
3	I cannulate and put up intravenous fluid if required						
4	I provide syndromic management for sexually transmitted infections						
5	I provide palliative care to my clients						
6	I provide diabetic foot care services to my clients						
7	I use PEN Non communicable disease management protocol for my SOPD clients						
8	I take part in school health programmes to inspect school children and immunise them						
9	I work with the national TB program to plan and implement the DOTS for TB clients in the community						
10	I visit clients after diabetic amputation to teach them dressing techniques						
11	I visit palliative care clients/family to assist with their daily needs						
	How often do you do this activity?	At least once a day	At least once a week	At least once a month	At least once in 3 months Quarterly	Never	Not Applicable
12	I work with clients with diabetes in my community to teach them effective self-management						

13	I work with the Social Welfare Department to ensure that children with special needs get assistance						
14	I visit amputees to assess their home environment and teach them coping skills						
15	I refer community clubs/groups to Red Cross, Diabetes Fiji or Fiji Cancer Society to seek help						
16	I work with community health workers to ensure safe motherhood initiatives.						
17	I work with government and non-government agencies to help older adults in my community						
	Health teaching, counselling, consultation						
1	I provide breastfeeding advise to MCH mothers						
2	I provide health education and advice to SOPD clients on managing complications, i.e. footcare						
3	I teach pregnant mothers about self-care, nutrition and reducing substance abuse						
4	I teach hand washing to schoolchildren						
5	I work with the community women's group on health promoting activities						
6	I teach village health workers about wellness, referring simple cases and collect community health data						
7	I present research findings to my sub divisional teams to strengthen screening programmes						
8	I provide family planning counselling and contraceptives						
9	I provide sexual health advice to the young people in the community who have experienced sexually transmitted diseases						
10	I conduct motivational interviews with my SOPD clients						
11	I take part in village / community meetings to give advice on health issues						
12	I work with other organisations to advise youth groups on suicide prevention						
13	I provide different family planning options to my clients for them to decide and choose from.						
14	I provide community leaders and stakeholders information based on community assessment data						
15	I work with the police department to provide follow-up home visits to domestic violence cases						
	Collaboration, coalition building and community organising						
1	I work with community health workers to assess older adults who are bed ridden and need support						
2	I plan disaster management strategies with my community in collaboration with other government ministries						
	How often do you do this activity?	At least once a day	At least once a week	At least once a month	At least once in 3 months Quarterly	Never	Not Applicable
3	I work with health inspectors and community groups on environmental cleanliness						
4	I work with other government ministries to promote wellness in my community						
5	I have established networks and partnerships with religious groups to promote health						
6	I work with the village youth groups to develop strategies on reducing substance abuse						
7	I help my communities to build partnership with NGOs and other ministries						

8	I conduct family profiling as part of community assessment and diagnosis with village health workers and student nurses						
9	I provide community assessment data back to the community for identifying common problems and draw plans to solve it						
10	I work with my community to seek assistance from other ministries						
11	I contribute towards developing village bylaws to protect and promote health.						
	Advocacy, social marketing, policy development and enforcement						
1	I advocate for older adults in my community who need social welfare support						
2	I help people with mental health issues or people with disabilities to seek assistance from relevant agencies						
3	I visit children with special needs to ensure they get appropriate referral and support						
4	I assist communities to develop projects about, for example, safe water, and waste disposal.						
5	I advocate for the prevention of violence against women and girls at the community level						
6	I invite other health care providers such as the eye team, RHD screening, dental services into my community						
7	I visit pregnant mothers who default clinic to advise them on safe pregnancy						
8	I use social media platforms like Facebook to invite and involve members of the community in health promotion activities						
9	I have a TV in my clinic where I play health promotion videos for the community						
10	I invite media to cover health promotion activities held in my community						
11	I work with the Social Welfare Department to identify and assist in preventing abuse of older adults in my community						
12	I work with schoolteachers /management to enforce the school canteen guidelines						
13	I work with village heads to declare the village community hall as "smoke free"						
14	I work with my community on waste management policies						
15	I work with other stakeholders and ministries to contribute towards policies related to public health						

Part 3: EDUCATION OR TRAINING NEEDS

	Do you need more education or training to do this activity?	Yes	No	Not Applicable
1	Advising mothers on breastfeeding			
2	Assessment and management of mentally ill clients in the community			
3	Assessment of the new-born			
4	Assisting build healthy public policies such as smoke free halls			
5	Birth preparedness plan and complications readiness plan			
6	Booking antenatal mothers			
7	Breast examination			
8	Community Assessment			
9	Community disaster preparedness and risk reduction			
10	Completing Public health information system forms (PHIS)			
11	Complex wound dressing			
12	Conducting small research projects			
13	Conducting clinical audits			
14	Counselling SOPD clients on complications management			
15	Diabetic footcare			
16	Disease outbreak investigation			
17	Family Assessment			
18	Family planning counseling			
19	HIV testing and counselling skills			
20	Immunisation of new-borns (Expanded program on Immunisation)			
21	Implementing healthy canteen guidelines			
22	Implementing healthy settings approach			
23	Integrated management of childhood illness			
24	Intravenous (IV) cannulation			
25	Management of domiciliary cases (homebased care)			
26	Management of emergency cases			
27	Management of sexually transmitted infections			
28	Motivational interviews			
29	Package of essential NCD interventions (PEN) training			
30	Palliative care			
31	Pap-smear screening			
32	Post-traumatic disaster management			
33	Providing Nutritional advise (malnutrition and NCD cases)			
34	Speaking common languages (iTaukei and Fiji Hindi)			
35	Training of village health workers			
36	Referring clients for prostate examination			

We thank you for taking time out to fill this survey questionnaire.

Please find a digital thermometer as an appreciation for completing the survey form.

Appendix E Semi Structured Interview Guide

IN-DEPTH SEMI STRUCTURED ONLINE INTERVIEW GUIDE

Introduction of the study, thank the participant for agreeing to take part in the online zoom semi structured interview. Ensure privacy and confidentiality.

OPENING QUESTION

1. Can you tell me about the main work you undertake in your current role?
2. Can you tell me how your health center / Nursing station works?
3. Can you tell me a little about your experiences as a community public health nurse?

Surveillance, disease and health investigation, outreach, screening, case finding (individual level)

1. What type of data do you report to the Ministry of Health? (e.g., PHIS reports?).
    a. Do you get information from other places? (Prompt: village health workers, police)
2. Can you tell me about being involved in investigating disease outbreaks?
3. Can you tell me how you undertake screening? (Prompt: what conditions? Are there conditions we should screen for?)
    a. Can you give me an example of a person that you had to find – at risk (CD/NCD)?
4. Do you have much book work to do each week or month?

Delegated functions, case management, referral, and follow-up.

1. How much time do you spend on providing direct patient care in a usual day?
    a. Is there work you do that is not in their job description?
2. Do you assist people and families to manage health issues, such as palliative care or diabetic amputations? (Give examples)
    a. Who works with you? (Prompt: (1) NGOs, Government… What do they do? (Give examples – referrals? (2) CHW, VHW, community groups… describe how they work & who with)

Health teaching, counselling, consultation

1. Can you tell me about the health teaching you undertake? (Prompt: who with? Any groups? What topics do you mostly talk about? What about the talks you have with

those who are well to promote health?) Can you tell me about any counselling you undertake? (Prompt: Who? What topics?)

2. Do you consult with other professionals or community leaders? (Prompt: examples - Who? Topic?)

   Do government ministries or other organisations consult with you? (Prompt: on disaster management, school health or village / community meetings, developing policies…)

Collaboration, coalition building and community organising.

1. Who do you work with in your community to get support for patients and their families?
   a. Have you undertaken any community assessments to identify health risks?

2. Who do you work with in your community on projects? (Prompt: examples – community/religious/women's groups and how you developed a coalition or networks?

   a. Can you tell me about any government ministry project you have worked on? (Prompt: other than Ministry?)

Advocacy, social marketing, policy development and enforcement

1. Can you tell me about a time you have had to advocate for a client? (e.g. seeking assistance for a person with a disability?
2. Do use social marketing? Has there ever been a time when you have used Facebook or viber to assist a client?
3. Have you ever been involved in developing a policy? (Prompt: eg. such as a child protection policy or immunization policy…)
4. Can you give me an example of a policy that you have enforced at the individual or community level? (Prompt: School canteen policy, hand washing policy…)

CONCLUDING QUESTIONS so finally…

1. Can you tell me if you do more or less health promotion work today compared to 7 years ago? (Prompt: can you explain why? Is there a trade-off between health promotion and other nurse work, such as direct care?).
2. What do you think the effect of doing more/less health promotion work has on your clients/community? (Prompt: Trade-offs?) What are the greatest challenges you face as a community public health nurse?
3. Is there anything you would like to tell me before we finish this interview?

Thank the participant for his/her time and provide the $7.00 phone credit for data.

Appendix F Direct Patient Care Interventions List

No.	Intervention	Level	Examples from Fiji		Daily	Weekly	Monthly	Quarterly
1	Outreach	Individual/Family	I refer clients with life threatening conditions to the doctors that are identified during the outreach programmes	n	38	81	156	36
				%	12.2	26	50.2	11.6
2	Delegated functions	Individual/Family	I provide direct patient care such as changing dressings and giving injections	n	256	54	55	15
				%	67.4	14.2	14.5	3.9
3	Delegated functions	Individual/Family	I provide palliative care to my clients	n	36	58	142	50
				%	12.6	20.3	49.7	17.5
4	Delegated functions	Individual/Family	I provide diabetic foot care services to my clients	n	68	80	91	37
				%	24.6	29	33	13.4
5	Delegated functions	Individual/Family	I use PEN Non communicable disease management protocol for my SOPD clients	n	53	69	74	34
				%	23	30	32.2	14.8
6	Case Management	Individual/Family	I visit clients after diabetic amputation to teach them dressing techniques	n	17	52	130	44
				%	7	21.4	53.5	18.1
7	Case Management	Individual/Family	I visit palliative care clients/family to assist with their daily needs	n	14	45	149	47
				%	5.5	17.6	58.4	18.4
8	Referral and Follow-up	Individual/Family	I visit amputees to assess their home environment and teach them coping skills	n	5	38	128	73
				%	2	15.6	52.5	29.9
9	Health teaching	Individual/Family	I provide health education and advice to SOPD clients on managing complications, i.e. footcare	n	86	130	111	20
				%	24.8	37.5	32	5.8
10	Counselling	Individual/Family	I conduct motivational interviews with my SOPD clients	n	58	97	99	38
				%	19.9	33.2	33.9	13
11	Collaboration	Individual/Family	I work with community health workers to assess older adults who are bed ridden and need support	n	23	61	160	41
				%	8.1	21.4	56.1	14.4

No.	Intervention	Level	Examples from Fiji		Daily	Weekly	Monthly	Quarterly
12	Advocacy	Individual/Family	I advocate for older adults in my community who need social welfare support	n	15	31	138	102
				%	5.2	10.8	48.3	35.7
13	Advocacy	Individual/Family	I help people with mental health issues or people with disabilities to seek assistance from relevant agencies	n	15	30	154	93
				%	5.1	10.3	52.7	31.8
14	Advocacy	Individual/Family	I visit children with special needs to ensure they get appropriate referral and support	n	11	35	145	65
				%	4.3	13.7	56.6	25.4
15	Case Management	Community	I work with groups with diabetes in my community to teach them effective self-management	n	28	87	164	40
				%	8.8	27.3	51.4	12.5
	Total n				**723**	**948**	**1896**	**735**
	Average n				**48.2**	**63.2**	**126.4**	**49**
	Average %				**15**	**22**	**45**	**18**

Appendix G Disease Prevention and Health Promotion Interventions List

No.	Intervention	Level	Examples from Fiji		Daily	Weekly	Monthly	Quarterly
16	Surveillance	Individual/Family	I track children on the MCH register who default immunization and visit them at home to immunise them.	n	15	48	181	35
				%	5.4	17.2	64.9	12.5
17	Disease and health investigation	Individual/Family	I assist screen suspected TB cases that present to my clinic (by EMS or PPD test)	n	10	20	89	78
				%	5.1	10.2	45.2	39.6
18	Disease and health investigation	Individual/Family	I inspect children for lice and scabies in the community	n	44	63	96	68
				%	16.2	23.2	35.4	25.1
19	Screening	Individual/Family	I conduct pap- smear screening (either VIA or smear method)	n	31	56	101	58
				%	12.6	22.8	41.1	23.6
20	Delegated functions	Individual/Family	I provide Integrated Maternal Child health services	n	189	95	44	10
				%	55.9	28.1	13	3
21	Delegated functions	Individual/Family	I cannulate and put-up intravenous fluid if required	n	94	67	46	26
				%	40.3	28.8	19.7	11.2
22	Delegated functions	Individual/Family	I provide syndromic management for sexually transmitted infections	n	48	52	82	50
				%	20.7	22.4	35.3	21.6
23	Health teaching	Individual/Family	I provide breastfeeding advise to MCH mothers	n	172	149	29	13
				%	47.4	41	8	3.6
24	Health teaching	Individual/Family	I teach pregnant mothers about self-care, nutrition and reducing substance abuse	n	76	123	102	32
				%	22.8	36.9	30.6	9.6
25	Counselling	Individual/Family	I provide family planning counselling and contraceptives	n	150	105	80	17
				%	42.6	29.8	22.7	4.8
26	Counselling	Individual/Family	I provide sexual health advice to the young people in the community who have experienced sexually transmitted diseases	n	48	61	113	69
				%	16.5	21	38.8	23.7
27	Consultation	Individual/Family	I provide different family planning options to my clients for them to decide and choose from.	n	114	114	82	27
				%	33.8	33.8	24.3	8

No.	Intervention	Level	Examples from Fiji		Daily	Weekly	Monthly	Quarterly
28	Social marketing	Individual/Family	I visit pregnant mothers who default clinic to advise them on safe pregnancy	n	5	47	126	58
				%	2.1	19.9	53.4	24.6
29	Social marketing	Individual/Family	I use social media platforms like Facebook to invite and involve members of the community in health promotion activities.	n	17	21	68	45
				%	11.3	13.9	45	29.8
30	Policy development and enforcement	Individual/Family	I work with the Social Welfare Department to identify and assist in preventing abuse of older adults in my community	n	3	13	59	120
				%	1.5	6.7	30.3	61.5
31	Surveillance	Community	I collect health related data on new cases of disease and report using public health information system	n	12	30	253	39
				%	3.6	9	75.7	11.7
32	Disease and health investigation	Community	I provide disaster awareness information to my community	n	10	27	130	107
				%	3.6	9.9	47.4	39.1
33	Outreach	Community	I visit my community to conduct breast examination and provide information on mammography	n	4	34	137	73
				%	1.6	13.7	55.2	29.4
34	Screening	Community	I provide wellness screening for my community (BP, CBG, height, weight check)	n	78	94	136	36
				%	22.7	27.3	39.5	10.5
35	Screening	Community	I conduct voluntary confidential counselling and refer for testing of HIV/ AIDS in my community	n	18	39	88	62
				%	8.7	18.8	42.5	30
36	Delegated functions	Community	I take part in school health programmes to inspect school children and immunise them	n	20	27	74	146
				%	7.5	10.1	27.7	54.7
37	Referral and Follow-up	Community	I refer community clubs/groups to Red Cross, Diabetes Fiji or Fiji Cancer Society to seek help	n	4	12	61	93
				%	2.4	7.1	35.9	54.7
38	Referral and Follow-up	Community	I work with community health workers to ensure safe motherhood initiatives.	n	37	80	159	37
				%	11.8	25.6	50.8	11.8

No.	Intervention	Level	Examples from Fiji		Daily	Weekly	Monthly	Quarterly
39	Health teaching	Community	I teach hand washing to schoolchildren	n	76	123	102	32
				%	22.8	36.9	30.6	9.6
40	Health teaching	Community	I work with the community women's group on health promoting activities	n	12	38	138	84
				%	4.4	14	50.7	30.9
41	Health teaching	Community	I teach village health workers about wellness, referring simple cases and collect community health data	n	14	52	178	43
				%	4.9	18.1	62	15
42	Counselling	Community	I take part in village / community meetings to give advice on health issues	n	9	25	153	74
				%	3.4	9.6	58.6	28.4
43	Consultation	Community	I provide community leaders and stakeholders information based on community assessment data	n	10	27	105	104
				%	4.1	11	42.7	42.3
44	Collaboration	Community	I plan disaster management strategies with my community in collaboration with other government ministries	n	5	6	94	98
				%	2.5	3	46.3	48.3
45	Collaboration	Community	I work with health inspectors and community groups on environmental cleanliness	n	9	46	144	100
				%	3	15.4	48.2	33.4
46	Coalition Building	Community	I have established networks and partnerships with religious groups to promote health	n	6	26	117	108
				%	2.3	10.1	45.5	42
47	Coalition Building	Community	I work with the village youth groups to develop strategies on reducing substance abuse	n	4	18	111	109
					1.7	7.4	45.9	45
48	Community Organising	Community	I conduct family profiling as part of community assessment and diagnosis with village health workers and student nurses	n	9	28	82	131
				%	3.6	11.2	32.8	52.4
49	Community Organising	Community	I provide community assessment data back to the community for identifying common problems and draw plans to solve it	n	2	15	107	122
				%	0.8	6.1	43.5	49.6

No.	Intervention	Level	Examples from Fiji		Daily	Weekly	Monthly	Quarterly
50	Advocacy	Community	I assist communities to develop projects about, for example, safe water, and waste disposal.	n	9	20	121	106
				%	3.5	7.8	47.3	41.4
51	Advocacy	Community	I advocate for the prevention of violence against women and girls at the community level	n	16	23	118	111
				%	6	8.6	44	41.4
52	Social marketing	Community	I have a TV in my clinic where I play health promotion videos for the community	n	18	13	30	14
				%	24	17.3	40	18.7
53	Policy development and enforcement	Community	I work with schoolteachers /management to enforce the school canteen guidelines	n	7	12	63	103
				%	3.8	6.5	34.1	55.7
54	Policy development and enforcement	Community	I work with village heads to declare the village community hall as “smoke free”	n	3	12	68	116
				%	1.5	6	34.2	58.3
55	Policy development and enforcement	Community	I work with my community on waste management policies	n	4	18	103	113
				%	1.7	7.6	43.3	47.5
56	Surveillance	Systems	I send quarterly reports to the subdivision for public health information system (PHIS) reporting	n	1	0	193	192
				%	0.3	0	50	49.7
57	Disease and health investigation	Systems	I work with disease outbreak teams on identifying communicable disease cases	n	11	31	123	100
				%	4.2	11.7	46.4	37.7
58	Outreach	Systems	I work with other stakeholders to facilitate community outreach programs	n	8	33	169	690
				%	2.7	11	56.3	30
59	Screening	Systems	I work with the Divisional Wellness Centre to planning screening programmes for my community	n	6	21	89	93
				%	8.7	18.7	42.5	30
60	Delegated functions	Systems	I work with the national TB program to plan and implement the DOTS for TB clients in the community	n	5	16	71	80
				%	2.9	9.3	41.3	46.5

No.	Intervention	Level	Examples from Fiji		Daily	Weekly	Monthly	Quarterly
61	Case Management	Systems	I work with the Social Welfare Department to ensure that children with special needs get assistance	n	8	27	98	125
				%	3.1	10.5	38	48.4
62	Referral and Follow-up	Systems	I work with government and non-government agencies to help older adults in my community	n	13	21	105	101
				%	5.4	8.8	43.8	42.1
63	Health teaching	Systems	I present research findings to my sub divisional teams to strengthen screening programmes	n	6	17	86	94
				%	3	8.4	42.4	46.3
64	Counselling	Systems	I work with other organisations to advise youth groups on suicide prevention	n	5	18	95	101
				%	2.3	8.2	43.4	46.1
65	Consultation	Systems	I work with the police department to provide follow-up home visits to domestic violence cases	n	6	13	82	94
				%	3.1	6.7	42.1	48.2
66	Collaboration	Systems	I work with other government ministries to promote wellness in my community	n	4	33	127	112
				%	1.4	12	46	40.6
67	Coalition Building	Systems	I help my communities to build partnership with NGOs and other ministries	n	1	10	80	112
				%	0.5	4.9	39.4	55.2
68	Community Organising	Systems	I work with my community to seek assistance from other ministries	n	4	14	95	104
				%	1.8	6.5	43.8	47.9
69	Community Organising	Systems	I contribute towards developing village bylaws to protect and promote health.	n	6	12	92	98
				%	2.9	5.8	44.2	47.1
70	Advocacy	Systems	I invite other health care providers such as the eye team, RHD screening, dental services into my community	n	10	15	121	138
				%	3.5	5.3	42.6	48.6
71	Social marketing	Systems	I invite media to cover health promotion activities held in my community	n	2	4	28	24
				%	3.4	6.9	48.3	41.4

No.	Intervention	Level	Examples from Fiji		Daily	Weekly	Monthly	Quarterly
72	Policy development and enforcement	Systems	I work with other stakeholders and ministries to contribute towards policies related to public health	n	5	10	76	104
				%	2.6	5.1	39	53.3
	Total n				**1513**	**2174**	**5900**	**5229**
	Average n				**27**	**38**	**104**	**92**
	Average %				**9.5**	**14.2**	**41.7**	**34.4**

Appendix H Summary of nurses' work: Health promotion/ disease prevention vs direct care at all levels of intervention by geographical practice locations

			Direct care	Urban/Peri urban				Rural				Remote Rural /Maritime			
			(18 Interventions)	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly
1	Outreach	Individual/ Family	I refer clients with life threatening conditions to the doctors that are identified during the outreach programmes	13	21	65	15	12	29	43	9	13	31	48	12
2	Delegated functions	Individual/ Family	I provide Integrated Management of Childhood illness (IMCI) health services	64	45	27	6	50	27	12	2	75	23	5	2
3	Delegated functions	Individual/ Family	I provide direct patient care such as changing dressings and giving injections	93	29	34	10	71	15	17	3	92	10	4	2
4	Delegated functions	Individual/ Family	I cannulate and put up intravenous fluid if required	34	24	15	14	23	14	12	8	37	29	19	4
5	Delegated functions	Individual/ Family	I provide syndromic management for sexually transmitted infections	19	25	27	18	13	11	26	14	16	16	29	18
6	Delegated functions	Individual/ Family	I provide palliative care to my clients	8	22	60	25	11	20	41	13	17	16	41	12
7	Delegated functions	Individual/ Family	I provide diabetic foot care services to my clients	35	28	38	15	18	22	27	10	15	30	26	12

			Direct care	Urban/Peri urban				Rural				Remote Rural /Maritime			
			(18 Interventions)	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly
8	Delegated functions	Individual/ Family	I use PEN Non communicable disease management protocol for my SOPD clients	20	18	22	16	14	24	22	7	19	27	30	11
9	Case Management	Individual/Family	I visit clients after diabetic amputation to teach them dressing techniques	4	16	49	17	5	18	35	17	8	18	46	10
10	Case Management	Individual/Family	I visit palliative care clients/family to assist with their daily needs	1	16	53	17	2	15	45	17	11	14	51	13
11	Case Management	Community	I work with clients with diabetes in my community to teach them effective self-management	15	29	57	22	7	29	48	13	6	29	59	5
12	Referral and Follow-up	Individual/Family	I visit amputees to assess their home environment and teach them coping skills	1	10	45	31	2	15	38	22	2	13	45	20
13	Health teaching	Individual/Family	I provide health education and advice to SOPD clients on managing complications, i.e. footcare	33	42	47	15	24	48	31	3	29	40	33	2

			Direct care	Urban/Peri urban				Rural				Remote Rural /Maritime			
			(18 Interventions)	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly
14	Counselling	Individual/Family	I conduct motivational interviews with my SOPD clients	26	27	38	20	12	34	31	11	20	36	30	7
15	Collaboration	Individual/Family	I work with community health workers to assess older adults who are bed ridden and need support	6	12	60	18	2	27	49	12	15	22	51	11
16	Advocacy	Individual/Family	I advocate for older adults in my community who need social welfare support	6	10	48	39	6	12	41	31	3	9	49	32
17	Advocacy	Individual/Family	I help people with mental health issues or people with disabilities to seek assistance from relevant agencies	6	13	51	35	6	9	55	26	3	8	48	32
18	Advocacy	Individual/Family	I visit children with special needs to ensure they get appropriate referral and support	4	11	48	26	4	8	54	18	3	16	43	21
		Total n		**388**	**398**	**784**	**359**	**282**	**377**	**627**	**236**	**384**	**387**	**657**	**226**
		Average n		**22**	**22**	**44**	**20**	**16**	**21**	**35**	**13**	**21**	**22**	**37**	**13**

			Health Promotion / Primary Prevention	Urban/Peri urban				Rural				Remote Rural /Maritime			
			(54 Interventions)	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly
19	Surveillance	Individual/Family	I track children on the MCH register who default immunization and visit them at home to immunise them.	9	11	66	10	3	14	57	12	3	23	58	13
20	Surveillance	Community	I collect health related data on new cases of disease and report using public health information system	6	10	100	20	2	11	81	6	4	9	72	13
21	Surveillance	Systems	I send quarterly reports to the subdivision for public health information system (PHIS) reporting	0	0	79	85	0	50	56	58	1	64	51	192
22	Disease and health investigation	Individual/Family	I assist screen suspected TB cases that present to my clinic (by EMS or PPD test)	5	10	40	21	4	5	25	34	3	3	24	23
23	Disease and health investigation	Individual/Family	I inspect children for lice and scabies in the community	9	35	34	22	15	18	30	19	13	17	32	27
24	Disease and health investigation	Community	I provide disaster awareness information to my community	3	10	45	32	7	10	39	33	2	5	46	42
25	Disease and health investigation	Systems	I work with disease outbreak teams on identifying communicable disease cases	3	10	50	35	7	11	31	33	4	7	42	32

			Health Promotion / Primary Prevention	Urban/Peri urban				Rural				Remote Rural /Maritime			
			(54 Interventions)	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly
26	Outreach	Community	I visit my community to conduct breast examination and provide information on mammography	5	10	49	24	11	6	42	18	3	3	46	31
27	Outreach	Systems	I work with other stakeholders to facilitate community outreach programs	4	7	64	38	13	11	50	19	4	2	55	33
28	Screening	Individual/Family	I conduct pap- smear screening (either VIA or smear method)	17	20	36	22	10	24	33	13	4	12	32	23
29	Screening	Community	I provide wellness screening for my community (BP, CBG, height, weight check)	31	32	59	13	24	40	27	10	23	22	50	13
30	Screening	Community	I conduct voluntary confidential counselling and refer for testing of HIV/ AIDS in my community	11	11	31	25	7	12	34	13	0	16	23	24
31	Screening	Systems	I work with the Divisional Wellness Centre to planning screening programmes for my community	3	8	35	33	3	9	30	29	0	4	24	31

			Health Promotion / Primary Prevention	Urban/Peri urban				Rural				Remote Rural /Maritime			
			(54 Interventions)	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly
32	Delegated functions	Community	I take part in school health programmes to inspect school children and immunise them	6	8	26	48	8	14	28	32	6	5	20	66
33	Delegated functions	Systems	I work with the national TB program to plan and implement the DOTS for TB clients in the community	1	6	23	22	1	8	30	26	3	2	18	32
34	Case Management	Systems	I work with the Social Welfare Department to ensure that children with special needs get assistance	3	11	39	51	2	12	27	33	3	4	32	41
35	Referral and Follow-up	Community	I refer community clubs/groups to Red Cross, Diabetes Fiji or Fiji Cancer Society to seek help	3	3	23	41	0	7	23	23	1	2	15	29
36	Referral and Follow-up	Community	I work with community health workers to ensure safe motherhood initiatives.	9	24	67	19	9	30	42	9	19	26	50	9
37	Referral and Follow-up	Systems	I work with government and non-government agencies to help older adults in my community	3	7	40	37	3	10	32	31	7	4	33	33
38	Health teaching	Individual/Family	I provide breastfeeding advise to MCH mothers	77	52	12	8	50	43	10	3	45	54	7	2

			Health Promotion / Primary Prevention	Urban/Peri urban				Rural				Remote Rural /Maritime			
			(54 Interventions)	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly
39	Health teaching	Individual/Family	I teach pregnant mothers about self-care, nutrition and reducing substance abuse	30	38	45	16	20	40	30	10	26	45	27	6
40	Health teaching	Community	I teach hand washing to schoolchildren	19	12	29	43	10	20	31	24	13	9	31	43
41	Health teaching	Community	I work with the community women's group on health promoting activities	4	11	46	33	3	15	37	28	5	12	55	23
42	Health teaching	Community	I teach village health workers about wellness, referring simple cases and collect community health data	5	12	59	19	2	23	55	11	7	17	64	13
43	Health teaching	Systems	I present research findings to my sub divisional teams to strengthen screening programmes	3	1	31	40	2	11	17	25	1	5	38	29
44	Counselling	Individual/Family	I provide family planning counselling and contraceptives	58	33	38	9	44	36	22	4	48	36	20	4
45	Counselling	Individual/Family	I provide sexual health advice to the young people in the community who have experienced sexually transmitted diseases	16	20	43	27	11	23	31	24	21	18	39	18

			Health Promotion / Primary Prevention	Urban/Peri urban				Rural				Remote Rural /Maritime			
			(54 Interventions)	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly
46	Counselling	Community	I take part in village / community meetings to give advice on health issues	4	8	41	27	0	10	43	30	5	7	69	17
47	Counselling	Systems	I work with other organisations to advise youth groups on suicide prevention	1	8	34	30	1	9	28	31	3	1	33	40
48	Consultation	Individual/Family	I provide different family planning options to my clients for them to decide and choose from.	50	27	35	15	33	37	29	5	31	50	18	7
49	Consultation	Community	I provide community leaders and stakeholders information based on community assessment data	4	7	39	29	2	11	27	39	4	9	39	36
50	Consultation	Systems	I work with the police department to provide follow-up home visits to domestic violence cases	2	5	26	40	2	2	30	21	5	3	26	33
51	Collaboration	Community	I plan disaster management strategies with my community in collaboration with other government ministries	1	3	27	31	0	2	30	34	4	1	37	33

			Health Promotion / Primary Prevention	Urban/Peri urban				Rural				Remote Rural /Maritime			
			(54 Interventions)	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly
52	Collaboration	Community	I work with health inspectors and community groups on environmental cleanliness	3	13	44	42	2	23	41	32	4	10	59	26
53	Collaboration	Systems	I work with other government ministries to promote wellness in my community	1	15	39	42	1	10	42	34	2	8	46	36
54	Coalition Building	Community	I have established networks and partnerships with religious groups to promote health	2	10	34	45	0	10	33	37	4	6	50	26
55	Coalition Building	Community	I work with the village youth groups to develop strategies on reducing substance abuse	0	6	37	37	1	8	31	38	3	4	43	34
56	Coalition Building	Systems	I help my communities to build partnership with NGOs and other ministries	0	5	25	43	0	2	27	39	1	3	28	30
57	Community Organising	Community	I conduct family profiling as part of community assessment and diagnosis with village health workers and student nurses	3	14	24	42	3	7	31	36	3	7	27	53

			Health Promotion / Primary Prevention	Urban/Peri urban				Rural				Remote Rural /Maritime			
			(54 Interventions)	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly
58	Community Organising	Community	I provide community assessment data back to the community for identifying common problems and draw plans to solve it	0	4	29	45	0	6	37	38	2	5	41	39
59	Community Organising	Systems	I work with my community to seek assistance from other ministries	2	4	35	33	1	5	35	31	1	5	25	40
60	Community Organising	Systems	I contribute towards developing village bylaws to protect and promote health.	3	4	26	29	1	4	30	33	2	4	36	36
61	Advocacy	Community	I assist communities to develop projects about, for example, safe water, and waste disposal.	3	2	38	36	1	11	40	32	5	7	43	38
62	Advocacy	Community	I advocate for the prevention of violence against women and girls at the community level	5	8	41	40	4	7	41	31	7	8	36	40
63	Advocacy	Systems	I invite other health care providers such as the eye team, RHD screening, dental services into my community	2	7	46	44	2	2	48	39	6	6	27	55

			Health Promotion / Primary Prevention	Urban/Peri urban				Rural				Remote Rural /Maritime			
			(54 Interventions)	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly
64	Social marketing	Individual/Family	I visit pregnant mothers who default clinic to advise them on safe pregnancy	1	7	33	28	2	20	33	17	2	20	60	13
65	Social marketing	Individual/Family	I use social media platforms like Facebook to invite and involve members of the community in health promotion activities	7	1	22	24	4	8	24	9	6	12	22	12
66	Social marketing	Community	I have a TV in my clinic where I play health promotion videos for the community	13	6	14	8	4	3	8	2	1	4	8	4
67	Social marketing	Systems	I invite media to cover health promotion activities held in my community	2	2	14	11	0	0	8	3	0	2	6	10
68	Policy development and enforcement	Individual/Family	I work with the Social Welfare Department to identify and assist in preventing abuse of older adults in my community	2	8	18	37	0	1	26	36	1	4	15	47
69	Policy development and enforcement	Community	I work with schoolteachers /management to enforce the school canteen guidelines	4	5	15	39	1	4	23	28	2	3	25	36

			Health Promotion / Primary Prevention	Urban/Peri urban				Rural				Remote Rural /Maritime			
			(54 Interventions)	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly	Daily	Weekly	Monthly	Quarterly
70	Policy development and enforcement	Community	I work with village heads to declare the village community hall as “smoke free”	2	3	26	32	0	5	19	46	1	4	23	38
71	Policy development and enforcement	Community	I work with my community on waste management policies	0	5	29	35	2	4	35	40	2	9	39	38
72	Policy development and enforcement	Systems	I work with other stakeholders and ministries to contribute towards policies related to public health	1	6	21	39	1	2	27	31	3	2	28	34
		Total n		**461**	**605**	**2021**	**1696**	**339**	**726**	**1776**	**1372**	**379**	**630**	**1913**	**1696**
		Average n		**9**	**11**	**37**	**31**	**6**	**13**	**33**	**25**	**7**	**12**	**35**	**31**

Appendix I Summary of Narrative Review Articles

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
1	Brookes, Davidson et al. (2004) Community health nursing in Australia: A critical literature review and implications for professional development	A review of the community health nurse (CHN) role internationally, with an emphasis on Australia, was undertaken to understand historical precedents and inform policy and strategic directions for the CHN	Australia Community health nurse	Literature Review	N/A	The absence of clear role definitions and clarity of roles. Variability in educational requirements for CHN. Lack of power of CHN in organisational decision-making. Conflicting role expectations between sectors of the health care system. Underutilisation and untapped potential of the role of the CHN in the contemporary health care system. The increasing influence of specialist nurses in community-based care. Uptake of traditional nursing roles by non-nurses. No clearly articulated theoretical or model development of CHN that can articulate with contemporary social, political and economic trends.	Role Definition of CPHN Continuous Professional development Lack of Autonomy Underutilization of CPHN knowledge and skills Specialization from generalist to specialist Contemporary CPHN Role (Activity)
2	Halcomb, Patterson et al. (2006) Evolution of practice nursing in Australia	Describe the evolution of Australian practice nursing and document seminal events in crystallizing the importance of the nursing role in general practice.	Australia Practice nurse	Literature Review	N/A	Strategic directions Professional development Policy and decision–making Research and scholarship Implication for clinical practise	Role Definition of PN CPHN Workforce Characteristics Continuous Professional development Policy and decision-making Leadership

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
3	Foley, Watts et al. (2005) The changing face of nurses in Australian general practice	To describe the workforce characteristics and current responsibilities of nurses working in Australian general practice (GP) settings.	Australia General practice nurse	Cross-Sectional Survey (qualitative and quantitative) 50% from rural and remote Telephone Interview	N= 222	The majority of the general practice-nursing workforce are part-time employees (75.3%) and this was consistent across rural and urban areas. 52.3% have worked in general practice nursing for less than five full-time equivalent years. 26.1% worked in GP for more than 10 years. 64.4% worked with at least one other nurse whereas 35.6% indicated that they worked as sole nurse in their practice. More nurses work alone in metropolitan areas than in rural areas 34.2% of nurses did not take any formal education after registration as a nurse. Others completed undergraduate degrees (7.8%), postgraduate diplomas/certificates (11%) and master's degrees (2%). Attainment of formal education by rural and urban nurses was similar. 94.9% participated in professional development. 51.4% was accessed through in-service conferences, study days, workshops and seminars. The nurse performs a diverse range of activities within the general practice. No substantial differences were found in the workforce characteristics or roles of urban and rural general practice nurses. The core roles were generally the same for rural and urban nurses.	Limitations This study did not look at the gender of nurses in rural More nurses work alone in metropolitan areas than in rural areas – but did not look at the reason for this. The funding model is different – the government pays Fiji MO and Nurses. Volunteer bias volunteers to participate in research studies have some different characteristics, privileges, and lifestyles from those who do not volunteer. GPN Workforce Characteristics Continuous Professional development Activities undertaken by GPN.

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
4	Kemp, Harris et al. (2005) Changes in community nursing in Australia: 1995–2000	Examine the congruence between community nurses' perceptions and the realities of changes in their work.	Australia Community Nursing	Mixed method Design. Four data sources: Community health client administrative data 1995–2000 Occasions of service data 1995–2000 Staffing numbers 1998– 2001 Interviews with 14 community nurses in late 2001	N=14	Documentary evidence shows that there was a large increase in the number of adult clients. Clients are increasingly receiving a shorter, more intensive, clinically focussed service and are then discharged from care, rather than receiving a lower intensity service over a longer period. Staffing numbers have not increased to match this higher acuity and intensity. The nurses, who reported that expanded acute care roles were impacting on their workload and resulting in a loss of holistic primary health care focus, echoed these changes. There has been a lack of leadership and proactive planning by community nurses in response to these changes.	Six-year analysis with mixed method study gives rich data. Triangulation Role Definition of CPHN Shift from primary care to clinical care / Loss of Primary health care focus. Lack of Community Nursing Leadership Staffing Issues Stress-related to job demand

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
5	Hughes and Calder (2006) Developing primary health care nursing in New Zealand	The objectives of the survey were to: • create a snapshot of primary health care and community nursing in 2001 to act as a benchmark for measuring future development of the workforce • create a framework for a gaps analysis to show what was needed to change the nursing workforce to reflect the policies and strategies that guide the development of the health and disability sector in New Zealand • highlight particular issues of concern for nurses practising in primary health care and community settings.	New Zealand Primary healthcare nursing	Cross Sectional study. Survey	N=3562 46% response rate	Nurses have diverse roles Some have more than one role Difficulty in accessing further education. The main barriers were lack of time, finance, relief staff to cover workloads and geographical location. Only 3 per cent indicated that they experienced no barriers to accessing education. Half of primary health care and community nurses indicated that their employer did not offer a clinical career pathway. Nursing management structures and/or leadership roles were unavailable to 34 per cent. Of some primary health care and community nurses, 35 per cent, reported that their work did not include specific strategies targeted at reducing inequalities in health outcomes, while 44 per cent were aware that their work did include such strategies. Of most primary health care and community nurses, 85 per cent, indicated that they were able to work collaboratively with other nurses in their organisation, while 68 per cent were also able to work collaboratively with nurses in other organisations. Similarly, 88 per cent of primary health care and community nurses considered they were able to consult with other community health professionals such as doctors and social workers in their organisations and 68 per cent could consult with health professionals in other organisations.	Role Definition of CPHN Continuous Professional development Strong Internal collaboration Lack of clinical career pathway

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
6	Mills, Birks et al. (2010) The status of rural nursing in Australia: 12 years on.	Status of Australian rural nurses. The role and function of rural nurses are examined, along with a discussion of the importance of a primary healthcare approach in meeting community needs. The influence of social determinants of health is explored in this context.	Australia Rural nurses	Integrative review	N/A	Research into the rural nursing workforce and, in particular, the recruitment and retention of staff are examined, with the high attrition rate of new or novice rural nurses pinpointed as a common theme in these studies Rural nursing, role and function of rural registered nurses, living and working in the same community, the culture of rural health workplaces, anonymity, the rural nursing workforce, legislation and rural nursing and developing and supporting rural nurses	Rural Nursing Roles and Functions – Generalist Rural workplace culture Preparedness for rural nursing Policies on rural nursing Support for rural nursing

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
7	Phillips, Pearce et al. (2009) Enhancing care, improving quality: the six roles of the general practice nurse	To describe the evolving roles of practice nurses in Australia and the impact of nurses on general practice function.	Australia General practice nurse	Multimethod research in two sub-studies: Sub-study 1: Cross-sectional, Sub-study 2: longitudinal Cross-sectional. Observation Photographs Interviews	Sub-study 1: 25 Practices Sub-study 2: 7 Practices.	Identified six roles of nurses in general practice: Patient care, Organiser, Quality controller, Problem solver, Educator and Agent of connectivity. Both nurses and doctors appreciated the first three roles as nursing strengths. Doctors tended not to recognise nurses' educator and problem-solver roles within the practice. The role of the nurse as an agent of connectivity, uniting the different workers within the practice organisation, is particularly notable in small and medium-sized practices, and may be a key determinant of organisational resilience For nurses, “patient care” incorporates both clinical activities and relationships with patients. Nearly half (43.5%) of the observed nurse time was spent in clinical activities: vaccinations; patient education; wound management; chronic disease monitoring and support; Pap smears; tests such as spirometry and electrocardiograms; assisting with procedures; health assessments; and triage	Role Definition of CPHN Direct Care Verses Primary Prevention and Health Promotion

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
8	Coyle, Al-Motlaq et al. (2010) An integrative review of the role of registered nurses in remote and isolated practice.	To examine the role of the registered nurse in remote and isolated areas of Queensland, the Northern Territory, South Australia and Western Australia; and to illustrate the impact of the burden of disease on nursing practice. Too many roles and functions – will have to read again and pull papers from the references.	Australia Registered nurse	Integrative review	N/A	Profile: Mainly Female, ageing workforce. The many and varied duties required of a registered nurse in remote and isolated areas can be broadly classified under four headings: Clinical, Health education and promotion, Administration and General. Clinical duties include providing care in emergency, antenatal and midwifery, infant health, child and adolescent health, women's and men's health, mental health and aged care. Registered nurses in these practice contexts may also be required to assist with palliative care and chemotherapy. Preparation and orientation for nursing in remote and rural areas. Poor health-related data collection on determinants of health.	Rural Nursing Roles and Functions – Generalist Direct Care Verses Primary Prevention and Health Promotion Role Remote nurses' role Orientation of PHCN Population Health Data on Determinants of Health

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
9	Joyce and Piterman (2011) The work of nurses in Australian general practise: A National Survey.	Describe the patient consultations of nurses in Australian general practice, including patient characteristics, reasons for the consultation, treatments provided and other actions taken.	Australia General practise	Cross-sectional. Survey	5253 RN Encounters. (50/ RN)	The final data set included 5,253 nurse-patient encounters. 37.2% of patients were aged 65 and over, and 57.1% were female (95% CI 54.9–59.5). The majority of encounters (90.7%) were with existing patients of the practice (95% CI 89.1–92.7). The most common reasons for the encounter were general and unspecified problems (35.4 per 100 encounters; 95% CI 31.8–39.1), followed by skin-related problems (20.0; 95% CI 17.3–22.8), and cardiovascular problems (11.0; 95% CI 8.7–13.3). Common management actions included medical examinations (20.7 per 100 encounters), immunisations (22.5), diagnostic tests (10.6), and dressings (15.8). Approximately 30% of encounters involved advice-giving.	Role Definition of CPHN Activities of General practise nurses.
10	Keleher, Parker et al. (2010) Preparing nurses for primary health care futures: how well do Australian nursing courses perform?	Audit of all undergraduate nursing curricula to examine the extent of professional socialisation and educational preparation of nurses for primary health care.	Australia Primary health care nurses	Audit	38 pre-registration undergraduate Bachelor-level nursing Courses.	Lack of coverage on health promotion and prevention interventions. Inconsistent teaching approach. Most courses introduce learning about primary health care in the first year with some reinforcing the learning in the third year. Primary care, primary health care, prevention or health promotion competencies are not clear on the skills and knowledge for new graduates for a career in primary care and health promotion.	Primary health care components in the undergraduate program Knowledge and skills for Primary Health care practice.

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
11	Lenthall, Wakerman et al. (2011) Nursing workforce in very remote Australia, characteristics and key issues.	To describe the nursing workforce in very remote Australia, characteristics and key issues.	Australia Remote nursing workforce	Cross-sectional. Survey and Existing data	N/A	The registered nursing workforce in very remote Australia is mostly female (89%) and ageing, with 40.2% 50 years or over, compared to 33% nationally. Many (43%) are in remote Indigenous communities. There has been a significant decrease in registered nurses with midwifery qualifications (55%) and in child health nurses (39%) in very remote Australia. Only 5% have postgraduate qualifications in remote health practice.	Workforce/staffing issues – Age Decrease in specialised nurses in Public health – Midwifery / Child health nurses Education – Qualification of CPHN
12	McKinlay, Clendon et al. (2012) Is our focus, right? Workforce development for primary healthcare nursing	Explores the workforce development needs of experienced PHC nurses in a provincial area of New Zealand.	New Zealand Primary healthcare nursing	Mixed methods Study Focus group interviews and survey	N=31	Participants noted changes to their roles in the last three years which included new areas of clinical and workforce development. Participants in both focus groups largely focused on structural and organisational barriers to PHC workforce development. Key education needs were: leadership skills, computer skills, patient education approaches, advanced assessment, evidence-based practice documentation, report writing, and political/strategic engagement.	Role Definition of CPHN – New Roles Continuous Professional Development Needs Lack of CPHN Leadership Knowledge and skills for Primary Health care practice and development of national competencies for PHC nurses.

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
13	Keleher and Parker (2013) Health promotion by primary care nurses in Australian general practice	Investigated primary care nurses' perceptions of their current and potential roles in health promotion in general practice settings.	Australia Primary care nurses	Cross-sectional. Survey	N=54	Health promotion practices of primary care nurses were most commonly in the downstream realm of disease prevention and health education. Nurses aspired to take on roles in more upstream work of partnerships and collaboration. Nurses' opportunities are undoubtedly constrained by both the general practice setting and their educational preparation. Participants were very positive about the opportunities that their role and position offered for the expansion of their health promotion work.	Direct Care Verses Primary Prevention and Health Promotion Role More individual health education and prevention work Need for health promotion competencies Constraints from employer and practice setting Continuous Professional Development (downstream and upstream Health Promotion)

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
14	Henderson, Koehne et al. (2014) How is Primary Health Care conceptualised in nursing in Australia? A review of the literature.	A review of Australian nursing literature was undertaken for 2006–2011. This review explores three issues about these changes: How PHC is conceptualised within Australian nursing literature; who is viewed as providing PHC; and barriers and enablers to the provision of comprehensive PHC.	Australia Primary health care nurse	Literature Review	N/ A	The terms 'PHC' and 'primary care' are used interchangeably and practice nurses are now commonly associated with services provided by PHC. Four structural factors are identified for a shift away from comprehensive PHC, namely fiscal barriers, educational preparation for primary care practice, poor role definition and inter-professional relationships.	Role Definition of PHCN Role of PN and definitions of PHC Continuous Professional Development – Educational Barriers
15	Annells (2007) Where does practice nursing fit in primary health care?	Explore where practice nursing fits with the primary health care setting and explore how this fit may impact the Australian population and the nursing profession.	Australia Practice nursing	Opinion Paper	Not applicable	Wound care was the most common activity reported by Australian practice nurses Is the paramount issue whether various types of community nursing survive or whether community-dwelling people have their health care needs addressed well?'	Role Definition of PN Direct Care Verses Primary Prevention and Health Promotion Role

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
16	Halcomb, Salamonson et al. (2014) The evolution of nursing in Australian general practice: a comparative analysis of workforce surveys ten years on	Describe the current demographic and employment characteristics of Australian nurses working in general practice and explore trends in their role over time.	Australia General practise nurse	Cross-sectional. Survey	First survey: N=284. Second survey: N=235.	The initial study demonstrated that practise nurses' core roles were clinical such as wound dressing and immunisation. Significantly, more participants in Study 2 were undertaking follow-ups of pathology results, physical assessment and disease-specific health education. The only clinical activity that was reportedly significantly less frequently undertaken was counselling for mental health issues which nurses rated themselves as less confident. There was also a statistically significant increase in the participants who felt that further education/training would augment their confidence in all clinical tasks ($p < 0.001$). More participants perceived a lack of space, job descriptions, confidence to negotiate with general practitioners and personal desire to enhance their role as barriers. Access to education and training as a facilitator to nursing role expansion increased between the two studies. The level of optimism of participants for the future of the nurses' role in general practice was slightly decreased over time.	Role Definition of GPN Barriers to role development Facilitators of role development Continuous Professional Development and role expansion

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
17	Roden, Jarvis et al. (2015) Australian rural, remote and urban community nurses' health promotion role and function	Research Hypothesis 1: Community nurses will put more emphasis on the Ottawa Charter action area of DPS (Whitehead, 2011), rather than being associated with all action areas of the Ottawa Charter. Research Hypothesis 2: Community nurses with higher qualifications/or higher educational levels will have more positive attitudes towards health promotion in their work than those community nurses with lower qualifications/or lower educational levels. Research Hypothesis 3: Urban community nurses will demonstrate more positive attitudes and behaviours towards their current health promotion role than rural and remote community nurses.	Australia. Community Nurses	Sequential mixed methods Survey and qualitative exploratory interviews	Urban N=100 Rural & Remote N= 49 Total=149 Community Nurses	Rural and remote nurses had more positive attitudes towards health promotion and its clinical implementation. Survey and interview data confirmed that urban community nurses had a narrower focus on caring for individuals rather than groups, agreeing that time constraints impacted their limited health promotion role. There was agreement about the lack of resources (material and people) to update health promotion knowledge and skills. Rural and remote nurses were more likely to have limited educational opportunities. Nurses indicated their health promotion role largely related to developing personal skills Building healthy public policy was the least popular health-promoting behaviour by nurses. Nurses felt they were not well prepared for the health promotion role.	Continuous Professional development (limited educational opportunities) Lack of resources The role of community nurses in health promotion Health Promotion Focus on Individuals rather than Community

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
18	Halcomb and Ashley (2019) Are Australian general practice nurses underutilised? An examination of current roles and task satisfaction	Describe trends in general practice nurse clinical activities, the extent to which GPNs use their knowledge and skills and their satisfaction with the general practice nurse role.	Australia. General practice nurses	Cross-sectional Online Questionnaire	N=950	Participants reported undertaking activities related to health promotion and chronic disease management more frequently now than previously. Desire to spend the same or less time on administrative activities and more time on health promotion, patient education and patient assessment. Nearly half of the participants reported that often they feel that they could do more, or most of the time they do not use their skills to the full extent. Most participants (n=684; 73.7%) reported that the focus of their primary job was direct patient care, with a further 12.6% (n=117) identifying that they focussed on direct patient care within a specialised area of practice.	Direct Care Verses Primary Prevention and Health Promotion Role
19	Smith (2000) Community nursing and health care in the twenty-first century Janine Smith	Interviews were conducted to determine what changes had occurred in their practice within the five years from 1992 to 1997.	Australia. Generalist community nurses	Qualitative Interviews	N =40	Devaluing of ethical nursing practice by policies, which reward efficient economic management. Restructuring of the community health program Power and control exerted by dominant interests over the work of generalist community nurses serve to deny the interests of the needy in the community. An underlying problem is the way that the primary health role and practice of generalist community nurses are perceived by policy-makers and administrators.	Direct Care Verses Primary Prevention and Health Promotion Role Increase in direct complex care

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
20	(Smith 2002) The changing face of community and district nursing	Documented the changing face of community and district nursing.	Australia. Community and district nursing	Opinion Paper	N/A	Community-based nurses or district nurses have traditionally provided nursing care such as assisting with activities of daily living, medication management, diabetes care, continence management, wound management, palliative care and dementia management in people's homes. The length of stay used to be 10-14 days only a few years ago. These clients require wound observation, removal of sutures/staples at home, occasional intravenous antibiotics and wound care if dehiscence occurs. Other cases which require long-term care discussed include pulmonary tuberculosis, complex, wound care, and care of diabetic clients.	Role Definition of Community and District Nursing Direct Care Verses Primary Prevention and Health Promotion Role Increase in direct complex care

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
21	Halcomb, Davidson et al. (2007) Strategic directions for developing the Australian general practice nurse role in cardiovascular disease management.	Identify priority recommendations to inform the strategic development of the practice nurse role	Australia Practise Nurses	Mixed methods Survey Interview	Not Known	The development of this role was recognised as being important to managing the growing prevalence of chronic and complex diseases that created an increasing demand for general practice services and medical workforce shortages, which have clear implications for service availability. Practice nurses are currently providing recall and reminder services for regular health issues such as immunisation, asthma assessments and cholesterol management. Participants agreed that systematic follow-up is problematic due to resource constraints inherent in a purely medical model of general practice. Participants agreed that social, political and economic factors are primed to explore changes in the configuration of primary care delivery in Australia to improve the management of CVD. It was considered that during this crucial phase in practice nurse role development, there would be a need to expand the range of available nursing services. This service expansion could increase the availability, accessibility and quality of services available to consumers.	Staffing and HR issues List of activities and service expansion

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
22	Halcomb, Davidson et al. (2008) Cardiovascular disease management: time to advance the practice nurse role?	Identifies and explores the factors cited by practice nurses as impacting on the development of their role in cardiovascular disease management.	Australia Practise Nurses	Sequential mixed methods Survey telephone interviews	survey (n=284) and telephone interviews (n=10)	The most commonly cited barriers to role extension were legal implications (51.6%), lack of space (30.8%), a belief that the current role is appropriate (29.7%), and general practitioner attitudes (28.7%). The most commonly cited facilitators of role extension were collaboration with the general practitioner (87.6%), access to education and training (65.6%), the opportunity to deliver primary health care (61.0%), a high level of job satisfaction (56.0%) and positive consumer feedback (54.6%).	Barriers and facilitators of role expansion

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
23	Halcomb, Davidson et al. (2008) Nurses in Australian general practice: implications for chronic disease management.	Describe the demographic and employment characteristics of Australian practice nurses and explore the relationship between these characteristics and the nurses' role.	Australia Practise Nurses	Sequential mixed method design	N=284 practice nurses	Most participants were female (99%), Registered Nurses (86%), employed part-time in a group practice, with a mean age of 45.8 years, and had a hospital nursing certificate as their highest qualification (63%). The tasks currently undertaken by participants and those requiring further education were inversely related. Conversely, tasks perceived to be appropriate for a practice nurse and those currently undertaken by participants were positively related. There was a mismatch between the number of participants who perceived that a particular task was appropriate and those who undertook the task. This disparity was not completely explained by demographic or employment characteristics. Extrinsic factors such as legal and funding issues, lack of space and general practitioner attitudes were identified as barriers to role expansion. Practice nurses are a clinically experienced workforce whose skills are not optimally harnessed to improve the care of the growing number of people with chronic and complex conditions. A need to overcome the funding, regulatory and interprofessional barriers that currently constrain the practice nurse role. Expansion of the practice nurse role is a useful adjunct to specialist management of chronic and complex disease, particularly within the context of contemporary policy initiatives.	Workforce Characteristics List of Activities Barriers and facilitators of role expansion

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
24	Cioffi, Wilkes et al. (2007) Community Nursing Care for Clients with Chronic and Complex Conditions	Investigates a community nursing service in an area health service in greater western Sydney in which 8.4% of the total population was aged. Identifies the care clients with chronic and complex conditions receive from community nurses.	Australia Community Nurses	Descriptive study		Seventy-seven per cent of the clients who received these occasions of service were 60 years and over. Males (58%) received more services than females with three-quarters of the occasions of service being to clients born in Australia or an Oceania country. Slightly more than a third of the occasions of service resulted from referrals from public hospitals (37%) with the remaining being made mostly by community-based services. Ranked from highest to lowest the top ten primary diagnostic groups as assessed by occasions of service were carcinoma, skin disorders, frail age, central nervous system disorders, musculoskeletal disorders, respiratory disorders, renal & and genitourinary, circulatory, gastrointestinal and endocrine disorders. The most common diagnoses are dementia in the frail aged group, Multiple Sclerosis in CNS disorders, Chronic Airways Disease in respiratory disorders, and Diabetes Type 1in endocrine disorders. The most common nursing care received by all clients in this study consisted of wound care, a direct care activity or an assessment. Only 1% of care recorded was indirect. Clients with chronic and complex conditions who were 80 years and over received more occasions of service involving follow-up and case management with the 60-to-79-year age group receiving more occasions of service involving assessment, stoma/tube care and intake/triage.	List of Activity Direct care role Specialist Nurses working in PHC

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
25	Cumming, Boreland et al. (2012) Do rural primary health care nurses feel equipped for palliative care?	Explore the experiences of these nurses and determine how personally and professionally equipped they felt for palliative care service provision	Australia Primary health care nurses	Cross-sectional Qualitative	N=34	Most respondents had considerable nursing experience in rural and remote settings. Almost 90% were registered nurses, three-quarters had spent more than 20 years in the role and 40% had worked in such settings for more than 20 years. Two of 34 nurses had a palliative care qualification (graduate certificate), and 88% juggled six or more PHC roles All but one respondent was required to provide palliative care.	Role expansion (Palliative care role) Barriers to education Mode of education
26	Colquhoun, Ogaoga et al. (2012) Child health nurses in the Solomon Islands: lessons for the Pacific and other developing countries.	Understand the roles of nurses with advanced training in paediatrics in the Solomon Islands and the importance of these roles to child health. To understand how adequately equipped child health nurses feel for these roles, to identify the training needs, difficulties and future opportunities.	Solomon Islands. Child Health Nurses	Qualitative Study Semi-structured interviews.	N=21	All nurses were currently employed in teaching, clinical or management areas. At least one or two nurses were working in each of 7 of the 9 provinces; in the two smaller provinces, there were none. Many nurses were sole practitioners in remote locations without backup from doctors or other experienced nurses; all had additional administrative or public health duties. Child health nurses in the Solomon Islands fulfil vital clinical, public health, teaching and administrative roles. Currently, they are too few in number, and this is a limiting factor for improving the quality of child health services in that country. Current methods of training require overseas travel, are expensive, lack relevance, or remove nurses from their workplaces and families for prolonged periods. A local post-basic child health nursing course is urgently needed, and models exist to achieve this.	Barriers to education Rural and Remote Nursing

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
27	Louise Shepherd (2011) Behind the scales: Child and family health nurses taking care of women's emotional wellbeing	Explore the nature of child health nurses' home visiting practices and how they address the health and well-being of mothers.	Australia. Child health Nurses	Qualitative Study Observations interviews	N/A	The tension between the nurse's role in caring for the baby and taking care of women's emotional health and well-being emerged as a major theme. Manifest and latent functions are used to describe the nature of community child health nurses' practice where nurses covertly address the health and well-being needs of the mother via the overt function of monitoring the child's health and development. Nurses often use a focus on the baby to address women's emotional health and well-being.	List of activities Roles of CPHN.
28	Happell, Gaskin et al. (2013) The activities that nurses working in community mental health perform a geographical comparison.	The primary aim of the present study was to identify the activities that nurses in community mental health services undertake.	Australia Community mental health nurse	Record Review	N=252	Nurses spend most of their time performing Clinical care (78%), followed by Clinical organisation (12%), mental health Administration (6%) and Integration activities (4%). There were minimal differences Between treating units located in metropolitan, rural and remote areas in terms of the numbers of consumers receiving care, the time nurses spent with consumers, the types of nursing activities undertaken, and the amounts of time spent on each of the four types of nursing activities.	List of activities

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
29	Naduva (2007) Geriatric Assessment during Health Promotional Home Visits by Zone Nurses of the Suva Subdivision, Fiji	explore current Geriatric Assessment Practice (GAP) amongst the zone nurses of the Suva subdivision during health promotional home visits	Fiji Zone Nurses	Cross-sectional study Survey	N=23	Overall, the geriatric assessment practice of nurses is poor. Nurses had little awareness of assessment procedures and they constitute. The lack of a standard geriatric assessment protocol that can be used by all zone nurses is evident.	Roles of CPHN in Fiji
30	Fraser, Hutchinson et al. (2016) Nurses' experiences of home visiting new parents in rural and regional communities in Australia: a descriptive qualitative study	The purpose of this paper is to examine the way CAFH nurses work within a universal health service model that may be compromised by isolation, discontinuity and fragmentation. Child and family health (CAFH) services	Australia Child and family health Nurses	Qualitative Study	N=26	The majority worked in rural areas Family centred service Responsibility for family welfare Safety – the rural and regional experience	Roles and Definition of CPHN Rural and remote nursing

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
31	Snow, Vodstrcil et al. (2013) Introduction of a sexual health practice nurse is associated with increased STI testing of men who have sex with men in primary care	Investigate the effect of the introduction of a sexual health practice nurse on HIV and STI testing in a general practice that specialises in gay men's health.	Australia. Sexual health practice nurse	Observational study	N/A	In Clinic A, amongst HIV-negative MSM the proportion of men who had a complete set of HIV and STI tests increased from 41% to 47% ($p<0.01$) after the nurse was introduced. Amongst HIV-positive MSM attending clinic A there was an increase in the proportion of men who had a complete set of tests after the nurse was introduced from 27% to 43% ($p<0.001$). In Clinic B, there was no significant increase in testing in the proportion of either HIV-negative or HIV-positive men who had a complete set of tests over the same periods. The introduction of the sexual health practice nurse resulted in significant increases in episodes of complete STI testing among MSM. The effect was most pronounced among HIV-positive MSM.	Roles and Definition of CPHN
32	Rokkas, Cornell et al. (2014) Disaster preparedness and response: Challenges for Australian public nurses – A literature review.	This paper aims to highlight issues currently facing disaster nursing and focuses on the challenges facing Australian public health nurses preparing for and responding to disasters within Australia.	Australia. Public health nurses	Literature Review	N / A	The results from the literature review are presented within five subsections: nurses and disasters. community nurses and disasters public health nurses and disasters Australian public health nurses; and Public health nurses and disaster directions.	Roles and Definition of CPHN

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
33	Tanabe, Yanagisawa et al. (2019) Identifying characteristic features of community orientation among community health nurses in Fiji	Identify detailed characteristics of community orientation among community health nurses in Fiji.	Fiji Community Health Nurses	Qualitative Study	N=20	Three main themes described in detail characteristics of community orientation among community health nurses in Fiji: Trusting Relationships, Commitment and Activity Management. Trusting Relationships and Commitment were interrelated and served as foundations for community orientation that promoted and facilitated Activity Management. Reflection and a sense of self-accomplishment in the CHN experiences during Activity Management further strengthened Commitment and Trusting Relationships. Community orientation leads to a superior understanding of community health needs, effective use of resources and increased community participation in activities. Such activity management will contribute to promoting health beyond the individual, extending to entire communities.	Role of Community Public Health Nurses in Fiji. Activities implementation
34	Halcomb, McInnes et al. (2022) Australian general practice nurse involvement in mental health: A descriptive survey	To explore the attitudes of general practice nurses about depression and investigate their current roles in mental health care.	Australia.	Cross-sectional online survey	N=104	General practice nurses are open to participating in educational programs aimed at enhancing their expertise, abilities, and proficiency in mental health care. The respondents expressed their observation of a growing trend of individuals seeking help for mental health concerns at GP clinics.	Education and training. Service change.

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
35	Kagi, Rasiah et al. (2023) Experiences of Primary Health care nurses advancing their careers in a Remote Western Australian location	The objective of the study was to explore the experiences of primary health care nurses advancing their careers in a remote location in western Australia.	Australia.	A qualitative interpretative phenomenological study	N= 6	nurses faced the challenge of managing their professional responsibilities while also fulfilling family care obligations in a remote location without extended family support. They attempted to strike a balance between advancing their careers and maintaining a fulfilling family life but found limited career advancement opportunities in their local setting. Obtaining professional development opportunities in remote settings proved to be difficult. Participants struggled to find time during their working hours and family commitments to engage in such activities. Nurses felt unsupported by their workplace colleagues and received limited backing from their employers	Challenges of training and professional development.
36	McCullough, Whitehead et al. (2020) The delivery of Primary Health Care in remote communities: A Grounded Theory study of the perspective of nurses	The study described and explained from the perspective of nurses, the actions and interactions involved in the delivery of Primary Health Care in remote communities.	Australia.	Qualitative constructivist grounded theory study	N=24	The inability to provide primary health care was dependent on four main conditions which included the level of clinical knowledge and skill, the availability of resources, their understanding of the social world. Nurses describe their role as a coordinator of care that facilitates access to health services in the remote setting. Primary Health Care activities required more time and resources than attending to acute care only. Therefore, nurses compromised on the extent to which they provided Primary Health Care based on their capacity".	CPHN Role what they did and what they were not able to do.

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
37	McCullough, Bayes et al. (2022) Nursing in a different world: Remote area nursing as a specialist-generalist practice area	This paper aims to describe and explain from the perspective of nurses the actions and interactions used to deliver primary health care in remote communities.	Australia.	Qualitative study	N =24	Remote area nursing demands unique knowledge and skills compared to other nursing settings. Remote area nursing is a specialist-generalist role, highlighting the necessity for further investigation into the educational and support requirements of remote nurses.	Specialist-generalist role
38	Daly, Arroll et al. (2020) Improved foot management of people with diabetes by primary healthcare nurses in Auckland, New Zealand	Evaluate trends in foot examinations for people with diabetes by primary healthcare nurses between 2006 – 2008 and 2016 in Auckland New Zealand.	New Zealand.	Survey	2006 N=287 2016 N=336	Practice nurses have experienced a significant expansion in their role in managing individuals with diabetes over the past decade. This expansion has been evidenced by an increase in the number of foot examinations conducted and the provision of recommended foot-care education. The study found a positive correlation between improved foot care management and nurses who attended diabetes education within the last five years.	Role expansion

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
39	Blay, Sousa et al. (2022) The community nurse in Australia. Who are they? A rapid systematic review	This study aimed to profile the community nurse in Australia.	Australia.	Systematic Review	N= 21	The activities carried out by Primary and Community nurses, as described in published literature, were classified into six distinct nursing workforce categories. These categories are administration (involving general and administrative tasks), direct care (activities directly linked to patient care), indirect care (activities indirectly related to patient care), communication (involving interactions with other health professionals, patients, or carers), documentation (updating or completing nursing or unit-related documentation through any medium), and other (comprising activities not previously identified) The majority of identified activities were direct care (n=39), followed by administration (n=6), communication (n=5), indirect care (n=5), other (n=5) and documentation (n=3). Wound care was the nursing activity most frequently identified.	Activities of CPHNs.

No.	Reference	Aim of the study	Country	Design /data collection method	Sample Size	Significant findings	Themes generated for discussion
40	Rina Pijpker and Jill Wilkinson (2019) Experiences of district nurses working with people with spinal cord injury in the community: A descriptive account	The study aimed to generate a descriptive account of the experiences of district nurses working in an urban community with people with spinal cord injuries.	New Zealand.	Qualitative descriptive study	N=3	District nurses working with people with spinal cord injuries revealed three major themes. Firstly, task-based role where district nurses visited spinal patients for two or three hours to complete tasks such as bladder washouts, catheter changes, bowel management and pressure injury management. Secondly, their complex roles such as working with community services, acted as "go-between" advocating for people with spinal injuries with mental health providers and general practitioners. And lastly, barriers to providing care to patients with spinal cord injury included "a lot to achieve in one visit" and "juggling" workloads to meet all patient's needs. Other barriers discussed included failure to reactivate district nursing services on discharge at times and there was no education for nurses and support staff on caring for people with spinal cord injuries.	Activities of CPHNs.