The Lived Experience of Australian Public Health Nurses' Roles in Disasters

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SUMMARY

Disasters are increasing their impact on Australian communities, challenging the surge capacity of local and national health systems and simultaneously challenging the nursing profession to (re)consider their disaster roles and functions. While nurses are considered to be 'frontline' workers in disasters, minimal research has been undertaken within Australia regarding public health nurses' disaster roles in the out-of-hospital setting. Perspectives on their actual disaster experience and what a disaster means to this group of nurses are therefore largely unknown. This study explores the lived experience of Australian public health nurses' disaster roles to further understand what this may mean for disaster nursing practice.

An interpretative qualitative approach using hermeneutic phenomenology was adopted to investigate the research question. A hybrid methodology combined the hermeneutic phenomenology of the philosophers Martin Heidegger and Hans-Georg Gadamer. Eighteen nurses from five different States within Australia, who identified as being public health nurses, were interviewed by the researcher. The interviews explored these nurses' personal experiences regarding their roles in disasters; their perspectives and understandings of being a public health nurse in a disaster, and the meanings they drew from this.

The participants' narratives were analysed using the thematic data analysis process offered by Max van Manen, and engagement in a hermeneutic dialogue, informed by Gadamer. The research found that the public health nurses' understanding of their roles in disasters remained innately connected to and informed by their culture of nursing, but was also expanded by their broader purview of care in the community. The salient theme and the main finding identified was having a *public health mind.* This refers to the specific way of thinking these nurses had adapted from their backgrounds in nursing to address the spatial challenges concomitant with providing disaster nursing preparedness and response at the population level of health. Quintessentially, having a *public health mind* was found to be the public health nurse worldview for their nexus of care, their *dasein* - as protectors of their communities at the population level of health. This theme was central to understanding how they experienced their roles in disasters. The remaining themes all revealed the public health nurses' adherence to the key public health mandate of protection and prevention through: being *sentinels*, *making sure*, being *advocates*, being *bridges* and *connectors,* being *adaptors,* and being *unknown protectors.*

This research provides insight into understanding how Australian public health nurses' experience their disaster roles through their unique worldview of a *public health mind*. This particular way of thinking presents an opportunity to (re)consider disaster nursing education and practices. It may be used as a different way to educate public health nurses to understand their own roles, and also to promote their roles to other disaster responders and relief agencies.

This research presents a deep inquiry into the meanings and perspectives which inform and underpin public health nurses' experiences of their roles in disasters. Ultimately gaining an understanding of these experiences provides an opportunity for more informed disaster planning, education and disaster policy making for this group of nurses in the out-of-hospital setting.

DECLARATION

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Signed:

Date: 02 May 2016

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PROLOGUE

Genesis of the research issue – understanding the researcher

This research is built on the hermeneutic phenomenology and the philosophical thinking of Hans-Georg Gadamer and Martin Heidegger. My approach to the research question is based on their philosophical constructs and reasoning regarding the essence of knowledge and subjective experience in the world. I therefore selected a research method which remained true to these philosophical concepts and which provided a unique view into the lifeworld of a public health nurse from a phenomenological perspective. Implicit within the 'specific method' I selected for my research enquiry, is a requirement to remain vigilant to my 'historicity', my preconceptions regarding the research question, since this knowledge informs my understanding of the participants' narratives and therefore my results. Given that my role in this research is the interpreter, throughout this research process I have retained the awareness that my current thoughts, considerations and ponderings are informed by my past. However to declare all my pre-conceptions, informed by all my pre-history, would be impractical and cumbersome. Furthermore, as Gadamer said, 'it is constantly necessary to guard against overhastily assimilating the past to our own expectations of meaning' (Gadamer 1975/2004, p. 316). Therefore in this first section I begin with a summary of how I came into the research and why I chose to focus upon this specific area of enquiry.

Before I became a nurse, I was a geographer. I studied human geography at the University of Liverpool in England in the early 1980s. Geography was, and will always be, my greatest love; it was my father's profession and as a subject provided a doorway to the world and provided explanations for the strange and exotic landforms we live within. The eclectic nature of geography offered a diversity of perspectives from which to view problems. Lectures on spatial awareness and human-environment interactions have informed my background in public health; just as the courses I undertook in population health, developing countries and earthquakes, volcanoes and 'man', have shaped and informed my interest in disasters. There are many journeys and travels I have taken in between stepping in and out of being a geographer and being a public health nurse. I feel the two subjects are connected within the disaster environment, often inseparably.

Disasters are increasing their impact on humans: factors such as increasing urbanisation and population growth are forcing burgeoning communities into risker environments and a distinct undercurrent of trepidation permeates the most conservative disaster literature. The media, with its frequent, dramatic reporting of disaster and emergency events around the world, serves to spread this trepidation into households, priming some individuals to ask themselves, 'what can I do?'

It is argued that humanity is most creative when under threat ('necessity is the mother of invention') and working as a public health nurse (PHN) in Australia I felt a sense of duty to respond to the,

‘what can I do’ voice. This evolved over time to, ‘what should I be doing?’ However the question of ‘how,’ was not immediately obvious. In my PHN role I felt remote from what I perceived as being ‘in’ the ‘disaster field,’ and yet in other countries, for example America and Japan, nurses with the same position title appeared to be more involved in disaster preparedness and response and with greater literary output following major disaster events. I believed that PHNs are a relatively unknown minority, compared with my acute nursing counterparts in the Australian health workforce, and I felt responsible as a nurse to be prepared for disasters, but uncertain of what I could contribute. This fact was reinforced by an increase in (non-medical) public health officers in my public health unit, relative to the PHNs. This change reoriented the focus of the unit I worked in, to a greater emphasis on disease surveillance, investigation and documentation activities; and a reduced emphasis on disease prevention, education and health promotion. Answers to the disaster preparedness and response questions which I harboured, seemed to be either moving further away, or moving within areas to which I, as a public health nurse, was not attached. I enrolled in a disaster nursing course to clarify what I thought I knew disasters were, and to find out what my, and others, potential role within the health department as a public health nurse could be.

The decision to develop this thesis is the culmination of my reflections regarding my experience as an Australian public health nurse in a disaster, what my role and functions could be and my desire to further investigate the phenomena of the disaster experience. With minimal Australian research published in this area to guide me in this quest, I am responding to the “get ready”, “be prepared” voices from the evolving disaster nursing literature and an increasing disaster landscape. I therefore conducted this research to gain a greater insight, and ultimately understanding, into what being in a disaster means to public health nurses themselves. By bringing the experiences and perceptions of the public health nurses’ disaster roles to the fore, it is possible to look more deeply into how these experiences inform what they consider their roles are. Are the experiences they draw from being in a disaster reflected in their interpretations of their disaster roles? Do the meanings drawn from their disaster experience challenge the normative assumptions made by nurses or disaster planners? These considerations are potential ‘outcomes’ which can be used to view alongside the more traditional deductive assumptions regarding nurses’ disaster roles and functions.

The following Introduction chapter will outline the external drivers for the research question, introduce the thesis and further explain and expand on the relevance of this research in the current health and disaster landscape.

CHAPTER ONE – INTRODUCTION

Nurses and Disasters

Disasters are complex physical, social, economic and political events; they rarely conform to patterns, or recognise boundaries. They are also increasing their impact on global societies. Disasters are overwhelming by definition; they have the capacity to consume enormous human and physical resources, and therefore need to be addressed with insight to elicit effective preparedness and response strategies (World Health Organization 2015b). As Lavin, Schemmel-Rettenmeier and Frommelt-Kuhle (2012) eloquently state, 'the potential for man-made or natural disasters is a reality that exists within the confines of the global setting.'

Evidence for the growing number and impact of disasters can be seen by review of databases such as that compiled by EM-DAT, the Centre for Research on the Epidemiology on Disasters (CRED 2015a) whose international statistical and epidemiological database informs the global disaster picture. The EM-DAT collated data concur with reports from other global organisations (such as the International Committee of the Red Cross, the World Health Organisation, the World Bank and the United Nations Office for Disaster Risk Reduction) showing a pattern of increasing disasters globally, rising death rates with lower income countries bearing a disproportionate burden of disaster events and within all countries the poorest individuals being the most impacted. Challenges such as climate change, unplanned-urbanisation, globalisation, environmental degradation and poverty, are factors which are serving to increase the frequency, complexity and severity of disasters (Australian Nursing and Midwifery Council 2008; Kelly 2010; UNISDR 2015).

The World Bank outlines a description of key disaster risk causes:

> *Disaster risk is increasing mainly as a result of growing exposure of people and assets to natural hazards. Detailed analysis shows that the biggest driver of disaster risk in recent years has been the substantial growth of population and assets in at-risk areas. Migration to coastal areas and the expansion of cities in flood plains, coupled with inappropriate building standards, are among the main reasons for the increase.* http://www.worldbank.org/en/results/2013/04/12/managing-disaster-risks-resilient-development Accessed 16/10/2015.

Global concern surrounding the increasing impact of disasters upon contemporary society is evidenced by the Sendai Framework for Disaster Risk Reduction (Sendai Framework). This international document was endorsed in 2015 by the United Nations (UN) General Assembly, following the Third World UN Conference on Disaster Risk Reduction, and has called for urgent attention to be directed towards the reduction of emergent global disaster risk. Of particular relevance for this research, the Sendai Framework has a particular focus on health:

> *It is urgent and critical to anticipate, plan for and reduce disaster risk in order to more effectively protect persons, communities and countries, their livelihoods,*

> *health, cultural heritage, socioeconomic assets and ecosystems, and thus strengthen their resilience* (UNISDR 2015, p. 10).

The Australian landscape has been historically exposed to disasters events (Australian Government 2016; Council of Australian Governments 2011; Cox 1997). Although Australia has not suffered a nationwide catastrophic event, over the past decade heatwaves, bushfires, cyclones, storms, infectious disease and floods have significantly challenged the disaster preparedness of its local and national health systems (Hammad, Arbon & Gebbie 2011; Nicopolous & Hansen 2009; Rokkas, Cornell & Steenkamp 2014; Shaban 2009). These events have prompted awareness of the adverse impacts that disasters are exerting on a rapidly changing, modern Australian society, in addition to the challenges faced by the disaster-affected communities. The social and economic impacts of these events upon Australian are significant. For example, a report by the Australian Business Roundtable for Disaster Resilience and Safer Communities, *The economic cost of the social impact of natural disasters* (Deloitte Access Economics 2015) noted that total cost of natural disasters in Australia in 2015 exceeded $9 billion (0.6% of GDP). This cost is anticipated to double by 2030, reaching $33 billion by 2050. The report also noted that the less visible, intangible social costs of disasters are now known to be similar to, or higher, than the tangible economic costs related to rebuilding infrastructure from the destruction of property. These intangible costs are for example, increases in family violence, chronic and non-communicable disease and mental health issues related to the stress of natural disasters.

There is growing recognition of the challenges faced by those health professionals who are central to the disaster preparedness and response effort and whose role it is to protect and promote health within an increasingly complex society, which is being increasingly impacted by these disaster events. Key nursing bodies and researchers are aware that nurses need to consider their disaster roles and responsibilities, given that they are traditionally considered to be ‘front line workers’ in disasters (Australian Nursing and Midwifery Council 2008; ICN 2009; Maulidar, Urai & Chaowalit 2010). The front line disaster status for nurses has arisen partly because they have historically responded to disasters (Association of State and Territorial Directors of Nursing 2007) and also as Deeny and Davies (2013) note they are the largest global healthcare professional group and also have the largest number of students to continue their contribution into the future.

The disaster literature is consistent in reporting that nurses will continue their historical practice of being front line responders, and anticipates that they will take significant roles in future disaster events. Usher (2010, p. 10) for example noted, ‘the need to be adequately prepared to face the challenges of disasters and emergencies has never been greater...especially for nurses’. All nurses across all nations, within both acute care settings and community sectors, may therefore anticipate a disaster role in the future. Harkness and Spellman (2012) highlighted that since nurses are a group of health professionals who work directly with the vulnerable individuals in society, they are therefore the group that both governments and communities will turn to for protection and

assistance in disaster planning and response. Harkness and Spellman (2012) also recognised that since nurses are the largest global health care provider group, they have the ability as well as the responsibility, to be the agents and leaders who will implement change within their communities. Given the historical contribution of nurses and the expectation within the current literature for nurses to continue to be disaster responders, it is therefore important to consider what nurses' disaster roles are and also to gain understanding regarding what actually being a (public health nurse) in a disaster means to them. Having an understanding of what nurses consider their disaster roles are from their perspective is important, since this can drive changes which are created from their reflections and interpretations of their experiences of their roles. However, there is scant information within the research literature which looks at this more interpretive area of disaster nursing and disaster nursing roles, particularly within Australia. Additionally the majority of research conducted in Australia considers the emergency department nurses and operating theatre staff are the front line. Given that most disasters will commence outside of the hospital setting, the first responders will therefore be emergency response teams or nurses either working or residing within the disaster-affected community, and not necessarily emergency department nurses.

Countries which have suffered significant disaster impact upon their populations and economies are aware of the value and importance of understanding the roles of health care professionals within disasters, so that they can undertake more informed and insightful disaster planning and response. For example the Chinese researchers, Yang et al. (2010) pointed out they considered that all nurses (including those working in public health) should be trained in the basics of disaster relief given the propensity of China to disasters. These authors studied nurses' experiences in the Wenchuan earthquake response. Yang et al. recognised that since nurses have significant roles in disasters it is therefore important to establish their knowledge and understanding of their disaster roles from their experiences which may be used to inform future training. Yang et al. recognised the value of understanding disaster skills for nurses both in the out-of-hospital setting as well as within the acute clinical care environment:

> *In a country that is prone to natural and man-made disasters, like China, every nurse should have basic knowledge of and skills in disaster relief. Nurses who are most likely to engage in disaster relief, such as those in perioperative care, emergency care, community care and public health, should be equipped with advance knowledge and skills in disaster relief* (Yang et al. 2010, p. 222)*.*

The Australian researchers Ranse and Lenson (2012, p. 161) wrote that the understanding of nurses roles in disasters is in 'its infancy.' Following their study of nurses who responded to the bushfires in the Australian state of Victoria in 2009, they found that the nurse's disaster roles were: being problem solvers, co-ordinating care and providing psychological support, rather than the provision of acute clinical care. The authors concluded that more consideration therefore should be given to those nurses who work in the out-of-hospital setting, such as primary, community and

public health nurses, as well as to nurses working in acute clinical care. These findings lend weight to research, such as this, which considers the need to better understand the contributions of public health nurses (PHNs) to add to our understanding of their roles and therefore the Australian disaster nursing knowledge base.

Many researchers, such as: Hammad, Arbon and Gebbie (2011), Yin et al. (2011), Slepski (2007) and Tener Goodwin (2006) have recognised in their research that there is an international paucity of research literature regarding nurses' perceptions and experience and understanding of their roles in disasters. Mayner and Arbon (2010) pointed out that nurses must be able to articulate the value and relevance of their disaster roles to the communities and the professionals they work with. Disaster knowledge, or lack of knowledge, logically will influence nurses' perception of their actual and potential role and their ability to respond in disasters. Gebbie and Qureshi (2002) observed that nurses should be equipped for disaster roles, noting that for the nurses to be effective, they themselves must be clear regarding their role in a disaster. One way to clarify nurses' roles is to ascertain what they perceive and understand their roles are in a disaster from their subjective view point. This qualitative type of research is lacking in the current body of research literature within Australia.

Robinson (2009, p.1) acknowledges that one of the greatest lessons learnt during disaster events is that, 'advance planning and preparation about the roles, responsibilities, and resource management strategies are essential to match personnel, equipment, and supplies with the people and communities who need them most.' These 'lessons' in the Australian disaster context can be applied by exploring nurses' roles and responsibilities. Despite nurses being considered front line emergency workers, a myriad of challenges however surrounds our ability to understanding the role of nurses in disaster preparedness and response. These challenges within Australia have been amplified by disaster education for nurses being ad-hoc, fragmented globally and occupying minimal presence within the Australian curricula (Cusack, Arbon & Ranse 2010; Duong 2009; Usher & Mayner 2011).

Since no two disasters are the same, and disasters are complex to plan for, it is a significant challenge to identify which skills and competencies nurses will need for their role in disaster planning and response (Slepski 2007). It is also difficult given the diversity of roles that nurses engage in throughout a society. Gebbie (2010a) believes that every nurse can be considered a disaster nurse since the skills required in a disaster are similar to those that they would require in their usual shift, just in a different setting and with resources limited or absent. It is however acknowledged that when nurses have the fundamental disaster competencies or abilities they are more likely to be successful in accomplishing a rapid and effective health care delivery response (World Health Organization 2007).

Disasters are mostly unpredictable and therefore as Yin et al. (2011) articulate in their research, it is important that nurses with disaster nursing skills retain these skills and be ready to respond effectively with little notice. Retention of, and practice of disaster skills as well as being disaster prepared for such sporadic events, provides its own set of challenges. A more informed workforce with knowledge and understanding of actual and potential disasters and their roles within a disaster event, logically would serve to enhance disaster preparedness. Gebbie, Hutton and Plummer (2012) argue that there are also ethical and professional issues at stake: given that nurses have a central role in responding to disasters, they have a right to access the required preparation for effective disaster response, as do the communities whom they will be assisting.

Rokkas, Cornell and Steenkamp (2014) note that within the Australian nursing literature there is limited literature, relative to other countries, regarding nursing roles and preparedness and response to disasters outside of the acute hospital sector. This lack of disaster nursing literature in the out-of-hospital setting could be due to a perceived lack of necessity, given that no disaster has significantly overwhelmed Australia to the point that non-acute hospital nurses have been seen as necessary in the disaster response effort. It could also be postulated that the lack of community disaster nursing literature could also be due to the historical focus on the hospital sector as the 'be all and end all' of nursing which has led to a lack of understanding and perceived importance of the roles of nurses outside of the dominant hospital sector. Ranse and Lenson (2012) offer an alternative perspective that perhaps nurses' perceptions of their disaster roles in Australia are that of acute or critical care due to the influence of the heavily publicised media images of the disaster impact and immediate response period. Further research is required to better understand the realities of what nurses actual roles are in disasters, rather than making assumptions about what they can or cannot do. Understanding what nurses perceive and interpret their roles and functions are within the community health sector is also important to prepare communities for disasters as Arbon (2009, p.334) observed:

> *the surgical and emergency care response to disasters has a relatively limited impact on the health and recovery of affected communities. Therefore the real work to prepare for and recover from disasters needs to be undertaken by community members and health practitioners working within their communities.*

The current dearth of Australian disaster nursing literature, with regard to PHNs, is not visibly replicated elsewhere in the world. For example the Association of Public Health Nurses (APHN), acknowledges that within America the large body of public health nurses, working outside of the acute hospital sector, have specific skills to contribute to disaster related activities and play an 'integral role' in national preparedness. The APHN points out, that although no single discipline can undertake comprehensive responsibility for disaster challenges, 'Nursing and, specifically, public health nursing practice must remain a constant across the national planning framework and its disaster cycle of preparedness (prevention, protection, mitigation), response, and recovery' (Association of Public Health Nurses 2014, p. 4).

Cieslak et al. (2007, p. 1288) point out that disasters have profound public health implications and therefore public health is key to disaster preparedness and response due to challenges which include establishing the basics for life; food, water, shelter and curative and preventative medical facilities. Poor or inadequate public health infrastructure can result in significantly increased mortality and morbidity, as well as a poor public health response. This was exemplified by the slow public health response to the 2014 West African Ebola virus outbreak which exposed weaknesses in the global systems which exist to manage complex health emergencies (Mueller, Estrada & Lucard 2014).

Public health nurses are considered the backbone of community disaster nursing response within many countries; for example Canada, the United States, New Zealand, Japan, Malaysia and Thailand (Spellman 2007). A complexity of issues surrounds the reasons why this role has been neither developed nor articulated for public health nurses within Australia. These issues include: the historical low visibility of public health nurses in Australia, both within the profession and outside, which has accentuated the diminished importance of their role relative to their counterparts in the acute sector (Keleher 2003); confusion which surrounds the actual term 'public health nurse' within Australia and internationally (Condon, Nesbitt & Salzman 2008; Edgecombe 2001; Philibin et al. 2010); the existing low numbers of an increasingly specialised public health nurse workforce; the overspilling of acute care services into the community (Condon, Nesbitt & Salzman 2008) and also the lack of disaster education opportunities for nurses within Australia (Cusack, Arbon & Ranse 2010; Duong 2009; Usher & Mayner 2011), which may otherwise have served to increase the awareness of nurses' roles and profiles in disasters.

Public health has re-emerged as a national priority in the United States (Gebbie, Hutton & Plummer 2012; Harkness & DeMarco 2012) and although in Australia the public health system is observed to play an 'integral and critical role in responding to threats to public wellbeing (Canyon 2009, p1), specific disaster competencies for nurses remain elusive (Gebbie 2012). At the time of writing the Australian Nursing and Midwifery Council, while acknowledging that it is essential for all nurses and midwives to be prepared, and to be able to respond to a national emergency, have not yet adopted any disaster / emergency competencies or any other disaster practice guidance for nurses and midwives. Keleher (2003, p.3) points to the historical 'invisibility' of Australian public health nursing, which reflects a, 'neglect…of public health nurses and an undervaluing of the importance of public health nursing for the public's health'. As the number of global disaster victims escalates, the need for nurses (and the agencies they work for) to understand disasters and to articulate their disaster role (if indeed they perceive they have one) is becoming increasingly vital (Turale 2014). In reviewing the literature which has emerged from disaster struck countries over the past decade, the need for public health nursing and nurses is evident due to: the impact of global environmental changes, antimicrobial resistance, changing disease patterns, the health

costs of the acute care hospital system and emerging awareness of the huge psycho-social health impacts and related costs to global communities (Sydnor & Perl 2011).

As disasters increase their impact upon communities, PHNs will need to be vigilant for new health issues resulting from global public health threats which will impact on their programs and their communities. These health issues maybe for example: the burden of chronic illness from an ageing and increasingly obese population; increasing health disparities and psychosocial issues across different socioeconomic, ethnic and indigenous population groups; climate change; antibiotic resistance; emerging and re-emerging diseases, such as tuberculosis. An extensive literature review was undertaken in 2001 by Edgecombe G. for the WHO European regional office entitled, '*Public Health Nursing: Past and Future*.' The report does not mention disasters or emergencies but the author acknowledged that although PHNs regard protecting the environment in which communities work, live and play as important, only three papers were found which identified interventions by PHNs; one of which discussed protecting the public from hazardous substances. There is then a significant deficit of research which involves, or is undertaken by, PHNs. Disasters may not reach top of the priority list for nurses who are already overwhelmed with their day-to-day programs, and this fact may well affect their perception of their role, since disasters are not an everyday occurrence. Systems however can rapidly change. There is nothing like a 'good scare' to both expose and identify gaps in a nation's health system, to get the dollars flowing when national security is under threat, and also to identify and re-identify priorities. For example, the post 9/11 anthrax attacks in the US in 2001 significantly enhanced public health's visibility and influenced its role. The following year the US government invested over four billion dollars into public health activities to upgrade state and local public health activities:

> *the anthrax attacks…served to catalyse and influence public health's current role-now, at the dawn of a new century, and in the face of deliberate threats to the country. The attacks have prompted the Federal government to invest a significant level of resources intended to have the 'dual benefit' of strengthening the overall public health infrastructure while also improving its ability to detect and mitigate catastrophic threats to the public's health* (Gursky & Gregory 2012, p.56).

The anthrax attacks in the US, coupled with the increase in disasters over the past decade within the US, resulted in increased funding for PHNs for disaster preparedness activities: this served to intensify the debate regarding the US PHN role, creating a surge of public health disaster literature. This has ultimately resulted in strengthening the American 'PHNs' disaster role, so that emergency and disaster planning roles have become critical. As noted by Weiner (2006) improved co-ordination between the public health and hospital–based sectors has occurred post 'anthrax scares' with better preparation for emergency events:

> *prior to the "anthrax scares", reporting between public health departments and hospitals had been isolated to disease specific issues. Many of the federal funds were made available to strengthen the public health infrastructure, a system that*

> *before the "anthrax scares" had been allowed to decay to the point that some local health department did not even own a fax machine.*

However public health may benefit from this disaster emergent era, Stanhope and Lancaster (2012, p. xiii) observe:

> *If there is a bright spot to the concerns about terrorism, war, and limited financial resources, it is that far more people understand the importance and value of public health to individuals, families, communities and nations.*

In the absence of a nationwide Australian disaster, it is harder to persuade governments, health agencies and all those nurses who potentially will be involved, to commit to preparedness until they have personally experienced a disaster event. Given the knowledge that disasters are expected to increase their impact on humans, and that certain population groups within the community are more likely to suffer adverse health outcomes, it is timely that nurses who work in the out-of-hospital setting within Australia develop disaster health awareness and preparedness strategies and promote these to their communities. This is a view shared by (the few) Australian researchers who are involved in research within the field of disaster nursing and have considered the impact on nurses responding outside of the out of hospital environment (Arbon 2009; Ranse & Lenson 2012; Rokkas, Cornell & Steenkamp 2014).

This study aims to shed light on the Australian PHNs by asking them to share their experiences of their disaster roles. This interpretive perspective into the public health nurses' subjective experience of what it is like to be in a disaster will deepen and expand the information base regarding what we know about disasters for this group of individuals. The information from this research is of value to enrich our current understanding regarding what it means for this group of nurses' disaster practices, and will add to the small but growing body of disaster nursing literature. More information will assist in prospicient planning and decision making for disaster preparedness practice for nurses working within the field of public health. This study, by looking at the lived experience, will also provide the nurses themselves with a deeper consideration and awareness of what skills they bring to their practice. Given the problems inherent with researching real-time disaster response, it is therefore prudent to investigate the lived experience as one way to recognise the important perspective which PHNs can bring to disaster preparedness and response.

To summarise; this study will address the literature gap in the subjective experiences of Australian nurses disasters roles in the out of hospital setting. This research will assist understanding of the perspectives that this group of Australian health professionals holds regarding their roles in disaster preparedness and response. This information will add to the increasing body of international disaster literature and further inform our understanding of Australian public health nurses' disaster roles within the global context of increasing impact of disasters events.

CHAPTER TWO – BACKGROUND

Overview

This chapter describes the background, context and current knowledge relating to the research question, 'what is the lived experience of Australian public health nurses' disaster roles?' The literature was reviewed to elicit information about the experience of Australian public health nurses in disasters and how they understand their actual and potential roles and functions in disaster preparedness and response.

The literature reviewed highlighted an information gap regarding Australian PHNs and their roles in disaster preparedness and response; specifically there is a lack of qualitative information which provides insight into understanding how this group of health professionals experience their disaster roles and what meanings they have drawn from this. This information is reviewed in the global context of nursing in a human and physical environment which is increasingly being impacted by disasters. Due to the lack of Australian published literature for this small subsection of nurses, the international public health nursing disaster literature was reviewed. Vigilance was paid to the global disaster landscape for research and information related to the 'bigger picture' of disasters and public health, which may also inform public nursing health roles and their disaster directions.

A literature review based on the background information from this research was published by the researcher and can be viewed in Appendix One: *Disaster preparedness and response: Challenges for Australian public health nurses – A literature review.* (Rokkas, Cornell & Steenkamp 2014).

The focus of this research was to review the disaster experiences of nurses who work *within the field of public health* rather than those nurses who work in other health settings but may undertake public health duties during their day-to-day roles. This distinction is important since the latter role could potentially be adopted by any nurse in a disaster, and this research is specifically looking at nurses whose existing everyday role and function lies within public health.

This research straddles three large, diverse, and complex areas: "disasters", "public health", and "nursing". These three areas are linked, due to the relationship between disasters, the environment, and the adverse impact that disasters exert on health. Given the complexities that disasters present, and the parallel complexity of health and health systems a broad spectrum of information was reviewed across the three areas to ensure that all potential literature sources were considered to inform and understand the phenomena of concern.

The literature was sourced through the following search methods. A key word search was undertaken using the following terms: disaster, disaster nursing, public health nurse, community health nurse, preparedness, response, nurse, public health, knowledge, disaster planning,

emergency, Australia, role, climate change, public health unit, communicable disease and surveillance. Given the limited research emanating to date from Australia in this area (public health nurses and disasters) the search was expanded to include overlapping themes such as 'education', 'skills', 'competencies' and 'lived experience'.

Literature searches were undertaken within the databases CINAHL, PubMed, MEDLINE, Informit, Factiva, and Google Scholar. The literature was drawn chiefly from the medical, social, and earth sciences. No date limits were set on the databases, as it was found that the combined searches for 'disaster' and 'public health nurse' and 'Australia' did not generate prolific literature. This approach revealed a noticeable increase in the volume of literature related to disasters over the past decade. Citations used in the articles accessed were also explored. In addition to the indexed peer-reviewed literature, books, including historical document links and recently published disaster nursing and public health nursing books, were appraised. Local, State, and Commonwealth government websites were reviewed for relevant legislative planning and policy documents, for example, the Attorney-General's Department "Emergency Management Australia" website, including their online Emergency Management Knowledge Hub, the Communicable Diseases Network Australia (CDNA) and the Department of Health and Ageing (DoHA). Keyword searches within individual state and territory Public Health / Population Division/ Disease Control Centre websites were undertaken especially those which support publications, such as the *New South Wales Public Health Bulletin.* Chief Australian nursing body websites were examined for policy documents and standards relating to disasters. Nursing websites such as the Australian Nursing and Midwifery Registration Authority (AHPRA), the Australian Nursing and Midwifery Council (ANMC), and the International Council of Nurses (ICN) were accessed for relevant documentation. Non-governmental organisation websites, including World Health Organization (WHO), the United Nations Office for Disaster Risk Reduction (UNISDR), the Centre for Research on the Epidemiology of Disasters (CRED), the World Bank and humanitarian organisations such as the International Committee of the Red Cross (ICRC) and health blog sites were searched.

The literature reviewed was limited to information published in the English language. It is acknowledged that there is a body of non-English language literature from countries that have PHNs and who have suffered disasters, however due to language limitations, this was not accessed.

The Chapter Structure

This chapter has three main sections: *Understanding Public Health Nursing and Disasters, Understanding Disasters and Understanding Disaster Nursing.*

The first section, *Understanding Public Health Nursing and Disasters,* reviews the role and culture of public health nursing and public health nurses in disasters as it is perceived within Australia and

internationally. This information provides context for understanding how PHNs may themselves understand, experience and interpret their disaster roles, as well as those health care providers and community members with whom PHNs may interact. The preliminary section introduces public health and public health nurses and provides a brief overview of their work settings, roles, key functions and workforce numbers within Australia. This first section extends into a review of literature specifically related to '*public health nurses'* and *'disasters.'*

The second section, *Understanding Disasters*, commences with an overview of the disaster literature, and the current global and local 'disaster situation', to set the scene. It provides context to the complex health situations which public health nurses, other health staff and communities (potentially) face. This 'disaster' section incorporates information related to the facts and figures regarding the geophysical, economic and human impacts of disasters; disaster definitions and disaster types; the Australian disaster situation and other disaster drivers such as population movement, climate change and climate variability. The aim of reviewing this disaster literature is to illuminate the issues which the PHNs themselves need to understand, to carry out their roles in disaster preparedness and response. The final part of this section provides a brief outline of the current Australian disaster arrangements, with a specific focus on public health.

The third and final section of the background review, *Understanding Disaster Nursing*, describes key literature specifically related to the discipline of '*disaster nursing'.* First there is a review of Australian disaster nursing research which is followed by the international disaster nursing literature. A broad sweep of literature was accessed to establish what nursing literature is being written regarding public health and disasters. Literature was sourced primarily from journal databases.

Understanding Australian Public Health Nursing and Disasters

It is generally acknowledged that, public health is fundamental for the promotion and protection of health, (Baum & Keleher 2002; Hassmiller 2014; Spellman 2007). Baum (2008, p. 587) suggests the following definition for the 'new' public health, which builds on the 1986 WHO Ottowa Charter for Health Promotion:

> *The new public health is the totality of the activities organised by societies collectively (primarily led by governments) to protect people from disease and to promote their health. It seeks to do this in a way that promotes equity between different groups in society. New public health activities occur in all sorts of sectors and will include the adoption of policies which support health. They will also ensure that social, physical, economic and natural environments promote health. The new public health is based on a belief that the participation of communities in activities to promote health is as essential to the success of those activities as is the participation of experts. The new public health works to ensure that practices of the government and private sector (including the health sector) do not detract from health and wherever possible promote health.*

This definition by Baum sits well with this research since it considers the lifestyle and social and environmental factors which individuals and their communities may engage with, which can influence their health. It is therefore representative in the context of public health nurses working in their disaster roles within their communities. Furthermore the definition articulates the understanding that community participation has a reciprocal benefit to health, which with regard to disasters is useful for understanding and promoting the benefits of having a resilient community and the roles of health practitioners in this effort.

Public health nurses operate within a public health system that has a central role in responding to threats to public well-being (Canyon, 2009). Public health professionals are therefore expected to be well prepared for emergencies and ready to respond to natural and human-made disasters. Core public health roles lay within communicable disease control units where nurses have expertise in disease identification, prevention, immunisation, and infection control. Novel diseases and pandemics are public health "specialities" (Gebbie et al. 2012; Hope et al. 2011) with public health personnel, including nurses, trained to undertake vital roles such as surveillance, education, infection control, quarantine monitoring, border surveillance duties, epidemiological studies, and immunisation (Eastwood, Massey & Durrheim 2006). Spencer and Spellman (2013) note that public health nurses are one of the few health care professionals who interact with many different community groups regularly and also on an established basis. This enables the nurses to interact with and assist these groups in a disaster.

Rebmann, Carrico and English (2008) noted, in their journal article based on a qualitative study of 32 infection control and public health nurses, that public health professionals have historically responded to infectious disease outbreaks and are increasingly adapting their response skills to other emergencies such as bioterrorism and to natural disasters. Chiu and Polivka (2012) and Sato et al. (2014) in their studies of public health nurses, recognise that public health nursing, with its whole of population health focus, understanding of disease prevention, health education, infection control, environmental hazards and safety attributes, has played a key role in disasters in many countries. Keleher (2000, p.258) observed that 'public and community nurses are integrated into health systems all over the world to work closely with people on their primary health needs and particularly with vulnerable populations.' The relevance of this is that disasters are known to impact most the most vulnerable individuals and nurses are a professional group who are familiar with these vulnerable people.

Keleher (2000) wrote that Australian public health nursing lies within the 'public health paradigm.' This means that for public health nurses their focus lies within illness prevention and health promotion, relative to nurses who work within the 'illness paradigm', whose core work lies in diagnosing and treating illness and disease. This distinction is central to understanding public health since as Hassmiller (2014) observes, it denotes that the focus of public health nursing

practice therefore is not typically acute clinical care but is aimed at the population level of health care and uses preventative and health promotion strategies to bring awareness to individuals within the community of disease and illness risks. The focus of public health being on populations is 'historically consistent with public health philosophy' (Williams 2012). Public health nursing is also usually physically located outside of the acute hospital setting, within the community.

Keleher (2000, p.259) wrote about Australian public health nurses; their areas of work, and where they practice, remain current and as such have been adopted for this research:

> *…maternal and child health, women's health, community health, occupational health, schools, public health units and health departments. Their practice includes primary health-care, community development, health promotion and surveillance, which are all strategies to reduce the amount of disease illness and premature death.*

Public health nursing is a recognised nursing speciality in some countries (such as the United States and Japan) with corresponding scope and standards of practice (Issel, Bekemeier & Kneipp 2012) and a central function in the health system (Akins et al. 2005). Information however regarding the presence of and the skills and functions of Australian public health nurses is minimal: there are few specifically named PHNs with little published literature dedicated to any aspect of Australian public health nursing and even less literature dedicated specifically to their role in disasters (Rokkas, Cornell & Steenkamp 2014). This is not perhaps surprising since, as will be described in more detail in the following sections, the PHN unit workforce is small, becoming increasingly specialised, geographically scattered and in some cases isolated. The presence of PHNs as a specialist group within public health in Australia is recognised by Keleher (2000) and Kralik and van Loon (2011). Kralik and van Loon however do not refer to PHNs per se, but place them under the generic umbrella of 'Community Health Nurses', and refer to their role as a community nurse working in a public health role. Sistrom and Hale (2006) in their paper 'Outbreak Investigations: Community Participation and Role of Community and Public Health Nurses' write that the key function of public health nursing within Australian public health units is to undertake prevention, control and health promotional activities in relation to communicable diseases.

In 2003, 2005 and 2008 the then Department of Health and Ageing (DoHA) commissioned the Australian Health Protection Committee (AHPC) to carry out a National Health Disaster Management Capability Audit to assess the national public health disaster response assets. These compiled audits enabled a 'snapshot' of resources across four settings: pre-hospital, public hospital, public health departments and mortuaries (Office of Health Protection 2009a, 2009b, 2009c). The 2005 audit acknowledged that disasters, including pandemics, were threats to Australia. The total number of PHNs across these years is listed in Table 1 below.

Table 1: Number of Public Health Nurses; Public Health Doctors and Epidemiologists; Environmental Health officers and Food Safety Officers across Australian Public Health Departments in 2003, 2005 and 2008

	2003			2005			2008		
	PHN	PH Drs/ Epi	EHO/ FSO	PHN	PH Drs/Epi	EHO/FSO	PHN	PH Drs/Epi	EHO/FSO
ACT	12	5	20	4	4	22	2	5	20
NSW	100	30	100	54.6	35.9	38.1	62	61	186
NT	11	5	14	30	22.7	24	41	18.5	32
QLD	20	12	78	23	26.8	85	25.5	23	139
SA	3	5	20	15	8	12	ND	15.2	10
TAS	1	3	10	2	5	7	3	5	6.8
VIC	12	23	16	15	10	21	14	22.8	37.4
WA	22	10	27	20	11.7	35	78	12.6	56
Australia	182	93	285	164	124	244	225.5	163.1	487.2

Data collated from (AHPC National Health Disaster Management Capability Audit: 2003, 2005 & 2008). Key: PH Drs= Public health doctors; Epi= Epidemiologists; EHO=Environmental Health Officers; FSO= Food Safety Officers; ND = No data.

Almost two-thirds of all employed clinical nurses and midwives within Australia work within hospitals (Australian Institute of Health and Welfare 2012). Public health nurses working within a community role are less numerous and, as Hassmiller and Stanley (2012, p.513) point out, therefore there are fewer PHNs relative to other or 'generic' nurses to carry out a disaster role:

> *The number of public health nurses available to get the job done is small compared with generic or other specialty nurse preparations. Also, disaster produces conditions that demand an aggregate care approach, increasing the need for public health nursing involvement in community service during disaster and catastrophe* (Hassmiller & Stanley 2012, p. 513).

Scope of practice, roles and functions

There is much international debate concerning the PHN role (Coverdale 2010; Gebbie 2010b; Hemingway et al. 2012; Philibin et al. 2010); scope of practice, values and beliefs (Grumbach et al. 2004; Keller, Strohschein & Schaffer 2011); specialty divisions and education (Abrams 2010); and its research capability (Issel, Bekemeier & Kneipp 2012).

Although public health nurses are a key group within the nursing workforce in many countries, for example the USA (Meagher-Stewart et al. 2010) and Japan (Bushnell & Cottrell 2007); in other countries such as Australia, the PHN is less visible (Keleher 2003). Most literature regarding the contemporary public health nurse emanates from the United States, with the journal '*Public Health Nursing*' providing a medium for research exchange and ideas. Australia does not have a similar public health journal or specialist community journal for nurses to meet their academic needs (Keleher 2000) and to co-ordinate their national voice.

Public health nurses due to their central function in the public health system become invaluable resources both to their communities and to other nurses during disasters (Reed, Goodwin

Veenema & Rains 2013). Spencer and Spellman (2013, p. 689) describing American public health nurses note they are ‘a recognized and appreciated part of their communities. Like all branches of nursing, they benefit from an established history of public trust.’ The authors acknowledge the historical contribution of PHNs to disasters and that current threats to communities require training on ‘a new and different level’ and urge that ‘it is imperative that public health nursing keeps pace with the demand for skills in the disaster and emergency response area.’ While the USA literature, for example Spencer and Spellman (2013) and (Reed, Goodwin Veenema & Rains 2013) is able to articulate PHNs’ disaster roles within Australia there is minimal literature which discusses the actual or potential disaster roles and capabilities of Australian nurses responding within Australia outside of the acute hospital setting.

A lack of clarity generally persists in the disaster literature regarding nurses’ perspectives, needs, capabilities and understanding of their role in disasters, due to the current lack of research in this area (Chapman & Arbon 2008; Gebbie & Qureshi 2002; Hammad, Arbon & Gebbie 2011; Ranse & Lenson 2012) despite the ubiquity of consensus in the literature, regarding nurses being essential to disaster preparedness and response (ICN 2009; Spain et al. 2012; Usher 2010). This lack of role clarity is evident within the community and public health nursing sphere, it has been exacerbated by persistent confusion concerning the role and terminology of the public health and the community nurse within the nursing literature. Both terms are commonly used in the literature, often interchangeably, and have a plethora of different meanings. Condon, Nesbitt and Salzman (2008, p. 11) note in their report, *The role and scope of practice of Community Nurses in Victoria*, ‘that without doubt, the inconsistent terminology will negatively affect the recognition of community health nurses as a specialty by both the public and policy makers’. Condon, Nesbitt and Salzman (2008, p.12) further observed ‘The general public, managers and policy makers are confused about what nurses who work within the community actually do, which inhibits their nurses capacity to perform to their potential’. Brookes et al. (2004, p.195) add to the body of literature regarding the doubt and confusion over nurses’ roles in the out-of-hospital setting, noting that community nursing within Australia has a low professional profile compared with other nursing specialities. The authors call for nurses who work in the community to engage more in research and peer reviewed debate, so their voices can be heard to promote their ‘unique and valuable contribution to the nursing profession and the health care system’.

The issue of recognition and erratic terminology is not solely isolated to Australia; Philibin et al. (2010) observed that within Europe there exists similar role confusion and lack of shared terminology, with titles varying from PHN to Community Health Nurse, Health Visitor and Community Nurse. Edgecombe (2001) described the ‘title’ situation as ‘tangled terminology’ in his 2001 report for the WHO titled: *Public Health Nursing Past and Future: A review of the Literature*, and referenced an earlier WHO report which had found that the specialist community nurse was found described under 23 different titles. Edgecombe’s report, which included an extensive

literature review, commented that within the literature there is confusion about the scope, role and title of PHN, the issue of generalist versus specialist PHNs and their educational preparation. Interestingly Edgecombe (2001, p. 8) also noted that the WHO 'may have inadvertently contributed to this confusion', by releasing reports which have used the terms public health and community nurse inconsistently.

Given the lack of consensus and confusion regarding roles of PHNs, greater clarity would be helpful to reduce the misunderstanding within the health profession, policy makers and the community regarding who, or what, public health nursing is and does. This lack of recognition otherwise may result in compromising the current and future scope of the role. More research, such as this study, therefore will further assist understanding of the roles and practices of PHNs by finding out from the PHNs themselves what they consider their roles are.

A wide range of practices is carried out within public health practice by a workforce which is equally diverse in their public health roles. This workforce shares a common focus, the health of the population rather than the individual (Gebbie 2007; Hassmiller 2014). Public health nurses roles, as explained by Hassmiller (2014, p. S391) are to:

> *Promote and protect the health of communities and populations and seek to reduce health disparities. They provide reliable information to a variety of population groups of all ages to explain proper nutrition, demonstrate effective safety practices, and promote early detection of disease.*

Swider, Levin and Kulbok (2015, p. 91) noted that although 'public health is significant historically in nursing, its practice is a conceptual shift for most nurses.' This 'shift' occurs since nurses traditionally care for patients as individuals, within hospitals or the community. The practice of public health at the population level of the community has its cornerstones in social justice, and requires nurses to adjust their caring to nursing at the broader community level of health.

The disaster role of public health nursing which is most often recognised, lies within the context of communicable diseases, for example influenza pandemics. The Australian and Midwifery Nursing and Midwifery Council note that it is in a pandemic where public health nurses have a front line role. As the following quote describes, public health nurses in a pandemic event have broad, diverse roles which encompass clinical, managerial and administrative skills. The nurses work across and within many different settings and interact with other health professionals groups and agencies, as well as the community:

> *In a pandemic, nurses will be required to: function as front-line carers; administer vaccines and anti-virals; enact local pandemic plans; and help maintain public health standards and contain anxiety. In all the care contexts envisaged as likely in the event of a pandemic – from dedicated 'flu clinics' to general practice surgeries, from intermediary care sites to hospitals, nurses and midwives will be centrally involved, and 'border nurses' will be required to help screen international visitors to*

> *Australia for symptoms of disease* (Australian Nursing and Midwifery Council 2008, p. 1).

From the literature above it is evident that disasters and therefore the roles of nurses in disasters, overlap into Australian community nursing space, as well as the acute health care sector, requiring a nursing presence at the physical, or impact site, 'front line'. The quotes below show that irrespective of where nursing assistance originates from (for example, hospitals, general practice or district nursing services), Australian nurses may present for work to support the affected communities. Following the 2010-2011 Queensland floods, literature emerged describing the experiences of nurses from Rockhampton hospital who responded to the disaster and worked with their local communities. The quote below by Jamieson (2011, p.22) describes an account of the nurses responding to the floods:

> *The community of Gracemere is just outside Rockhampton, and it was cut off during the floods. We worked in partnership with a GP surgery over there to set up a primary care clinic, and we had a lot of nursing staff over there. Lots of nursing staff volunteered to come over on the SES [State Emergency Service] boat across the flood ways between the towns. They climbed into lifejackets and bought their luggage over to work their shifts...only a tiny proportion of our nursing staff had flood affected property, but a much larger proportion had loved ones who were affected...they put up their hands and worked with energy to get the job done here – and then a lot of them went to help clean up flood affected properties around the area...it wasn't just about the work, it was about caring for each other. The caring attitude of the nurses is what got us through. Nurses are part of this community, and because of that, they don't just go, 'Oh well, it's not my job.' They take responsibility for making sure that the job gets done.*

(Williams 2009, p. 17) describes nursing assistance given to communities after the 2009 Black Saturday bushfires:

> *We are still trying to come to piece together and come to terms with events of Black Saturday when our region was ablaze. We were not prepared for the enormity of the Black Saturday fires and the ensuing catastrophic events. For the first time we faced the prospect of shutting our specialist clinic...to support district nurses in the field...many staff had lost their homes...many clients had to be evacuated in less than ideal shelters...one of our first visits after the fires was to Chum Creek...The patient seemed to be in shock and was relying on our visit. She had returned home following evacuation to a terrible scene. Only her house was standing. Charred kangaroos stood motionless in the yard, the fences had burnt down, her water tank melted and she had no water. Addressing these sorts of issues was never in our job description.*

These accounts provide a snapshot into the experiences of nurses responding to recent disasters in Australia and the unknown, and often confronting, scenarios they faced within their communities. The accounts also provide a window into the varied clinical and psycho–social challenges that the nurses faced while responding in the field. This area of disaster relief is not well researched within Australian literature, particularly regarding what these experiences actually meant to the nurses who worked in these disasters, how they interpreted what they did and what they saw, and how

this subsequently was or was not reflected in how they saw their nursing roles, functions and practice.

Nursing professions throughout history have defined and redefined their scope of practice and their core characteristics to better inform and update their ever-changing communities and health care systems regarding their roles and functions. This helps the profession to move forward to meet changing health needs and also to gain support for nursing positions. The Royal College of Nursing in the United Kingdom, for example, have recently updated their definition of nursing (Royal College of Nursing 2014). Within this professional development document the authors observed that although nursing care is experienced at some time by most people, and is a role undertaken globally by millions of nurses, nursing itself still remains difficult to describe and remains poorly understood. The authors articulate the paradox whereby the more skilful a nurse is, the less likely it is that the observer or the recipient will be to recognise what has been done. This lack of awareness regarding the basics of what nursing is reinforces the necessity for nursing and nurses to continue to delineate their role. This revision of, and necessity to propagate, the role is particularly important for public health nursing where there are fewer numbers and therefore a less visible presence but which is an area considered 'vital to protecting the health and safety of the public' (Drehobl, Stover & Koo 2014, p. S280).

Defining the role of a PHN and keeping the role visible in the eyes of the public and other health professionals has concerned other researchers. During the writing of this research, a paper was published by Joyce et al. (2014) which described the lived experience of US public health nurses. The aim was to illuminate the roles and functions of these nurses, to provide greater understanding of the value of their roles in the community and thereby create greater support for their profession and positions. The authors considered it was important to define, validate and publicise the PHN role and practice since 'the benefit public health nursing brings to the practice of public health remains misunderstood and undervalued' (Joyce et al. 2014, p. 1). Although the research by Joyce et al. was not concerned with disasters or disaster roles, their article is unique in that it looks deeply into what PHNs themselves understand their role is by revealing their lived experience, and is therefore of relevance and interest to this research. The researchers adopted a phenomenological approach to understand how the public health nurses experienced their day-to-day roles. Focus groups were conducted with 88 public health nurses who attended an annual meeting of the Public Health Nurses Association of Colorado. Following thematic analysis of the focus group information, interviews were conducted with 11 participating public health nurses to validate the themes. Three themes were revealed which reflected the lived experience of the public health nurse roles. The themes were, 'advocacy', 'versatility' and 'credibility'. The theme 'advocacy' described the PHNs speaking up for those individuals in their community who struggled to be heard, as well as speaking for themselves. 'Versatility' described the PHNs' ability to undertake many different skills, be adaptable to change and be prepared for unexpected events. The theme

‘credibility’ related to the nurses being experts in their community and relaying trust and expertise between the community and other stakeholders. These themes led to a discussion regarding understanding of what public health nurses can do. The research findings provided the foundations for the development of a campaign and a tool kit aimed to increase visibility amongst stakeholders regarding the specialty practice of public health nursing. This research by Joyce et al. reflects a natural concern amongst professions of being able to delineate and therefore propagate what their professions’ skills and roles are, in this case by seeking to truly understand and reveal the essence of what this group of nurses can contribute to society. The authors therefore produced clarity and visibility into a field which otherwise could become muddied, confused and potentially could result in neglect of the value of their contribution to the communities they care for.

Research in Ireland carried out by Philibin et al. (2010) sought to define and clarify the role of the PHN in Ireland in light of a changing society, with concomitant changing health needs. Philibin et al. (2010) undertook a descriptive qualitative study which involved interviewing 25 nurses, 21 of whom were PHNs. The researchers found four main themes, of which the first theme, ‘Jack of all trades: the role of the public health nurse defined and described,’ was discussed in their paper. The remaining themes, were ‘the essence of the role’, ‘challenges to the role’ and ‘communication.’ Being a ‘Jack of all trades,’ described how the PHNs filled in gaps in care in the community, when other health professionals were not involved. The authors described the PHNs’ understanding that their roles were one of being generalists. Being a generalist was considered strength, and a weakness: it was acknowledged that while nurses could provide curative and preventative work across different population groups, this also resulted in overstretched nurses picking up the work of other health professionals, without clear lines or role boundaries. The authors recognised that lacking skill specialisation constitutes an issue in the current global nursing environment, which favours specialisation across all nursing disciplines. This makes it difficult for a generalist to provide what would be considered best practice in their discipline. The nurses in the study were also found to be reactive, responding to the needs of the community as they arose, rather than proactive. The authors recognised the debate implicit within this: some PHNs considered it a strength to have the entire community as their client, whereas other PHNs considered it was overstretching their roles. This ability to see the bigger picture of health for their community, the authors noted, has always been a key theme within literature related to the PHN role. An interesting finding was the participants’ ‘hidden’ role which related to what one participant described as ‘invisible nursing’ tasks such as, ‘decision-making, accountability, judgment, assessment of need and counselling of clients’ (Philibin et al. 2010, p. 747). This invisibility which exists within parts of the PHN’s role, has implications for their ability to undertake additional work, such as would be required in an emergency event. Philibin et al’s research is described in detail here, since the results and the discussion relate to issues which potentially overlap with those of Australian PHNs. To clarify, the PHNs’ roles described in the study were not disaster roles, however as Gebbie (2010a) notes, the skills which nurses require in disasters are usually the same

they usually do, albeit in a changed situation. Therefore understanding PHNs' non-disaster roles can still be useful to inform what PHNs' actual and potential roles in disasters are in a disaster, since their workloads could easily become overwhelmed.

Australian nurses working within Public Health Units are at the front line of public health activity within the health system since their roles are communicating, collecting information and carrying out public health prevention and promotional activities. The central role of disease surveillance within public health remains a priority for communicable disease control: as stated in the *National Framework For Communicable Disease Control* (Department of Health 2014, p. 16) 'faced with an unknown threat, understanding the epidemiological characteristics, such as who is at most risk of infection or severe outcomes, is vital to inform targeted responses.' Clarity of role has been recognised as key to future success in the improved organisation and delivery of communicable disease control within Australia. The 2014 National Framework for Communicable Disease Control describes under the section, 'Improved organisation and delivery of communicable disease control' that vision for the future communicable disease workforce needs to be, 'a flexible, well-trained workforce with clear roles and responsibilities built around core competencies…' (Department of Health 2014, p. 20). This document therefore highlights further the need for 'clear' public health nursing roles. The report proposes a national centre of control for Australian communicable disease intelligence and control (like the United States Centers for Disease Control and Prevention (USCDC) rather than the current individual state and territory arrangements. A central operational CDC for Australia is in the future pipeline: the vision for, and strategies needed to achieve this, are documented as the 'National Framework for Communicable Disease.' This report was produced in consultation with all state and territories, was informed by a system wide overview undertaken in 2012 of communicable disease control management in Australia, and was widely supported. One of the reasons given for requiring a communicable disease system overhaul was the risks posed by new and emerging diseases which pose ongoing risks for epidemics pandemics and also disasters:

> *Communicable disease consequences from natural disasters including bush fires, floods, cyclones. Flooding in the summer of 2011 resulted in a number of water borne infections in Queensland and increased arbovirus infections including Murray Valley Encephalitis virus and Ross River virus in southern Australia. It is thought that ecosystem changes following the flood event caused bats to move to other roosts, bringing together Hendra virus naive bats with colonies where bats were infected with the Hendra virus* (The Department of Health 2014, p. 7).

The relevance of this information is to highlight the future health challenges that public health nurses within Australia potentially face. By shedding light on understanding nurses' disaster roles this will assist informing what the gaps are in the current disaster nursing practice which, in turn, can further inform education programs. The *National Framework For Communicable Disease Control* described, as a high priority area, the vulnerable populations who suffer an unequal burden of disease in Australia. Articulated within the Framework was that governments should be more

vigilant to the way they communicate and engage with communities, so that they are able to 'listen' and gain knowledge and an understanding from the communities regarding public health information (Department of Health 2014, p. 19). Having a better understanding of public health nurse roles would assist this requirement, given the central location of PHNs within their communities.

To summarise this section: public health nurses work within a system which has a central role in responding to threats to well-being (Canyon 2009); as such, they are vital to protecting the health and safety of the general public (Drehobl, Stover & Koo 2014). The areas that Australian public health nurses work in include: schools, maternal and child health, occupational health, women's health, public health units, community health and health departments. Public health nurses whole of population focus, knowledge of their communities, understanding of disease prevention, health education, infection control, environmental hazards and safety, has led to PHNs being key responders in disaster in many countries (Harkness & Spellman 2012; Rebmann, Carrico & English 2008; Sato et al. 2014) but this role has not been explored within Australia. Within the United States for example, PHNs are integral to the health workforce and have also been very proactive in generating disaster nursing literature. However while Australian disaster nursing literature is increasing, there is to date minimal literature which considers the out-of-hospital disaster preparedness and response to disasters and negligible literature which considers the experiences and roles of Australian public health nurses within this space (Rokkas, Cornell & Steenkamp 2014).

Understanding Disasters

Disasters – the big picture

Disasters are part of the earth's history and have been described in historical documents and literary accounts throughout the centuries (Kelly 2010). Disasters are more prevalent than one might imagine: Kingma (2010, p.vii) observes, 'disasters occur daily somewhere in the world and have a dramatic impact on the quality of life of individual's families and communities'. It is only recently however that disasters have been given substantial scientific analysis (Lindell 2011) and have become a major focus of interest to scientists and researchers, planners and policy makers of all disciplines across the globe. This interest has been triggered by an understanding of the scale and the increasing devastation that disasters have upon social functioning and the health and the economies of the nations that they affect. The estimated economic losses from natural disasters in 2011 were the highest ever recorded ($US 366.1 billion); over half of this (57.4%) was damage costs related to one single disaster which took place in Japan (Guha-Sapir et al. 2011). With this quantum of loss, it is little surprise that disaster preparedness and disaster mitigation are migrating ever higher on governments' 'to do' lists; and are simultaneously creating an international sense of urgency for health professionals to be better prepared for these events (Turale 2010).

Figure 1 depicts the global situation regarding mortality from natural disasters during the two decades 1994-2013. The graph is embedded within the EM-DAT report entitled 'The Human Cost of Natural Disasters 2015' (CRED 2015b). This report notes that disasters have increased over the two decades, although the average number of people affected has decreased. However there has been (as the graph shows) an upward mortality trend, even when factoring the excessive death rates from three mega disasters in 2004, 2008 and 2010. The report points out that it is the level of economic development rather than exposure to a hazard per se, which is the major determinant of mortality (CRED 2015b).

Figure 1. has been removed due to copyright restrictions.

Figure 1: Numbers of people affected and killed annually by natural disasters 1994-2013

Source, EM-DAT Report: The Human Cost of Natural Disasters 2015 – a global perspective. The International Database, Centre for Research on the Epidemiology of Disasters (CRED), Brussels.

As the graph above exemplifies, several disasters from the past decade stand out due to the overwhelming scale of their devastation in terms of infrastructure damage, global trepidation and number of victims. Listed below are examples of disasters which lend weight to understanding the need for continued disaster preparedness and response research. Further research could facilitate further understanding of the roles of the various relief agencies who are involved in the response efforts for these type of events, as well as creating greater understanding of their own disaster roles.

- The 2004 Indian Ocean tsunami (IOT) caused by the huge earthquake off the west coast of northern Sumatra was the deadliest tsunami disaster in human history (Lay et al. 2005), resulting in more than a million people displaced in South Asia and East Africa (Bird, Chagué-Goff & Gero 2011). The exact death toll will never be known, with estimates reaching over 300, 000, including missing persons, presumed dead (Alexandra, Taylor-Clark & Blendon 2010; Guha-Sapir et al. 2011).

- Hurricane Katrina, which struck the Gulf Coast of the US in 2005, caused 1800 deaths, displaced up to 373,000 New Orleans and Gulf Coast residents and resulted in $US 81.00 billion in damage (Mendez 2010).

- The 2010 Haiti earthquake caused an estimated 330,000 deaths and displaced upwards of 1.5 million people. The majority of Haiti's infrastructure were either damaged, or destroyed, during the quake leaving the surviving population with minimal basic necessities, including medical care (Mendez 2010).

- The 2011 Tohoku earthquake and tsunami in Japan caused almost 19,846 deaths and was the most expensive disaster ever recorded (estimated economic damage US$ 210 billion).

- The West African Ebola outbreak in March 2014 became a global public health threat requiring a global response when the disease, which began in remote districts of Guinea, spread to the neighbouring countries of Liberia and Sierra Leone and then cases emerged in Europe, the U.S. and Nigeria. The Ebola outbreak outpaced the global efforts of all organisations to contain the virus and by November 2014, 14,386 individuals were reported to have been infected with the virus and 5,400 had died (Mueller, Estrada & Lucard 2014). The Ebola outbreak also was associated with fear and stigma. It seriously destabilised the affected countries and, 'exposed significant weaknesses in global systems set up to deal with health emergencies' (Mueller, Estrada & Lucard 2014, p. 7). The 'WHO strategic response plan 2015: West Africa Ebola outbreak,' notes that while progress has been made in slowing the disease transmission there is still much to be done to contain the disease and prevent its spread:

  The outbreak of the Ebola virus disease in West Africa is unprecedented in its scale, severity, and complexity. Some countries are still affected by this outbreak, and are struggling to control the epidemic against a backdrop of extreme poverty, weak health systems and social customs that make breaking human-to-human transmission difficult (World Health Organization 2015a , para. 1).

Disaster definitions

There are many definitions of disasters within the literature (Cieslak et al. 2007), a few of which are listed in Table 2 below, although there is no widely accepted definition (Cusack, Arbon & Ranse 2010). Most definitions describe a situation where the resources in the community are overwhelmed to the extent that external response is required to assist in the recovery. Mayner and Arbon (2015) recognising a need for consensus amongst disaster definitions, undertook a study to harmonise the existing disaster terminology, their aim being to establish a platform of greater definition conformity upon which to build future research and practice. Their research identified 128 pre-existing disaster definitions with multivarious themes informing the definitions. By mapping and

connecting the collated disaster definitions Mayner and Arbon (2015, p. 24) found the most consistent definition for disaster was, ‘the widespread disruption and damage to a community that exceeds its ability to cope and overwhelms its resources.’ The authors omitted the words, ‘the need for outside assistance,’ considering that this is implicit within the definition and therefore superfluous. They further commented on the similarity between their analytically produced definition and that of the United Nations International Strategy for Disaster Risk Reduction (UNISDR). Given the increasing disaster frequency and impact upon populations and concomitant literary escalation within both the media and the international research world, it is relevant to consider standardisation and uniformity of disaster definitions and terminologies to create less potential confusion within the disaster research and the existing complex disaster environment which nurses work within.

It is important to establish the difference between the terms ‘emergency’ and ‘disaster’ as although the terms are used often interchangeably they require a different level of response. Adelman and Gray (2009) note that an ‘emergency’ is a situation where an unexpected event occurs and a local response is sufficient to manage the event without having to call for external assistance. A ‘disaster’ is an event which results in local resources being overwhelmed and necessitates the need for external resources and assistance. It is generally accepted that the decisions determining which situations require external assistance may differ by country or region. A list of disaster definitions by key global bodies are documented in the table below:

Agency	Disaster Definition
Emergency Management Australia (EMA)	A serious disruption to community life which threatens or causes death or injury in that community and/or damage to property which is beyond the day-to-day capacity of the prescribed statutory authorities and which requires special mobilisation and organisation of resources other than those normally available to those authorities. The Australian emergency management glossary, p.33 (Commonwealth of Australia 1998). Accessed: 27 July 2015, available at: http://www.em.gov.au/Documents/Manual03-AEMGlossary.PDF
United Nations Office for Disaster Risk Reduction (UNISDR)	A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources. Accessed: 27 July 2015, available at: http://www.unisdr.org/we/inform/terminology
Centre for Research on Epidemiology of Disasters (CRED)	Situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance. An unforeseen and often sudden event that causes great damage, destruction and human suffering. Though often caused by nature, disasters can have human origins. Accessed: 27 July 2015, available at: http://www.emdat.be/glossary/9#term81
World Health Organisation (WHO)	1. A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources (ISDR). 2. Situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance (CRED). 3. A term describing an event that can be defined spatially and geographically, but that demands observation to produce evidence. It implies the interaction of an external stressor with a human community and it carries the implicit concept of non-manageability. WHO, Accessed: 27 July 2015, available at: http://www.who.int/hac/about/definitions/en/index.html
International Federation of the Red Cross (IFRC)	A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins. Accessed: 27 July 2015. Available at: http://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/what-is-a-disaster/

Table 2: Disaster Definitions

The preferred disaster definition which will be used for this thesis will be a combination of the above tabulated definitions: recognising the holistic nature of loss to a community; that disasters cause both loss of life and injury as well as threats to health; that natural disasters may also be impacted by human activities and that disasters signal the need for a disrupted community to seek external assistance. Therefore a disaster for this research is defined as:

an event which severely disrupts the functioning of community to the extent that external assistance is required. The disaster may be caused by nature, though may have human origins. It can cause extensive damage and destruction to material, economic and environmental systems, as well as loss of life and extended human suffering.

Types of disasters

Whatever approaches are adopted to address disaster issues, responders in the disaster field firstly require an understanding of the disaster type and its main impact/s, to both inform and prepare communities. A basic understanding of the kinds of disaster and their causes will facilitate knowledge of what type of disasters communities are at risk from, and their likely impact upon the population and therefore the type of response needed. Cieslak et al. (2007) comment that this knowledge is essential for disaster planning by all responsible agencies. Hassmiller and Stanley (2012) explain that the disaster type will affect medical planning and response, since from a healthcare view the event type and its timing will predict the subsequent injury and illness type. For example; earthquakes cause infrastructure damage, which cause physical injury, such as broken bones; floods cause dislocation of communities through extended evacuation as well as drowning deaths, infections and possible rises in parasitic infections and diseases; chemical leaks cause toxic injuries and pandemics will require extensive surveillance activities and significant surge capacity within both the hospital and the community setting.

Alongside the physical injuries, disasters can impart significant psychological effects on individuals (Maher 2006; Norris et al. 2002; Stanley, Bulecza & Gopalani 2012) which can then influence them and their community's ability to recover. Psychological effects associated with disasters (domestic violence and mental health issues associated with for example the trauma or ensuring economic hardship) may evolve during the post disaster recovery period and can require significant ongoing vigilance and public health care input. This is important since once the immediate disaster impact is over and the response agencies and associated acute emergency assistance is withdrawn, the recovering communities will still need assistance from public health agencies to deal with the post disaster effects and their journey to recovery.

Disasters either are caused by naturally occurring phenomena or are man-made. The oft used term 'natural disaster' was recommended to be replaced with the expression, 'disasters associated with natural hazards', in line with the Hyogo Framework for Action, (UNISDR 2005). The WHO

concur: explaining that the term ‘natural disaster’ creates an incorrect assumption that natural disasters are ‘inevitable’ and outside of human control, rather than the reality that natural disasters actually culminate from the way that individuals and societies relate to the threats emanating from the natural hazard: thus, disasters are, to a great extent, determined by human action, or lack thereof (World Health Organization 2015b).

Disasters associated with natural hazards stem from naturally occurring physical phenomena caused either by rapid or slow onset events such as earthquakes, volcanic activity, landslides, tsunamis, tropical cyclones, wave surges and other severe storms, tornadoes and high winds, river and coastal flooding, wildfires and associated haze, drought, extreme heat, sand/dust storm, disease epidemics and animal/insect infestations (ICRC 2012; Noji 2000; World Health Organization 2015b).

Man-made disasters are events that are caused by humans. They can include environmental degradation, pollution and accidents, conflicts, terrorism, famine, displaced populations, industrial accidents and transport accidents (Cieslak et al. 2007; ICRC 2012). It is important to recognise that the distinction between natural and man-made disasters is a rather old and unsophisticated definition and that there is a great overlap amongst the actual causes of disasters, when a risk reduction or mitigation approach is taken. Natural disasters only occur when human structures, and mitigation and/or preparedness plans are inadequate to protect communities from the hazard impact: for example, human *caused* disasters related to mud slides often have a natural element related to extreme rainfall. From this perspective, there may often be a real human element involved in a natural disaster.

It is almost unanimous in the contemporary scientific literature (and increasingly in the grey literature) that disasters globally are increasing, both in frequency, and in impact. (Cieslak et al. 2007; Guha-Sapir et al. 2011; Hughes & McMichael 2011; Nicopolous & Hansen 2009; Turale 2014; Wulff, Darrin & Nicole 2015 ; Yasmin et al. 2015). Although disasters are indiscriminate in whom they affect, it is known that certain population groups are disproportionately affected (Arbon 2009; Davis et al. 2010). Disaster deaths are impacted by issues such as relative poverty and certain vulnerable groups, within both developed and developing counties, are disproportionately affected. These groups may include: the poor, elderly individuals, those with chronic health conditions and physical and mental disabilities, children and refugees (Hassmiller & Stanley 2012; Hutton & Tilden 2010; Richard 2010; Templeman & Bergin 2008).

Given the frequency with which the term ‘vulnerable’ is used within the disaster literature it is appropriate at this point, to consider its sometimes rather liberal usage. Wood and Arcus (2012) urge caution regarding assigning the term ‘vulnerable’ to population groups. They noted that at different times in health care throughout history, different groups have been identified as

'vulnerable' and that it was important that these groups should be viewed in context with their circumstances and timeframe and not extrapolated to other situations. They also noted that the way a certain population group is depicted in the media, as well as reports from government and professionals can influence the perception that a group is vulnerable. Once a group is identified as such, it can continue to be classified '*by their perceived deficits …rather than their inherent strengths*' (Wood & Arcus 2012, p.145). To exemplify this point: Wood and Arcus (2012) looked back at one vulnerable group in history, 'the sick' poor in early 20th New Zealand, aiming to consider a different construction of this group by reviewing documents/ journal articles from journalists and district nurses who were involved in their lives. The authors found that although the nurses and journalists constructed the 'sick poor' as having 'sunless lives,' they also constructed them as 'resourceful, resilient and determined'. Wood and Arcus (2012) understood from their research that the nurses and journalists had a more finely tuned construction of the sick poor at the time, than the portrayals by politicians and others, who did not perceive the reality of their situation.

The search for a deeper (or 'other') understanding has prompted other researchers to consider the use of qualitative methodologies in order to investigate what may otherwise be 'taken for granted' about disasters. For example, Cornell (2014) in her PhD thesis explored understanding what emergency preparedness meant to elderly individuals, highlighting that the Australian emergency sector had made assumptions about what the needs of older people were in emergencies, rather than finding out what preparedness meant to them. By taking a phenomenological methodological research approach, Cornell was able to establish what influenced elderly individuals to prepare for emergencies and what preparedness actually meant to them, thereby challenging the taken for granted conceptions and assumptions that surrounded this group of individuals regarding preparing for emergencies:

> *by understanding what influences older people living in the community to prepare, and what preparedness means to them, how best to assist them in their preparedness planning can be established, rather than making assumptions about what this target group wants or needs* (Cornell 2014, p. 7).

The relevance of the Cornell's findings for this research (and that of Wood and Arcus described above) is for health professionals and response agencies, to be mindful of the importance of *understanding* per se; and in this case taking into account existing perceptions and understanding of (resilience) within communities/ individuals when planning/ communicating disaster preparedness and response strategies, rather than making assumptions about what their needs are.

Disaster literature trends

Disaster literature is increasing (Kasper 2012; Turale 2010). Mirroring the increase in the subject matter they describe, Noji (2007, p.xvii) noted:

> *…disaster research has accelerated to such an extent that we probably need to update the results of this research at a minimum of every year so that we can apply the lessons learnt during one disaster to the management of the next.*

Within the expanding disaster literature, 'disaster nursing' as a subject, is occupying an increasing, although still a relatively small, space relative to the 'general' disaster literature. Evidence of this trend lies within the number of journal articles which have been published over recent decades. A keyword search undertaken in July 2015 within the database CINAHL, using the term 'disaster nursing' resulted in 107 results. Further analysis of the 107 journal articles, identified that over three quarters of the articles (78%, n=83) had been published within the past decade. A key word search using the term 'disaster' identified 11,909 records, 91% (n = 10,840) which were published in the past fifteen years.

Confirmation of the increase in disaster interest is evident in the grey literature: a key word search over the past 10 years using the words 'natural disasters/catastrophes' and 'Australia' on the grey literature database 'Factiva', showed publication fluctuations concomitant with specific disaster events, years and seasons. These patterns coincided with literary 'spikes' following extreme Australian seasonal weather events: such as the 2010-11 post cyclone floods commencing in the northern tropical regions and the 2009 bushfires in the southern and eastern regions, concomitant with extreme heat and drought (Queensland Commission of Enquiry 2012; Victorian Bushfires Royal Commission 2010). Figure 2, shows the grey literature increased from 5662 sources in 2005 to a peak of 33,883 publications in 2011 and by midyear 2015 (Australian winter) had decreased to 17,319.

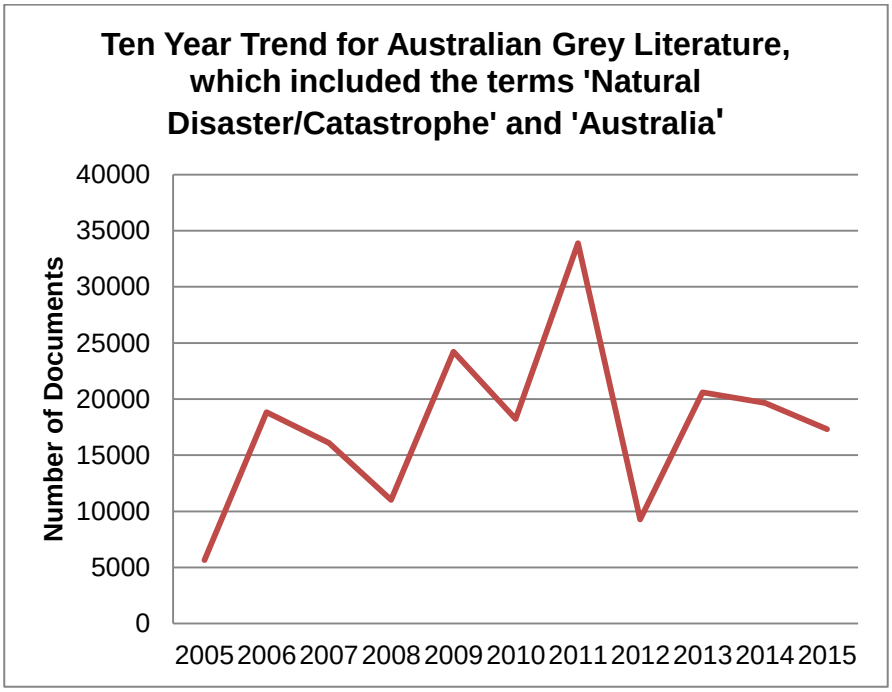


Figure 2: Australian disaster grey literature trend. Source, FACTIVA

Much of the increase in global disaster literature over the past decade has been triggered by concerns regarding the negative health impacts of disasters, of climate change and the fear of terrorist attack. The 9/11 terrorist attack in the U.S. (2001) was a pivotal moment in global disaster response history with many governments, including Australia, subsequently investing heavily in preparedness planning and resources to mitigate and respond to a similar terrorist situation. Templeman and Bergin (2008) pointed out, however, that on a probability level we have more to fear from natural disasters than terrorism in Australia. The authors note the inequities between investment at that time of resources directed towards the potential consequences of a natural disaster occurring within Australia, with the investment of resources in counter terrorism programs for a potential terrorist attack ($10 billion versus $500 million). However there has been a return within the past few years to a more all hazards consequence management approach, although expenditure on national security remains relatively high: in 2013 -14 the total Australian Health expenditure was $63.9 billion compared with 22.1 billion for the Department of Defence for the same time period (Hockey & Cormann 2014). Whatever the cause of a disaster, the consensus is that it is unwise to wait for a disaster to occur before planning how to respond and provide the care that is needed (Ireland et al. 2006).

Climate change, population change and disaster health in Australia

Climate change and climate variability will have an increasing impact on disasters in Australia and therefore literature regarding the actual and potential health effects of this has been included in this background review.

Given the scale and type of disaster phenomena it is not surprising that disasters can have both immediate and long lasting consequences for individuals and their communities, disrupting not only their health and economies but also their environment and their infrastructure (Kako, Mitani & Arbon 2012). Disasters therefore present significant challenges for health care systems and their communities (Arbon et al. 2011), and it is vital that health care preparation is undertaken and health care capabilities addressed to reduce the potential impact and assist the recovery of communities. Although many countries, including Australia, have always experienced natural disasters (Nicopolous & Hansen 2009), it is now generally accepted that climate change, population growth, demographic structure and shifts to high-risk areas (coastal and urban fringe) have enhanced the risks faced by Australian populations (Williams et al. 2009). Australia has a very urbanised and predominantly coastal dwelling population. Approximately two-thirds (15.6 million people) of Australia's current population, (23.5 million) live in one of its eight major cities. The 2014 Australian Bureau of Statistics reported the main areas of Australian population growth are located on the capital city fringes. Most growth outside of capital cities is occurring along the coast of Australia, particularly in Queensland (Australian Bureau of Statistics 2015). To add to the picture, Australia also has an ageing population: between 1973 and 2013, the number of people aged 65 and over, tripled to 3.3 million (Australian Institute of Health and Welfare 2014b). This

ageing demographic profile will have implications for the future health needs of Australians and will need to be considered alongside the health implications related to an increasingly disaster impacted society.

The scientific literature acknowledges that climate change is enhancing the frequency of natural disasters and also enhancing the health risks attributed to natural disasters (Hughes & McMichael 2011; Keim 2008; Maibach, Nisbet & Weathers 2011; Turale 2014). There is a small but growing body of nursing literature which is dedicated to increasing nurses' awareness of the impact of global climate change, its potential health effects on their professions in terms of the communities that will be affected, and what nurses can to do prepare for this challenge (Barna, Goodman & Mortimer 2012).

Barna, Goodman and Mortimer (2012) observe that there has been an ongoing global debate regarding the reality of climate change and its actual and potential consequences for the planet over the past few decades. There is an abundance of literature dedicated to the issue of climate change, with its own terminology. Weaver et al. (2010) warned that climate change will affect human health and disaster nursing literature depicts future health related issues of significant concern to nurses which are related to natural disasters, often worsened by human development (Turale 2010; Yan et al. 2015).

After several decades of debate, it is now generally accepted within the scientific community that global climate change is increasing the probability of extreme weather events from natural climate variability and that this has resulted from human's activities on earth (Hughes & McMichael 2011; South Australian Government 2010; UNISDR 2015). Hughes and McMichael (2011) state in the introduction to their 2011 report, *The Critical Decade: Climate Change and Health:*

> *It is beyond reasonable doubt that climate change resulting from human activities is triggering significant changes in the biological world…The human species is also increasingly exposed to climate change and we likewise face significant risks to our well-being, health and survival. Our technologies, knowledge and culture can provide some protection, but only up to a limit. Beyond that the risks to health will rise, this includes direct physical risks; for example from extreme weather events and heatwaves, and many other less direct risks; for example from increases in some infectious diseases and reduced access to fresh water.*

Weaver et al. (2010) in their review article, which considers the issues regarding climate change, health and the Australian health care system, concurred with Hughes and McMichael. They observed that the Australian research field of climate change and health is increasing in momentum in order to meet the current and future health challenges associated with a changing climate and the resultant burden on the health system. Weaver et al. (2010) strongly advocate that the climate change and health area should be a research priority for Australia. They also recommend that the current and future health workforce should be educated to both understand the impact of climate change on those they care for, in addition to being educated as to how they

should prepare and respond to the health risks posed by climate change. Given that the health workforce needs to understand what is occurring within the global climate and its concomitant health risk to its communities, it is logical that they also need to understand what their current disaster roles and functions are in order to effectively absorb this information into their practice. This better understanding may potentially assist with better-informed planning which can be passed onto their communities. To reinforce this point Mayner and Arbon (2010) observe:

> *Nurses will be relied upon far more and placed at the forefront when disasters occur. Health response to extreme weather events will be challenging and nurses need to be prepared and trained adequately if communities, nationally and internationally, are to manage effectively in the future.*

Climate change protagonists are often quite vocal regarding action that should be taken especially within the health sphere, as demonstrated below by the Climate and Health Alliance, who are concerned with the lack of readiness of Australians to the adverse effects of climate change:

> *Australians are neither prepared for, nor informed about, the dangers of the warming climate and the severity and scale of extreme events they are likely to experience in coming years and decades. The unprecedented national heat-wave of January 2013, floods of 2011, wild weather of 2012, and bushfires of 2009 give an insight into the weather of a warming world. It is a world that may become increasingly dangerous in coming years, intolerable in coming decades and uninhabitable in coming centuries. Australia healthcare systems are ill-prepared to cope with extreme events and Australia's health professionals lack understanding of the health impacts of climate change. This affects the ability of both individuals and the health care system to prepare for and respond to extreme weather events. This puts lives at risk – not only the lives of those already threatened by climate change e.g. people who are chronically and/or mentally ill, elderly, homeless and infants and children – but of all Australians, as we are all vulnerable to extreme weather events* (Climate and Health Alliance 2013).

However a disaster is a disaster whatever the cause, and the response of health staff and health systems are likely to be identical regardless, for example if a flood is deemed a phenomenon of climate change, or is part of the 'usual' weather pattern, or is the result of population pressure resulting in housing areas being built flood prone or bush fire risk areas. As Turale (2010) observes, the increased pressure on the health systems from disasters and from the health effects of climate change will flow on to the nurses delivering the care. The increased health care delivery will challenge nurses at all levels, working in all specialties, to examine their level of knowledge skills, and preparedness. This study is one more piece of research which will add to this knowledge base by providing insight into the PHNs' understanding of their disaster roles in an increasingly unpredictable global setting.

Given that this research seeks to look at what nurses experience their roles are in disasters, the actual cause of the disaster is only significant as far as understanding the likely impact on communities, therefore it is useful to consider the likely 'victims,' those who are most vulnerable, to the effects of climate change in terms of preparedness for extreme weather events, such as would

be incurred during heatwaves. For example: recent government action towards the potential impact of climate change on Australian communities is evident within reports such as the South Australian Government's report titled: 'Prospering in a Changing Climate' (South Australian Government 2010) which notes that although all South Australians will experience a level of impact upon their health, some regions and socioeconomic groups will be more affected than others, particularly those least 'economically equipped' to move or adapt their living conditions. They suggest these groups include the elderly, indigenous communities, disabled children and individuals on low incomes. These are the groups that public health nursing traditionally has greater contact with and therefore more potential influence regarding specific health promotion and disease prevention activities within disasters.

The Australian Nursing Federation (ANF) has entered the climate change debate by releasing a position statement. This document acknowledges that nurses will be affected both personally and professionally by climate change and, 'as the largest component of the health workforce are at the forefront of providing care to communities and citizens affected by climate change' (Australian Nursing Federation 2011). The ANF makes recommendations, for example the incorporation of climate change impacts into nursing educational curricula, and educating existing nursing workforce to understand and respond to health conditions which are related to climate change. However, there has been little discussion to date in Australia as to whether or not nurses understand climate change, climate variability and how it impacts on their roles. The International Council of Nurses (ICN) has also issued a position statement calling on nurses to assist in the mitigation of the impact of climate change, with a focus on vulnerable groups, and also to take part in disaster preparedness (International Council of Nurses 2006). This information further informs the background picture of disaster nursing by a general call for research bodies and by nurses' own professional bodies to be aware of and to be engaged in disaster preparedness activities.

Disasters within the Australian landscape - heatwave, floods and fire

Natural disasters synonymous with Australia are: floods, devastating bushfires (wildfires), storms, storm surge and tropical cyclones and severe heat waves (Council of Australian Governments 2011; Mayner & Arbon 2010; Williams et al. 2009). The Australian Government website page, 'Natural disasters in Australia' notes the wide range of natural disasters within Australia. They acknowledge that while they can be devastating, they are also part of the natural cycle of the weather patterns of the country which can be exacerbated by human factors (Australian Government 2015):

> *Floods in Australia range from localised flash flooding as a result of thunderstorms, to more widespread flooding following heavy rain over the catchment areas of river systems. Flooding is also a regular seasonal phenomenon in Northern Australia. Australian towns were built on floodplains despite warnings from local Aborigines*…(Australian Government 2015).

The actual experience of disasters for many Australians therefore is, and has been, one of severe weather events. These historical events are now being intensified by greater human interaction upon the earths systems, creating the potential for increasingly negative human outcomes. The Council of Australian Government's (COAG) National Strategy for Disaster Resilience observed that:

> *…natural disasters are a feature of the Australian climate and landscape and this threat will continue, not least because climate change is making weather patterns less predictable and more extreme. Such events can have personal, social, economic and environmental impacts that take many years to dissipate* (Council of Australian Governments 2011, p1) .

The past few years, have significantly challenged Australia's disaster preparedness framework and tested the surge capacity of local and national health systems as floods, bushfires and heatwaves have significantly impacted upon communities (Mayner & Arbon 2010; Rokkas, Cornell & Steenkamp 2014). Australia has recently experienced a number of large scale and devastating natural disasters, including catastrophic bushfires, far reaching floods, and damaging storms. In 2009, the 'Black Saturday' bushfires were the culmination of a severe and extended heatwave in Victoria, which resulted in 173 deaths from extensive overwhelming bushfires and also resulted in over 370 deaths from extreme heat (McInnes & Ibrahim 2013; PwC 2011). Additionally many smoke inhalation injuries were recorded as smoke covered parts of Victoria and New South Wales for well over a month (Mayner & Arbon 2010; Turale 2015). These dramatic events are not isolated, once-in-a-lifetime events. The 2010 Royal Commission report into the devastating Victorian 'Black Saturday' bushfires warned that it would be a mistake to treat Black Saturday as a 'one off,' stating that bushfire risks are likely to increase in Australia due to population growth at the rural-urban interface and climate change (Victorian Bushfires Royal Commission 2010).

Global climate model projections estimate a 1.5ºC degree rise in mean temperature is anticipated by 2030 across south-eastern Australia and heatwave events are anticipated to be occurring more frequently and with greater duration (McInnes & Ibrahim 2013). These authors acknowledged in their paper, which looked at preparing Victorian residential aged care services for extreme heat, that the excess health burden in heatwaves predominantly falls on the elderly population with various risk factors inherent this group contributing to this burden. For example during the first week of the 2009 heatwave in the Australian State of Victoria there were an estimated 374 excess deaths, with most mortality amongst those individuals aged 75 years or over, (McInnes & Ibrahim 2013).

Templeman and Bergin in their 2008 paper, 'Taking a punch: Building a more resilient Australia' pointed out that Australia has been 'lucky' so far that its response capability has not yet been tested in the event of a significant disaster event (one which is large enough to impact on critical infrastructure systems for an extended time or to cause extensive mortality or morbidity).The

authors cited the examples of such a disaster event including ‘a significant flooding from the impact of a major cyclone combined with storm surge that affects both urban and regional centres simultaneously’ (Templeman & Bergin 2008, p. 4). This scenario was realised just a few short years later; Australia has now not been so ‘lucky’. Between December 2010 and January 2011 flooding of historic proportions occurred. According to the Commission of Enquiry into the 2010 Queensland Floods, 33 people died and over 78 per cent of the state was declared a disaster zone (an area bigger than France and Germany combined). Over 2.5 million people were affected with more than 29 000 homes and businesses suffering some form of inundation. The cost has been estimated in excess of $5 billion. Floods also occurred simultaneously in other states across eastern Australia (Queensland Commission of Enquiry 2012, p. 31).

While bushfires and floods have received significant attention within the Australian media and literature, heatwaves are becoming increasingly recognised as a growing threat to Australia’s health and health systems and therefore are of interest for disaster nursing research. McInnes and Ibrahim (2013) observe that in Australia heatwaves are estimated to have caused over 4,000 deaths over the past 200 years, double that attributed to floods and cyclones. The Australian Government recognises the lethal hazard that heatwave events pose and wrote the following description on their website:

> *Heatwaves are the most underrated of the natural disasters, as the bushfires that accompany many heatwaves tend to get most of the attention, and in Australia they have caused the greatest loss of life on any natural hazard (except disease). Unlike bushfires, there is generally no escaping a heatwave. While the 1939 'Black Friday' bushfires in Victoria killed 71 people and are written into our history, the accompanying heatwave – which triggered the blazes – claimed 438 lives and yet remains largely unacknowledged. On the 30 January 2009, prior to the Black Saturday fires, there had been a week of temperatures over 40 degrees Celsius, with 18,000 homes in Victoria without electricity as the heatwave conditions tested the electricity grid.* (Australian Government 2015).

The foreword of the report undertaken for the Australian Government Department of Climate Change and Energy Efficiencies National Framework, ‘Protecting human health and safety during severe and extreme heat events,’ warned that heatwave deaths are likely to increase with an ageing population, a growing population and climate change. The report also mentioned the disproportionate effects of extreme heat on vulnerable populations (PwC 2011):

> *By 2050 an extreme heat event in Melbourne alone could typically kill over one thousand people in a few days if we don’t improve the way we forecast, prepare for and manage these events. It is likely that Brisbane would face a similar death toll with Adelaide, Sydney and Perth also increasingly impacted…the morbidity impacts from future extreme heat events are likely to be very large. Those who are affected come disproportionately from the vulnerable groups in our community.*

Whilst climate change may affect weather patterns, the past few decades have created increasing awareness of the correlation between human impact on natural systems and disasters within

Australia, for example Bushnell and Cottrell (2007, p. 3) described the increasing impact of bushfires due to the encroachment of people into the Australian 'bush', "Bushfires are a natural part of ecosystem processes in Australia. However, as human settlements expand into or adjacent to bushland areas, the risk to lives and property increases." This encroachment into risk areas is important for health professionals to be aware of when they are considering who are the vulnerable populations within their communities: it is often the most vulnerable groups and individuals who are forced to live in the 'riskiest' places in Australian communities, whether that be bushfire zones or areas at risk from floods where the cheaper housing exists.

Australian disaster arrangements

Within Australia the emergency management arrangements sit within the Commonwealth Attorney-General's Department and are the responsibility of the government agency, Emergency Management Australia (EMA). The Australian constitutional arrangements are however that the individual state and territory governments have primary responsibility for emergency management within their own jurisdictions. The role of the Australian (federal) Government in emergency management is to help coordinate national efforts, if an emergency exceeds the capability of a single state or territory, and also to assist disaster research, management of information and to inform mitigation policy and practice (Australian Emergency Management Institute 2014).

The disaster preparedness approach adopted within Australia is 'comprehensive' with activities required across prevention, preparation, response and recovery; and takes a holistic, 'all hazards' approach. The Australian emergency arrangements are based on partnerships between the Commonwealth, state/ territory and local governments; business and industry, and the community. This means that the management approach is 'integrated,' ensuring that all governments, relevant organisations, agencies, the private sector and the community are involved. The arrangements are documented by EMA in a series of manuals (Emergency Management Australia n.d.). Manual 2, *Australian Emergency Management Arrangements* provides an overview of all the Australian disaster arrangements and documents 'public health strategies,' within its disaster prevention strategies section. Contained within the formerly named *Disaster Medicine Manual 9*, there are two chapters dedicated to public health, one being principally concerned with pandemics.

The recent scale of disasters within Australia and predicted future disaster events, have stimulated action across all levels of government. One of the most significant policy frameworks, in terms of strategic direction regarding disaster management, was the 2009 National Strategy for Disaster Resilience (Council of Australian Governments 2011). This report stated the need for an 'all of government approach' to disasters, and a commitment which would see Australian communities engaging in 'sustained behaviour change' both across society and within all sectors of government. The report also created awareness that the global disaster threat has challenged the way in which Australia approaches disasters. The Australian Emergency Management Institute, subsequent to

publication of the National Strategy for Disaster Resilience, recognised that reforms within the traditional disaster management approach were needed to encompass a whole of health focus, and have aligned their literature and educational material correspondingly (Australian Emergency Management Institute 2011).

Mirroring the global shift and commitment to a disaster risk reduction approach, which orientates disaster agendas to be more inclusive of health, the EMA has changed the title of their *Disaster Medicine Manual* to, *Australian Emergency Management Handbook Disaster Health*. The authors note this broader approach regarding the disaster health field, '*represents the whole-of-health focus that goes into the prevention of, preparedness for, response to and recovery from disasters in Australia*' (Australian Emergency Management Institute 2011).

Disaster arrangements for health in each state and territory can be found on their respective Department of Health websites. Scrutiny of these websites shows links to policies and plans, which provide some insight into the framework of disaster preparedness and response which PHNs will be required to work within. For example, there are references to the functions that public health units undertake during pandemics, surge guidelines for public health units and directions for border control nurses (New South Wales Health 2014). Australian States that have suffered considerable human and economic loss from disasters over the past few years, such as Queensland, have significantly increased their disaster materials and resources. For example, the Queensland Government, subsequent to recent disasters such as Cyclone Yasi and the 2009 influenza pandemic, developed a comprehensive, visible and extensive array of disaster management plans and policies on the 'get ready Queensland' disaster resources webpage (Queensland Government Disaster Management 2015). The 2014 Queensland Health pandemic plan provides a strategic outline of the responses that Queensland Health has formalised for pandemic influenza. Although the plan does not include any detailed operational procedures, it provides links to all the individual organisational health units, including the hospital and health services which the individual public health units lie within. In broad generic terms, it outlines roles and responsibilities in a pandemic (Queensland Health 2014). The documents however are not detailed operational plans and the individual roles and functions of health workers are not visible. Given that this research is interested in PHNs' experiences of their roles, such literature serves to inform the background setting within which Australian PHNs operate, and what the existing literature can, and cannot, tell us about their roles.

Understanding Disaster Nursing

This section reviews some of the Australian and international disaster nursing research to provide insight into the expanding field of disaster nursing literature.

Australian disaster nursing research

Although there is an increasing volume of disaster literature, there still remains relatively little literature dedicated to disaster nursing in Australia, specifically in the out-of-hospital setting. Researchers, such as Chapman and Arbon (2008), have raised concerns that Australian disaster nursing research lacks focus and has a limited evidence base. Australia has not suffered a disaster which has completely overwhelmed the community to the extent that the preparedness and response roles of nurses have been questioned. Although this may have influenced the disaster nursing research undertaken to date, there is a growing body of core disaster research and an international call for further research across all areas of disaster nursing (Geale & Duffield 2015; Rokkas, Cornell & Steenkamp 2014; Turale 2010; Turale 2012, 2014, 2015; Usher et al. 2015; Yan et al. 2015).

A website and database search for Australian literature specifically relating to public health units/public health nurses and disasters resulted in five articles: two articles related to pandemic planning (Eastwood, Massey & Durrheim 2006; Hope et al. 2011), one concerning bioterrorism competencies (Canyon 2009), one reporting retrospectively on the public health response to a natural disaster (Lee & Collings 2000) and one literature review (by the author of this research) which considers the challenges to Australian public health nurses in disaster preparedness and response. Aside from the latter article, the contribution of PHNs within the current literature is minimal; to date their role has been obscured by the use of generic terminologies such as: 'public health medical staff' and 'public health communicable disease staff'. Roles for public health unit staff however were noted as 'vital' in a pandemic and include:

> *surveillance, education, communication, case ascertainment, case management (but not clinical management), infection control, contact tracing, monitoring contacts in home quarantine, surveillance at the borders, epidemiological studies and immunisation* (Eastwood, Massey & Durrheim 2006, p. 117).

The flexibility of public health unit staff was noted by Lee and Collings (2000) who described the public health unit staff's visit to a recovery centre following a severe hailstorm, their subsequent visits to individuals' homes to advise on public health risks and the creation of fact sheets and information which were distributed to the public. Again within this paper it was not clarified who did what. The nurses, if they were involved, were assumed to be grouped under the 'medical' team.

Ranse and Lenson (2012) speculated that both the public and the health care profession have historically placed nurses' roles firmly into the acute care setting, due to reports and media images from heavily publicised images from post disaster impact zones. Their study of 11 volunteer nursing members of St John Ambulance Australia, who participated in the 2009 Victorian bushfires, provided insights into the experience of nurses responding to a disaster in the out-of-hospital environment. Ranse and Lenson established these nurses' roles in the disaster setting extended beyond a clinical role and included the provision of psychosocial support, care co-ordination and

problem solving. The authors noted the existing paucity of research regarding Australian nurses' roles in disasters and a lack of understanding regarding their actual disaster roles. They stressed the importance of research, which seeks to gain understanding of what nurses' roles are in disasters, so that education and programs and nursing competencies are able to reflect the actual reality of disaster nursing roles and what is needed. Furthermore the authors recommended that, 'more consideration should be given to primary, community public health and mental health nurses to respond to disasters, alongside emergency, intensive care and peri-operative nurses' (Ranse & Lenson 2012, p. 161). This study lends support for this research since it points to a need to better understand what the nurses themselves perceive their disaster roles are, this approach reflects the nurses' reality which is useful to inform education policy and practice for disaster nursing since it is based on nurses' actual experiences.

Much of the Australian disaster nursing literature has an acute health sector focus; for example the roles of nurses in major hospitals, in the operating room; or are related to surge capacity embedded within medical response and retrieval literature (Ranse & Lenson 2012). It is understandable that the initial focus for disaster (nursing) literature has been dedicated to the acute sector due to the anticipated surge stress which would occur due to casualty presentations at hospitals following a disaster. In an urban area, for example, it is estimated 50-80% of casualties would self-present at hospitals 1-1.5 hours after the disaster event (Bergin & Khosa 2007; Edwards et al. 2006) and these systems need to be prepared. The Australian Institute of Health and Welfare (2014a) report noted that Australia's population is predominantly urban (70% live in major cities) and almost two thirds of all Australian nurses work in hospitals. Studies such as this, may facilitate greater understanding of the PHN role for nurses working in the acute care sector, but who may at some future point be required to assist, or collaborate with, nurses working in a disaster in the out-of-hospital setting.

A study by the Australian researchers, Ranse et al. (2014) aimed to determine the research priorities for disaster nursing, noting that given the increasing global disaster nursing literature, it would be beneficial for the nursing population to ascertain an agreed research priority list. Using a Delphi technique, nursing members of World Association of Disaster and Emergency Medicine (WADEM) and World Society of Disaster Nursing (WSDN) generated research statements which were ranked for research priorities over three rounds of distribution to the WADEM and WSDN international nursing members. The research found that the psychosocial aspects of disaster nursing were the main research concern and priority for the nurses who took part in the research. The authors noted that this area of research is 'scantily' represented in the current disaster nursing research. It was further acknowledged that a study limitation was that the nurses who took part had existing membership with WADEM/ WSDN and therefore may not represent other nurses with interests and insights into disaster nursing. Certainly with the minimal number of PHNs, relative to acute sector nurses, there was likely to have been a markedly reduced voice for public health

capacity of disaster nursing relayed within the study. However this concern for the psycho-social impact of disasters has also been cited in other studies; for example (Sato et al. 2014), citing a Japanese study, reported that following the 2011 Japanese earthquake over 70% of support nurses had both incurred psychological and physical difficulties amongst the populations they cared for. Given the paucity of literature on nurses working within the area of public health within Australia it is expedient to establish what they consider their roles are. These roles may then be compared with other public health nurse roles in other countries to further consider what the PHNs and their community needs are pre, during and post disaster. This may improve planning and assist in education requirements for PHNs in future disaster events.

Arbon (2009) observed that surgical and emergency care response to disasters have only a limited impact on the health and recovery of affected communities and that the real work to prepare for and recover from disasters needs to be undertaken by community members and health practitioners working in communities. Arbon argues that these individuals:

> *have an important role to play in developing the capacity and resilience of communities so that they are well prepared and, when disaster strikes, in re-establishing the health care services and providing the rehabilitation and ongoing care that is required by survivors. It is these inputs that have the greatest impact on the survival and recovery of affected populations. As a result, the role of nurses and other health professionals across a broad range of specialties during all phases of a disaster should not be underestimated.*

Therefore, 'primary health care and health promotion activities to prepare communities to mobilize resources for potential disasters is critical' (Arbon 2009, p. 334).

It is only very recently, concurrent with the emergence of disaster resilience and subsequent to the heat waves which occurred in 2009 across the South East Australian states, that engagement within the community sector with nurses such as the Royal District Nursing Service (RDNS) in South Australia for assistance with extreme heat event was been initiated (SA Health 2013). This lack of awareness of the impact of disasters has historically led to a concomitant lack of preparedness within health systems. Templeman and Bergin (2008, p. 4) raised the point that 'there is little information on the record to generate public confidence that we really know what the breakpoint is in terms of surge and sustainability'. An example of this lies in a report by the Institute for Sustainable Resources regarding the impact and adaptation response of intra-structure and communities to the southern Australian heatwave experience of 2009:

> *The Department of Health…confirmed, that although it knew anecdotally that more people attended hospital during hot weather, it had no formal plans in place. It had never previously had to respond to extreme heat as an emergency event.* (The Institute for Sustainable Resources 2010, p. 89).

The report also noted that this heatwave (responsible for over 374 excess deaths in Melbourne, 50-100 in Adelaide with over 3,000 heat related illness reports) found that government

departments, local councils, the hospitals and emergency responders as well as community were underprepared for such an extreme heat event. Greater awareness and understanding of nurses regarding their disaster roles within Australia and more education regarding the effects of different disasters upon health, may assist in the planning, mitigation and response to such events in the future.

Cox, in her 1997 study on the experiences on long-term healing of a community after the 1983 Ash Wednesday bush-fires, recognises the work of all nurses, whom she notes are present at every stage of a community disaster. This is from the onset, when first aid is required at the disaster impact site, the hospital, the psychiatric and rehabilitation setting, the community health centres and the district nursing services. The frontline, in this example, is temporal and spread geographically across the entire health system. Cox revealed that the local community nurses were paramount in the community healing process, due to what Cox termed their 'insider' status. In Cox's view this did not just relate to just those local nurses but also to nurses from outside (with the exception of mental health nurses). 'Outsiders' (such as relief agencies and social workers) who came into the area post disaster needed to link to the 'insiders' in order to gain access to those who required help. Cox noted that, although the insider/outsider phenomenon is recognised in disaster literature, and recommendations have been made about working from the inside in disaster management plans, little research has in fact been completed in this area:

> *Outsider health and welfare organisations make their plans in isolation, while the insider plan lies with individuals… there is no community involvement, and in the meantime the region is as vulnerable as it was in 1983* (Cox 1997, p. 223).

Cox in this research offered an interesting perspective on the importance of the role in nurses in a disaster, as well as a perspective on the 'invisibility' of the nurse. The research discussed the 'insider-outsider' phenomenon which occurred during relief from outside agencies to their damaged community. A suggestion of the research is that the:

> *sense of invisibility that nurses sometimes express in respect to their value in society may at least at the community level be partly attributed to this 'existential insideness'. It is not that their work is undervalued, their very location as existential insiders indicates their value, but it simultaneously renders them silent. They belong to the private sphere.* Cox (1997, p. 223).

Roles, competencies, knowledge and education

Over the past decades there has been a shift from a primarily emergency response to disaster preparedness, prevention and mitigation (Turale 2014; Yan et al. 2015). The Hyogo Framework for disaster risk reduction, ratified at the 2005 World Conference on Disaster Reduction in Hyogo, Japan, considered that the strategic goals and priorities for the decade 2005-2015 were to develop the capacity of global systems towards disaster risk reduction and to develop the strength of systems to build resilience to hazards (UNISDR 2005). A decade later the Sendai Framework for Disaster Risk Reduction was endorsed at the 2015 Third United Nations World Conference on

Disaster Risk Reduction (WCDRR) in March 2015. The Sendai Framework built on the Hyogo Framework but placed health at the centre of disaster preparedness. The Sendai Framework also recognised the importance of disaster players at all levels of the State being responsible for and involved in disaster preparedness and response planning and decision making (UNISDR 2015). The Sendai Framework therefore serves to reinforce the importance of research such as this, which strives to better understand what nurse's roles are in the disaster health environment, logically to increase awareness regarding best practice for disaster preparedness and response and to inform disaster planning, policy and education.

Disaster events create a space within research to consider the existing skills and knowledge that nurses have, and will need, to work in disaster situations. Growing concern regarding the increase in disaster events has prompted research interest from authors interested in disaster nursing. Geale and Duffield (2015), Mayner and Arbon (2010), Usher (2010), Hammad, Arbon and Gebbie (2011), Ranse, Hammad and Ranse (2013), Turale (2014), Rokkas, Cornell and Steenkamp (2014) and Usher et al. (2015) propose that nurses, and their affiliated organisations, need to review their nursing practice: their skills, education knowledge and roles within a society which is becoming more disaster affected to prepare nurses for future events. In 2009 the International Council for Nurses in their document *ICN Framework of Disaster Nursing Competencies* called for all nurses to be disaster trained (ICN 2009); this has stimulated debate reading this issue within the literature, and literary productivity within the profession regarding which skills and competencies are required for which nurses. Gebbie and Qureshi (2002, pp. 46-7) acknowledged the complexity that disasters and emergencies presented to nurses in terms of skills needed and argued that, 'in each situation, regardless of cause, the competencies nurses need to possess in order to respond effectively are essentially the same,' and further added in their 'outline for action' that the first step toward emergency preparedness is the 'identification of *who* needs to know *how* to do *what*."

Canyon (2009, p. 1) acknowledged that public health professionals (including communicable disease specialists) are expected to be well prepared for emergencies due to their key role in an emergency response, they have to:

> *be aware of planning issues, be able to identify their role in emergency situations and show functional competence.*

Canyon's study reviewed the competencies of various health professionals in bioterrorism and response, aiming to identify knowledge gaps and differences between the health professionals. The author noted that to date Australia has not adopted a common set of public health competencies and that to be ready to respond to disasters requires a well-prepared workforce.

Australian PHNs have been active in recent disaster activities; however this has not been visible in the published literature. Queensland PHNs for example assisted during the floods at evacuation centres in the Ipswich and Brisbane area, performing surveillance, and infection control and

immunisation duties. This was confirmed in a discussion with the Queensland Health, Health Protection Unit, Nursing Director (Weller, pers. comm.,10 Sept 2012). Since there are no publicly available documents to view these nursing actions, interviewing these nurses would elicit essential information regarding their views on their expanded disaster role, compared with other PHNs.

Disaster health and disaster nursing, as a complex combination of human-environment phenomena, sits squarely in the public health and public health nursing domains and needs to be viewed with a public health focus. However PHNs need to balance their public health role amongst the other big pictures within health. Unless nurses' employing body and or management structure considers the incorporation of disaster knowledge and activities important enough to be entered into the existing role, nurses may not perceive they can justify allocating precious time to disaster-planning and capacity building. For example: the WHO state in their 'Emergency Risk Management for Health Fact Sheet' on communicable diseases, that communicable diseases require special attention during disasters. This is because they have the potential to cause epidemics which have the capacity to undermine and overwhelm a community which is already compromised by a disaster (World Health Organization, Public Health England & United Nations Secretariat of the International Strategy for Disaster Reduction 2013). However the WHO also notes that while communicable diseases can cause mortality and morbidity in disasters, the post disaster outbreak risks, caused by natural hazards, are frequently overestimated. The WHO has an international agreement with their 194 member states to conduct surveillance in order to prevent and control the global spread of hostile public health events, which includes epidemics (World Health Organization, Public Health England & United Nations Secretariat of the International Strategy for Disaster Reduction 2013). The roles of Australian PHNs in disease surveillance within communicable disease control therefore both originate and are guided at an international level by the WHO.

It is possible that the lack of clarity of the role of Australian nurses in disaster events persists because nurses in Australia receive little or no disaster education in their under-graduate curricula. A study by Usher and Mayner (2011, p.75) found that:

> *the inclusion of disaster nursing content and practice in Australian undergraduate nursing curricula is negligible...nursing students register with little or no knowledge of the area of disaster nursing, yet nurses are the major professional body to be called upon to respond when a disaster occurs.*

This is in direct conflict with the recommendations made in 2009 by the International Council of Nurses (ICN) and the World Health Organisation, who in their document *ICN Framework of Disaster Nursing Competencies* stated, 'disaster education for all nurses is vital' (ICN 2009, p.5). Disaster education and training for all health professionals is ad hoc within Australia. FitzGerald et al. (2010, p.4) for example noted, 'there is a relative lack of consistent and accessible education

programs in health disaster management in Australia, limiting the development of capability in this field.*'*

The ICN and WHO stipulate that all nurses require disaster knowledge and skills since 'as the largest group of healthcare providers, nurses need to develop competence in disaster response and recovery. Therefore, disaster education for all nurses is vital.' (ICN 2009, p.5) However, noting the complexity of disasters the ICN acknowledges that *"*…each nurse acquire a knowledge base and minimum set of skills to enable them to plan for and respond to a disaster in a timely and appropriate manner" Goodwin Veenema (2007, p.17). The ICN have developed a framework of basic disaster nursing competencies for all nurses, recommending that this is incorporated into their education programs. From this basic skill set further competencies can be developed according to the nursing specialty and community need. The Nursing and Midwifery Board (NMBA) of Australia is responsible for the regulation of the nursing (and midwifery) professions. In February 2014 the NMBA posted a statement to clarify their position on nurses' responsibilities during a national emergency. This position statement endorsed the 2006 ICN position statement for nurses and disaster preparedness, and the 2009 ICN Framework of Disaster Nursing competencies referred to earlier in this chapter. There are no specific competencies for Australian PHNs at the date of writing this research. The NMBA noted that the roles of Australian nurses in disaster response is 'underpinned by the application of knowledge, skills and professional decision making,*'* and stated that the Board provides information on policy and professional advice for nurses and midwives (Nursing and Midwifery Board of Australia 2014). To date, therefore, policy directive or formal advice for Australian nurses to follow is lacking.

The international public health disaster nursing literature

The following section contains literature which, although not describing the nurses 'lived experience,' is however relevant to further inform the research question, by providing greater insight and awareness of the issues surrounding the disaster environment which the PHNs' may work within.

In some countries public health nurses have been very active generating disaster literature, this has been particularly evident in the countries where PHNs are the largest professional group in the public health workforce for example USA, Malaysia and Indonesia, and whose role is considered critical to disasters (Chiu & Polivka 2012; Maulidar, Urai & Chaowalit 2010).

Maulidar, Urai and Chaowalit (2010) conducted a descriptive correlation study to review the knowledge, self-preparedness and perceived skills regarding tsunami disaster nursing among 97 PHNs working in a tsunami affected area of Aceh Province in Indonesia. The PHNs are considered the front line disaster healthcare service in this tsunami prone community. The authors consider that the PHNs require appropriate knowledge and skills to apply in a tsunami disaster scenario to

support the successful management and provision of care during a tsunami disaster. The study aimed to describe the PHN's perceived skills in the recovery phase of a disaster and also to examine the relationships between tsunami disaster nursing and self-preparedness. The authors found that PHNs who have knowledge of the disaster will have better disaster nursing skills, and those who have better nursing skills have better self-preparedness in disasters. The authors therefore concluded that it is important to enhance the educational self-preparedness training for nurses to improve their skills in tsunami disaster nursing. This study is of significance to the research question in terms of education and knowledge of disasters and their relationship to perceived disaster skills.

The notion of what is the 'front line' in a disaster and who are the 'front line' nurses is interesting since it will be interpreted differently depending on the disaster type and the health system and country within which it occurs. It is therefore not a very useful concept (although is used widely and historically within the literature). It is more useful to consider why nurses are integral to disaster response and what skills they bring to this response. Maulidar, Urai and Chaowalit (2010) for example in their post tsunami study, described above, consider PHNs as 'front line' healthcare services due to their responsibility to community health, since these nurses have specific skills to contribute during a disaster. Maulidar, Urai and Chaowalit (2010) stipulated that the essential skills for nurses in their disaster front line (the community, since the affected population resided in predominantly rural areas with little health infrastructure) were psychosocial, mental health and spiritual care, surveillance and outbreak investigation and primary care services.

Awareness of the significant negative impact of large disasters in the Asia-Pacific region with associated high numbers of fatalities, injuries, psycho-social suffering and economic loss (Yan et al. 2015), has led to an increase in research of the disaster roles of nurses in this area. For example Yan et al. (2015) prompted by the lack of knowledge regarding education, skills and competencies for all nurses in disasters, undertook a study of Chinese hospital nurses who had assisted in three large earthquakes in China. The authors were concerned that there was little research on disaster nursing, disaster education and training in China. They decided that there was an 'urgent' need to understand what competencies nurses need to be prepared to respond to disaster situations' (Yan et al. 2015, p. 3). This study, at the time of writing, was considered to be unique in that no other study had asked Chinese nurses about their disaster experiences and their perceptions about what they thought should be included in disaster nursing competencies. The study found that none of the 89 hospital nurses surveyed had received any disaster nursing training prior to their deployment to the earthquake sites. The survey results described the specific acute nursing care skills, which the nurses used most frequently during the response and they also emphasised the importance and need for psychosocial care to be delivered to themselves and their patients.

Given that China, like Australia, has been historically prone to disasters, and has a health care system with an increasing number of acute care services, this study is of relevance to Australian nurses. Public health nurses, while not usually being expected to undertake such response missions, may benefit from understanding this acute response effort focus, as they may need to communicate with front line responders following a disaster. In addition, studies such as these, offer insight into the roles, education and competencies of the different disaster roles for nurses. Understanding other nurses' roles may also provide knowledge and understanding of where each nurses professional boundaries lie. Yan et al. (2015, p. 8) offered recommendations for disaster nursing in their conclusion including:

> *Further research both qualitative and quantitative is needed to develop a deeper understanding among different nursing groups and different disasters to provide more implications for the disaster nursing and disaster education in the future...We believe that action by nurse leaders, and other leaders in health, education and government China, is urgently needed to work collaboratively to help ensure the preparedness of nurses for frontline work in disasters.*

Usher et al (2015 p. 6) was similarly concerned regarding the increase in disasters in the Asia-Pacific region and the concomitant void in nurses' disaster knowledge and skills and preparedness. The authors emphasised the timeliness of their research, since almost half the world's disasters occur in this area and concerns regarding the health, social and economic impacts on the Asia-Pacific communities are increasing. The authors undertook a large cross-sectional survey of 757 hospital and community nurses across seven countries in the Asia Pacific region. The study reviewed the nurses' previous disaster experience for background purposes, and then asked three research questions related to disaster knowledge, disaster management skills and perception of preparation for disaster management. Amongst the many results the study found that overall the disaster preparedness of the nurses was low to moderate and that there were gaps in their knowledge and skills which would be needed to carry out effective disaster response. Based on these findings and the increasing impact of disasters in this area, the authors recommended that disaster training is offered to the nurses in the study regions and beyond; they also suggested that disaster education should be a component of all pre-registration nursing education and that further research is required to determine if their findings are consistent across and within other countries.

Sato et al. (2014) conducted an ethnographic case study of Japanese community based PHNs. This study was based on the nurses who responded during the devastating 2011Tohoku Japanese earthquake. The magnitude 9 earthquake and the ensuing tsunami resulted in the deaths of almost 20,000 people and immense on-going suffering of the impacted populations. The coastal area which was most affected was remote, and had an ageing population. The study aimed to further disaster nursing knowledge by looking closely at the experience of PHNs who worked in the disaster, aiming to enhance understanding of their role and also to help predict future situations that the PHNs may encounter. The authors considered that the Japanese PHN role in a disaster

was ‘larger’ than for the hospital nurses since they were required to provide care in the acute disaster phase and play a co-ordination role, as well as provide psychosocial support. The authors therefore noted that PHNs should be competent across all three phases of the emergency cycle. The methodological approach used, unlike most other disaster nursing research, aimed to explore how the nurses considered and developed their actions within, and in relation to, the culture and the environment of the affected area. This approach, involved hearing individual PHN disaster nursing stories. In-depth information into the nurses’ experience was sought: for example, how she (the nurse) managed and interacted with the disaster environment, which provided a different perspective, her lived experience, to add to the disaster nursing literature. The authors’ research revealed several themes, among which was the PHNs’ strong desire to protect the local community which was revealed by undertaking many responsibilities. The PHN was also identified as having a ‘strong sense of mission’ (Sato et al. 2014, p. 4). The authors considered that knowing the community and being able to build relationships was crucial to disaster preparedness and gave the PHNs an advantage during the disaster. For example arriving medical teams found the PHNs’ local knowledge of individuals in the communities invaluable.

The USA has experienced a considerable number of disasters and is currently a prolific producer of disaster literature. The large majority of current published literature within the field of emergency preparedness and response has emanated from the USA, (Yasmin et al. 2015). Chiu and Polivka (2012) note that within the USA disasters have served as ‘focusing events,’ whereby PHNs and emergency managers have been propelled to rapidly review their resources, roles and response capabilities in order to have their strongest players in the disaster health field. Goodwin Veenema (2007, p.93) articulates the increasing appreciation for nurses in disaster preparedness in the USA post 9/11 and hurricane Katrina:

> *nurses constitute the largest sector of the health care work force within the United States and will, with certainty, be on the front lines of any emergency response. As part of the country’s overall plan for disaster preparedness, all nurses must have a basic understanding of disaster science and the key components of disaster preparedness.*

Fisher et al. (2010) and Spellman (2007) note that public health nurses in the USA have become the natural choice for community disaster response due to their ubiquity, and existing role which lends itself well to the disaster preparedness and response. Chiu and Polivka (2012, p.136) acknowledge the increasing importance of the American PHN as a critical disaster response group by recognising the value of their population based practice and community knowledge:

> *nurses working in roles with a ‘population–focused’ practice grow increasingly important in the current global environment that includes escalating threats of terrorism and expanding interest in disaster preparedness. Public health nurses (PHNs) are a critical response group that historically has been and continues to be relied on during public health emergencies and disasters based on knowledge and working with the community as a whole. Their skill at assessing the health of larger*

> *populations, and experience collaborating with multidisciplinary teams and the community to provide disaster response and appropriate education, are critical during incident response and recovery efforts.*

American PHNs have historically played key roles in disasters, for example in tornadoes (MacMaster 1999) and hurricanes (Langan & Palmer 2012). Nursing literature generated subsequent to these disasters has assisted the process of defining the American PHNs' experiences and also formulating recommendations for those PHNs working towards improved disaster preparation and response in disaster-prone communities. These disaster experiences and knowledge gained have been shared within the well-established US journal *Public Health Nursing*. Subsequent to the devastating impact of Hurricane Katrina, the American PHNs added a large body of literature to the disaster nursing agenda, especially regarding vulnerable populations. This literature emerged due to the awareness that the health of these population groups (for example children, the elderly, disabled individuals, those with chronic medical conditions, mental health patients, pregnant women and socioeconomically disadvantaged populations) suffered disproportionately, for example; when being cared for in evacuation centres (Fisher et al. 2010; Hutton & Tilden 2010). These insights into evacuation centres are useful for PHNs in Australia looking at how to plan for population health en masse, to prevent disease outbreaks and conduct surveillance activities.

The role of an American PHN in a disaster was delineated by Spencer and Spellman (2013, pp. 689-90) in their educational reference book chapter for PHNs, as that of integrating the science and art of nursing with established public health science (epidemiology, statistical analyses, incident response and management). The authors wrote that the PHN has a 'vital' role at the time of disasters, and that given that PHNs claim that the greatest part of their day-to-day roles is concerned with prevention and health education, then preparation for disasters within their communities will be a primary focus. The authors further articulated:

> *PHNs are a recognised and appreciated part of their communities. Like all branches of nursing, they benefit from an established history of public trust. With their expertise co-ordinating and implementing large scale programs that address the needs of the community, PHNs are well positioned to assume a leadership role in a disaster response…While the public health workforce has always prepared for and responded to community disasters, current threats to our communities necessitate training on a new and different level. The times in which we now live make it imperative that public health nursing keeps pace with the demand for skills in the disaster and emergency response areas.*

The authors also made the important observation that PHNs are one of the few health care professionals 'who communicate with many different groups in the community on a regular and established basis,' this means that in the event of a disaster their disaster preparedness roles will extend out to these groups (Spencer & Spellman 2013, p. 691). While this information is based on USA PHNs, it is useful to look into this space for comparison regarding the roles of Australian

PHNs, especially given the global context of disasters, their indiscriminate nature and their increasing human impact.

Rebmann, Carrico and English (2008) conducted a qualitative study of 32 American PHNs, aiming to delineate lessons learnt from the nurses' involvement in disasters to inform the public health nursing community regarding gaps in future preparedness for disaster events. The nurses involved in the study were mainly PHNs working within an infection control sphere of activity. The data was collected in the form of narratives through audio taped focus groups; the narratives were transcribed verbatim and then thematically analysed. The authors identified the principal issues were: the challenges of communication during disasters, education (of their communities) and infection control within temporary (evacuation) shelters. Several of the findings from this study are described which may have relevance to the Australian PHN context and disaster setting. The ability of the infection control nurses to relay consistent messages, pre and during disaster response was found to be paramount to maintaining public trust. Changing messages mid-disaster was seen by the nurses as losing respect and confidence by the community, although at times this was essential. An interesting finding of the study was that communication remained an integral component of disaster response for the nurses, regardless of whether the disaster did or did not involve an infectious agent. The authors described how the establishment of partnerships between other health professionals within the disaster arena was seen as a way to enhance the ability of communities to respond effectively during the disaster. The infection control nurses realised that they were often the liaison people, bridging the communication gaps between the public health department and the community. The creation of partnerships meant the infection control nurses would know, up front, who their partners were in a disaster which would result in more efficient planning and response. A further finding was that natural disasters can incur significant public health impacts if infection control strategies are not implemented correctly and in a timely fashion. Lastly, the study established that the nurses considered that public education should be undertaken before (another) disaster occurred. The rationale for this preparedness was to reduce the burden on the hospitals since the public, with increased information, would theoretically have increased awareness and understanding of what their response should be rather than presenting at health care facilities en masse.

Chapter Two Summary

This chapter has provided the setting and the foundations to consider the research question, '*what is the lived experience of Australian public health nurses' disaster roles*?' Given that the research topic covers a very large and diverse area: disasters, public health and nursing, this has been reflected in the broad array of literature sourced. Due to the paucity of literature on Australian PHNs, international literature was also reviewed to provide insight and comparison regarding the Australian PHNs' disaster roles and experience.

The chapter commenced with an overview of Australian PHNs, followed by a review of the disaster literature and the current global and local 'disaster situation,' to set the scene, and provide context to the complex health situations which PHNs and other health staff and communities (potentially) face. Australian and international literature was reviewed to provide background and inform understanding regarding the PHNs' day-to-day roles, as well as their roles and functions in disasters.

While the literature reviewed established context for the research question, there was a gap in information which informs the research question. There was no literature found (other than that by the author) which looked at Australian public health nurses experiences of their disaster roles. Minimal information exists regarding how Australian nurses working in a public health setting, articulate their roles and functions in disaster preparedness and response. Specifically, there is little information regarding how the public health nurses experience disasters and how their interpretation of this experience informs and contributes to understanding of their disaster roles. This information deficit is set against: a background of the increasing impact of disasters; nurses traditionally considered to be the main health care group called upon in a disaster; a call by the WHO and ICN for all nurses to be disaster trained; a lack of disaster education for nurses and that perhaps, in comparison to the acute emergency sector, there is less research directed towards the community health sector in Australia. Information from this chapter and the *Introduction* chapter established the following knowledge to inform the research question:

- Disasters have been increasing their impact on human populations both within Australia and globally. This impact affects nations and individuals disproportionately, has challenged the surge capacity of local and national health systems and has resulted in an increasing focus on disaster mitigation, preparedness and response.

- Disasters are predicted to continue to impact upon Australia: climate change is increasing the probability of extreme weather events, the impact of which is being exacerbated by existing and rising vulnerabilities of communities and individuals due to factors such as poverty, population dynamics rural-urban migration, environmental degradation and an ageing population.

- Disasters challenge nurses to consider their roles and functions and the literature points to all nurses taking a significant role in future disaster events. Disaster nursing literature has spurred recognition of the need for further research to clarify nurses' knowledge, roles, competencies, experiences, and educational requirements in disasters. Core nursing skills do not change in a disaster, although these skills may be extended, it is the setting which changes around them, to which they need to adapt.

- Nurses traditionally are considered the front line workers in disasters and the WHO and the ICN have called upon all nurses to be disaster trained. The NMBA of Australia has endorsed the 2006 ICN position statement for nurses and disaster preparedness, and the 2009 ICN Framework of Disaster Nursing competencies. However, there is no policy directive or formal advice for Australian nurses to follow and no generic emergency response competencies for nurses. The WHO / UN Frameworks for Disaster Risk Reduction acknowledge that health is at the centre of all disaster strategies and disaster planning needs to involve all agencies, from the top level down to those facilitating health care at the level of the community.

- Public health nursing, with its whole of population health focus, understanding of disease prevention, health education, infection control, environmental hazards and safety, is recognised as having a key role in disasters in many countries. This role has not been examined or articulated within Australia.

- Public health nurses have been active within disasters within Australia but this is not reflected in the literature. The Australian PHNs lack visibility due to their low numbers and negligible literary output within the landscape of health. This has been compounded by historical marginalisation, a domination of the acute hospital sector and confusion of terminology within the public health and community nursing sector. The roles, functions and professional capabilities are potentially less known compared with for example acute care / hospital nurses in Australia. This lack of profile amongst both the community, other health professionals and the nurses themselves, creates a corresponding lack of opportunity to articulate what their actual disaster roles are, and their own understanding of these roles.

- Public health nurses with disaster knowledge, have better disaster nursing skills and better skills of self-preparedness. Nurses are not being prepared by Australian tertiary education settings for disasters, this means that disaster preparation is left to the practitioners' individual work settings. Therefore there are no visible common standards, roles, competencies for the purpose of cohesion or comparison. Disaster nursing education within Australia is minimal and ad hoc.

- Countries that have suffered an increasing impact of disasters are engaging in nursing research to understand and describe what they already know, what they have learnt, and what they need to know for future disaster preparedness and response. Australia has an increasing body of disaster nursing literature; however there is a gap in Australian disaster nursing research outside the acute hospital sector, with most disaster nursing research focused on the acute hospital setting.

Communication poses significant challenges in disasters; continuity of messaging is needed to maintain the trust of a community. PHNs have identified skills of liaison in disasters, being able to bridge gaps between communities and health settings. Further skills have been identified: PHNs have been described as a 'jack of all trades,' filling in gaps in care in the community, when other health professionals were not involved.

- The PHNs have good knowledge of their communities, including who are the vulnerable groups. They have shown a strong desire to protect their communities in disasters.

- The literature acknowledges the broad role and scope of the PHN. However the roles of PHNs within health are not equally well defined within different countries and their roles in disasters are therefore correspondingly different across different societies, depending upon local and national health care systems and the expectations and determinants these systems require of the PHNs roles.

This research, looking at PHNs' subjective experiences of their disaster roles, aims to create better understanding regarding their actual disaster roles and the contribution of these roles to disaster nursing practice within the field of public health. Greater understanding of these nurses' disaster roles may also better inform their value to public health practice.

The following chapter presents the philosophical framework selected for the research inquiry, hermeneutic phenomenology. The chief historical and philosophical influences for the chosen framework are described, including a review of the key philosophers whose thinking has both informed and guided this research. The specific method used is described, which includes the ethical considerations and the participant recruitment process.

CHAPTER THREE – METHODOLOGY AND RESEARCH FRAMEWORK

Overview

The focus of this chapter is to present the philosophical framework selected for the research inquiry. The context and rationale for the chosen framework is reviewed, followed by an overview of the chief historical and philosophical influences on hermeneutic phenomenology, acknowledgement of the researcher's epistemological position and a discussion of how the chosen framework underpins the research method (the study design). The second section of the chapter presents the specific research method or framework, ethical considerations and the participant recruitment process, including geographic location. Throughout the chapter literature pertaining to hermeneutic phenomenology is discussed and its application to phenomena of interest within the public health life-world of nursing.

Background To Methodology Section

The previous chapter highlights the paucity of literature regarding Australian nurses' roles within the disaster landscape. Specifically it was found that there is little information regarding how the public health nurses experience disasters and how their interpretation of this experience informs and contributes to understanding of their disaster roles. The challenge for this research was to find a methodology which could be used to develop insights into the research question, 'what is the lived experience of Australian public health nurses' disaster roles?' The first step was to identify the philosophical paradigm to guide the research approach. This step was channelled by a desire, and an opportunity, to look beyond the traditional dominant epistemological methodological discourse of the natural sciences, towards an approach which would encourage a deep inquiry into the meanings and perspectives which inform and underpin the PHN experiences of disasters.

Theoretical Approach

Hermeneutic phenomenological philosophy was selected as the approach which would enable me to explore and reflect on the information, the story, embedded within the nursing practice area of interest, the lifeworld of PHNs in disasters. In essence, this philosophy provided me with an opportunity to experience this group of PHNs' worlds with them; to understand their world, through their eyes, their voices, interpreted and mediated by my own understanding of what was revealed to me. Adoption of an interpretive perspective of the disaster experience may provide and enhance greater understanding of, for example, the PHNs' decision making, what it means to them, what is influencing their attitudes and beliefs and the actions they ultimately undertake in disaster preparedness and response. The interpretive framework for the research method drew upon both Heideggerian and Gadamerian hermeneutic phenomenology. Gadamers phenomenological work

was grounded in and evolved from Heideggerian philosophical thinking; it is this more evolved form of hermeneutic phenomenology which underpins the philosophical framework for this research. Heideggerian hermeneutic phenomenology allowed me to reveal the essence of what it means to *'be'* a public health nurse, while Gadamerian perspectives on hermeneutic thinking enabled me to achieve *understanding* from interpretation of the lived experience, of the life of a public health nurse.

Hermeneutics and phenomenology have evolved over the centuries as various philosophers have taken different pathways of thinking, in line with their interests and the particular conditions and situations presented by the times in which they lived and worked. Historically, researchers have chosen hermeneutic phenomenology as a framework for analysis, so they can be drawn into understanding the experience of the 'other' person. In the words of Everingham, Fawcett and Walsh (2014, p. 696):

> *it is a way of bringing forth interpretations of others' 'worlds' to unveil aspects of these worlds which may otherwise go unnoticed, and encourage reflection upon the way in which 'their world' and the 'world' of others with whom they interact, is seen.*

Therefore the issue or problem is not explained, or presented objectively from the clinician or the researchers' perspective, but rather from, or through, interpretation of the individual's subjective perspective. The significance for this in nursing, is that instead of the implementation of interventions being based on, for example, objective based diagnoses, researchers, through being involved in the experience of an individual, become more engaged in the process of understanding those in the health care setting, rather than being detached bystanders (Phillips 2007).

Research which is carried out in the traditional logical positivist domain, in the quest for objectivity, endeavours to remove the subjective elements of life which are essential to understanding nursing and which are also essential to conducting holistic nursing practice (Beck 1994). The adoption of such detached, objective practices therefore risks the loss of these more subtle, informative subjective phenomena, such as caring, intuition and reassurance. These phenomena are the clinical underpinnings, the cornerstones of nursing practice (Pascoe 1996) and, in the case of this research, assist understanding of the integral place of these concepts as part of nursing duties within complex environments such as disasters. Todres and Wheeler (2001, p. 2) observed 'in nursing, it could be argued that the articulation and description of 'human experience' as an ongoing endeavour is foundational to practice.' Nursing is a practice discipline which recognises and seeks to understand individuals' uniqueness and it is very difficult to achieve this by being detached examiners of observables. Pascoe (1996, p. 1310) concurred, noting also that the context in which nurses and their patients/clients relate are value laden and rely on individuals making sense of their own worlds, therefore a detached-observer approach to research using quantitative methods is 'inadequate to holistically understand phenomena which are embedded in practice'.

The adoption of an interpretive research approach aligns with my desire to find a way to understand and to explore the particular matters which surround the experience of working in or preparing for a disaster, rather than wrestling with applying measurements to potentially elusive and subtle concepts. To carry out this inquiry into the subjective realm of the phenomena, I will collect information on the experience of, and the meanings it has, for the nurses engaged in the research. The application of this approach will enable my involvement in the data which will expand my own interpretive horizons thereby increasing my understanding of, and insight into, the research question. Ultimately this approach will guide the translation of my insights regarding the experience of being a PHN in a disaster, into knowledge which may inform this area of nursing practice.

Given the limited research regarding Australian PHNs' experience of disasters, a phenomenological approach is suitable since it can provide additional clarity on an issue related to human experience which is either poorly or under-described in the existing research (Munhall 2012; Streubert & Rinaldi Carpenter 2007). Hermeneutic phenomenology, as a research approach, will give a voice to the nurses' experience. Hearing how the nurses describe their experience of their disaster roles and functions, will provide a rich, unique and descriptive language dataset for this thesis. Ultimately this insight into the experience of PHNs in disasters can increase understanding by, for example, other health professional's policy makers, educators and the PHNs themselves.

Phenomenology

'Phenomenology is both a philosophical movement and also a family of qualitative research methodologies' (Gill 2014 p.118). The philosophical concept of phenomenology is attributed to the 18th century philosopher Edmund Husserl with the work of philosophers such as Immanuel Kant, Georg Hegel and Franz Brentano all contributing to Husserl's philosophical insights (Annells 1996; Dowling 2004).The term 'phenomenology' is derived from the Greek word "*phainomenon*" meaning 'appearance' or "*phenesthai,*" meaning 'to flare up,' 'to show itself,' 'to appear' (Dowling 2007). Phenomenology aims to discover how the world (viewed as it is by the self) appears to others, their 'lived experience' of their everyday life. The lived experience shows the truth or reality in a person's life, and it is this lived experience which gives meaning to each individual's perception of a particular phenomenon, which in turn is influenced by everything internal and external to the individual (Streubert Helen & Rinaldi Carpenter 2011).

Phenomenology describes the way 'things appear' and asks questions about the nature of 'their appearance'. As a philosophical perspective, phenomenology gained strength in pre-World War I Germany, by challenging and providing an alternative to the dominant empirical views in existence regarding the origins and nature of truth (Dowling 2007). Phenomenology has been continuously 're-invented,' over the centuries, emerging within different philosophical streams stemming from

the work of several influential German philosophers. These philosophers will be reviewed in later sections of this chapter.

Hermeneutics

Hermeneutics is essentially 'the theory and practice of interpretation' (van Manen 1990, p. 176). It considers that people experience the world through language and it is this experience which provides both understanding and knowledge. Pascoe (1996) noted that the ontological locus of contemporary hermeneutics is to look at the existential questions of how people come to understand language.

Hermeneutics has its origins within Greek mythology: the word 'hermeneutics' deriving from the Greek God Hermes who, amongst his many other tasks, communicated messages which were beyond human understanding, between Zeus, other Gods, and ordinary mortals. Hermes' role was to translate the messages from the Gods into a form which humans could comprehend (Pascoe 1996; van Manen 1990). Hermeneutics therefore bridges the gap between what is familiar in our worlds and what is not, and therefore requires interpretive effort (Gadamer 1975/2004; Streubert Helen & Rinaldi Carpenter 2011). Hermes and hermeneutics became associated with the art of interpretation of language which became important in the 17th century as a method for interpretation of biblical texts (Dowling 2004). Over the following centuries hermeneutics expanded into a methodological and theoretical philosophy, shifting into an interpretive philosophical approach by the 20th century.

Hermeneutic Phenomenology

Hermeneutic phenomenology logically embraces both hermeneutic and phenomenological philosophies and incorporates the interpretation of language to liberate and understand concealed meanings within phenomena. It is an interpretive philosophical approach which can bridge the limitations which exist in more empirical research. By using hermeneutic phenomenology, like Hermes I am acting as a messenger, by aiming to uncover 'hidden' meanings within the language expressed by the public health nurses as they describe their experiences and their understanding of being a public health nurse in a disaster. In doing so, I will be answering the research question: what is the lived experience of the Australian PHNs' disaster role?

Hermeneutic phenomenology has been selected as their modus operandi by researchers from diverse fields of human sciences to gain deeper insight into, and understanding of, issues they have been challenged with, and for which, like this research area, there is little existing literature. A review of several studies, which adopted hermeneutic phenomenology as their research framework, enlightened me as to how other researchers reached into the previously unexplored depths of their participant's life-worlds in order to better understand the phenomena of interest. By

using a phenomenological approach the researchers within these studies achieved holistic perspectives and unique insights into complex practice areas of health. They used phenomenology to unpack and elucidate insight into multifaceted issues to illuminate the reality and understanding of what is actually going on. These studies (described below), and many similar studies, provided both insight and a reality check for what it was possible for me to achieve by adopting phenomenology for my own research.

Wilson (2014) applied Heideggerian phenomenology to interpret nurses lived experiences of mentoring, to elicit enhanced meaning about their mentoring roles. Wilson's study was driven by societal and professional concerns regarding nurses' values, and essentially whether or not the nursing profession has lost its capacity to care. The author considered that hermeneutic phenomenology, and in particular Heidegger's concept of '*dasein*,' had the power to illuminate the mentoring experience, exploring nurses' experience of mentoring (Wilson 2014, p. 2912). Wilson was able to drill down to a level of phenomenological enquiry which enabled unique, insightful (and somewhat reassuring) information to be drawn out regarding nurses' current values of compassion, patient centred care and their own concerns regarding nurses' professional values and virtues.

A further example is Jefferies and Clifford (2012) who chose phenomenology to investigate the lived experience of women with vulval cancer. This study highlighted a paucity of existing literature within their research area. Using an interpretive phenomenological framework, based on the work of Heidegger and van Manen, the authors aimed to increase awareness of vulval cancer care and support amongst both health professionals and society. The authors used hermeneutic phenomenology as the framework to develop concepts which offered understanding and insight into the women's experience of what it is like to live with vulval cancer. This awareness in turn creates insight into understanding nursing care practices for this group of women.

Everingham et al (2012) wrote about their insights gained from a phenomenological study, which also favoured a Heideggerian phenomenological approach, with a framework adapted from van Manen. Their study aimed to evoke insights into the world of intensive care unit (ICU) nurses following changes within sedation practices in ICU's; aiming particularly to explore how a National healthcare 'target' might influence ICU nurses clinical decisions while caring for ventilated patients. The use of Heideggerian phenomenology as a methodology was successful in unearthing deep-rooted themes, subsequent to interviews with 16 research participants. The research results led to significant insights regarding what the introduction of the new sedation practices (which failed to address the complexity of existing sedation management) actually meant for the nurses providing the patient care. This study could appear at a cursory glance - as can other phenomenological studies - as very specialised and to have limited application; however the authors incorporated the results into an expanded discussion regarding nurses' struggle to provide

holistic care and protecting their patients individuality ‘within a national drive to change aspects of care delivery’ with a ‘one size fits all’ approach (Everingham et al, p.695).

A particularly relevant study, to discuss within the context of this research, previously referred to in the background chapter of this thesis, was carried out by Joyce et al (2014). The rationale behind the study was:

> *to develop a current understanding of the clinical and work life experiences unique to public health nurses and to identify the essence of public health nursing practice in order to engage in a discussion on moving forward as a profession* (Joyce et al. 2014, p. 2).

The authors chose phenomenology as their research methodology, aiming to explore the lived experience of American public health nurses. By using phenomenology the investigators let public health nurses themselves articulate what their roles and practices meant to them, thereby developing greater understanding for others regarding their experience of their PHN role. Results from the interviews of the PHNs and focus group discussions led to emergent themes which in turn led to the development of a campaign and a tool kit aimed to increase visibility and understanding of public health nursing as a specialty practice.

Locsin and Matua (2002) provide a unique and evocative piece of phenomenological research into the lived experience of being a carer exposed to Ebola Haemorrhagic Fever. The authors engaged with nurse and carer participants and evoked their subjective experiences of what it was like to be a person waiting to find out if they had the often fatal Ebola virus. This study was able to reach into the realms of subjective experience, thereby providing insight into this challenging area of health research and practice.

These examples of phenomenological research have each created a portal through which researchers, nurses and policy makers and society for example, may observe and consider the unique experiences of these ‘researched’ individuals, for which little information was previously known and public awareness of, is minimal. These insights have the potential to increase understanding and decision making, help plan education, and inform policy. Research undertaken with a phenomenological lens therefore, by accessing individuals’ lived worlds and their experience of a particular phenomenon, can increase understanding about what is really going on within a particular experience rather than relying on normative assumptions, which may or may not be accurate and which, may or may not, describe what is happening.

To summarise, the value of hermeneutic phenomenology for use in this research is considerable: it has been adapted as an interpretive approach in nursing; it has become popular due to its ability to recognise the complexity of humans and their experiences and also because it seeks to understand the depth of human experience, and how it is lived (Streubert & Rinaldi Carpenter 2011). Hermeneutic phenomenology provides a closer fit conceptually with subjective aspects of

nursing than empirical research. It is generally accepted that it is an appropriate framework to use in research when there is an absence of information regarding a subject, and/or or the subject requires studying from a new perspective. As a 'method', hermeneutic phenomenology provides a substantial dataset given that the nurses will be individually interviewed regarding their experiences in disaster preparedness and response. Given the lack of current knowledge in this area to date, hermeneutic phenomenology has been selected as a suitable inquiry method for this research since it will give 'voice' to the PHNs' experiences and perceptions of their disaster roles: their voices, their words, their spoken thoughts, their truths; it is their reality of their experience. Reflection upon these experiences and their meanings can result into a deep and unique insight into the phenomena informing the PHN lifeworld. The information resulting from this research can be considered as a foundation which further studies may be built and future education practices can be considered.

Philosophical Influences on Heideggerian and Gadamerian Hermeneutics

Dowling (2007) observed that nurses have been criticised for using phenomenological methods without laying out the philosophical and methodological foundations on which the method is built and also, at times, misinterpreting and misrepresenting the intentions of the principal philosophers. Therefore this section will review the philosophical foundations and founders of hermeneutic phenomenology in order to acknowledge and understand the influences underpinning the chosen philosophical framework for this thesis. As noted by Annells (1996 p.712):

> *it is essential that a researcher into nursing phenomena, who is contemplating the application of the hermeneutic phenomenological tradition within a research project, should be cognisant of not only the philosophical basis of that tradition and the inquiry paradigm within which it resides, but also of its current use within the discipline of nursing.*

To address the considerations within Annell's quote, I have provided the former examples, which demonstrate the application of phenomenological inquiry within current nursing research; and within the following section I will discuss the history and main philosophical tenets of the two phenomenologist philosophers who influenced the development of hermeneutic phenomenology.

Martin Heidegger and Edmund Husserl

Martin Heidegger (1889-1976) is considered the founder of modern day hermeneutics (Annells 1996; Gill 2014). Heidegger was a student of Edmund Husserl (1859-1938) who pioneered phenomenology as a branch of philosophy (Gill 2014). Husserl's epistemological goals were at variance with those adopted by Gadamer and Heidegger, due to his focus on phenomenological reduction. Husserl expounded 'reductionism' to achieve a view of things, 'as they appear,' without bias in an attempt to retain objectivity. Dowling (2004) notes, that the reasons for the lengthy

efforts taken to maintain objectivity were due to the positivist influences of the time. Holloway and Wheeler (2010) describe how the process of reductionism is achieved by 'bracketing', whereby a researcher suspends beliefs, biases, and preconceptions, preconditions before reviewing the text so the phenomena can be viewed, 'as they appear' in their raw or 'natural' form before they can be reflected on. This was a way to elucidate the essence of the phenomena, 'to get to the things themselves' (Heidegger 1962). For example if I were wishing to get 'Zu Der Sache' (to the things themselves/to the raw phenomena) by Husserlian detached, reflective means, I would put aside my pre-conceptions, opinions and ideas, regarding disaster nursing and public health nurses, since these pre-conceptions could otherwise distort my ability to see the phenomena 'as they really are',' during the process of data analysis and interpretation. This suspension of knowledge would enable the phenomena (dimensions of human experience, themes, ideas, insights) to 'appear' without bias or interference from my own knowledge and experience. This reductionist approach is at odds with later philosophers' disinclination towards using reductionism as method for investigation of the human lived experience. This is articulated in the words of the more modern phenomenologist, van Manen (1990, p. 47):

> *But how does one put out of play everything one knows about an experience that one has selected for study? If we simply try to forget or ignore what we already "know," we may find that the presuppositions persistently creep back into our reflections. It is better to make explicit our understandings, beliefs, biases, assumptions, presuppositions, and theories.*

I have therefore located the focus of this research away from Husserl, favouring instead his former student Heidegger and Gadamer (mentored by Heidegger and who further developed his ideas).

Heideggerian phenomenology was concerned with the human lived experience. Heidegger believed that humans could not be free of assumptions when looking at phenomena and he disputed Husserl's notion of bracketing pre-suppositions in order to articulate a phenomena. Heidegger suggested that rather than suspending presuppositions, that they should be studied and made explicit (Gill 2014; Holloway & Wheeler 2010). Heidegger's main work, 'Being and Time' (Heidegger 1962) encapsulates the principal tenets of his hermeneutic phenomenology. Within this tome Heidegger expounded his ideas for revealing the meaning of 'Being' for humans. Heidegger rejected the subject-object stance of Husserlian phenomenology, since he considered that they were inseparable, and he represented this belief with his concept of '*dasein*' ('Being in the world' / 'being there') which gives awareness to one's own 'Being' (Dowling 2004; Mackey 2005). *Dasein* explains the concept of how humans exist in the world and how they relate their meaning of 'Being' to themselves, to others and to everything around them. People then, are able to question the meaning of their experiences (of being), are able to interpret, contextualise, compare them with other people's experiences and also reflect on what this means for them (Whitehead 2007).

Heidegger's concept of *dasein* also extends to meaning 'care', due to the fact that while human existence is 'inextricably bound up in the State of the World', enabling humans to take responsibility for their actions, they are not able to 'ignore the limits on what the world sets' (Heidegger 1962; Wrathall 2005, p. 15). Wilson (2014, p. 2911) notes that this does not necessarily mean a conscious act of caring but 'rather an inescapable quality of the human condition that means we cannot help but engage in a world of our concerns, even when claiming apathy.' In the context then of understanding how public health nurses view their public health responsibilities in disasters, this concept has implications for understanding how nurses strive to care, within the confines of their professional boundaries, society and the communities they work and live within.

Heidegger's concept of interpretation was to consider it a circular process where prior awareness is made explicit and then considered in terms of the whole understanding of something, and then re-considered in different ways (Mackey 2005). This process is described as a 'hermeneutic circle', a concept later extended by Gadamer (Annells 1996; Austgard 2012; Dowling 2004). The hermeneutic circle is an important component of this research framework. Heidegger considered that all our history and fore-knowledge informs where we are now. This historical information ('pre-understandings') culminate in 'horizons' which enable humans to make sense of our circumstances, and are the result of all that has gone before in our lives (our historical, cultural and personal experiences). Public health nurses' experiences, as relayed to myself as the researcher, are inextricably tied up with their pre-understandings, which are temporal and constantly evolving, as are my own pre-understandings. While interviewing, and later interpreting information from a public health nurse, I must understand that all that is presented to me has been influenced by everything that has previously occurred in the participant's lives, which informs their present awareness. Therefore PHNs who have not experienced a disaster may understand and interpret information differently from PHNs who have. However, given that the nurses are all working within the boundaries of what they consider their roles and responsibilities are, if they have not experienced a disaster then their lived experience will be the meaning they apply to their experiences of preparing for a disaster.

Heidegger's work triggered a shift in phenomenology which led to the evolution of the hermeneutical branch of (interpretive) phenomenology for which Hans Georg Gadamer (1900-2002) became known:

> *It is within the workings of an interpretive inquiry that individuals realize the poverty of limiting their horizon of understanding to their own one-sided reflections. Gadamer helps each of us understand that, within an interpretive hermeneutic enquiry, no one stands above and before all others: we are all at the centre of inquiry. It is here that we can breathe new life and new insights into the phenomena of concern. Furthermore, it is only through dialogical engagement with that which we are seeking to understand that the importance of learning through experience emerges* (McManus Holroyd A 2007, p. 10).

Hans Georg Gadamer

Gadamer was considered one of the most important hermeneutic philosophers of the twentieth century (Grondin 2003; Mootz III & Taylor 2011). During his 102 years of life Gadamer expanded on the work undertaken before him on phenomenology by Husserl and his mentor, Heidegger. Gadamer's work resulted in his magnum opus, 'Truth and Method,' which offered an interpretive approach to understanding, and which is also considered to be one of the most significant works of the last century (Binding & Tapp 2008; Weinsheimer & Marshall 1989). Gadamer's chief concern was with uncovering the nature of human understanding and his recurrent question within 'Truth and Method', 'how is understanding possible?' was answered by outlining the basic tenets of what became known as 'Philosophical Hermeneutics' (Binding & Tapp 2008; Fleming, Gaidys & Robb 2003). Gadamer realised that,' the modern concepts of science are not adequate to understand people and our experiences of art and even communication', and regarded hermeneutics as a way to help interpret and understand things from another person's perspective (Gadamer 1975/2004). Initially Gadamer applied this to religious writings but later he extended it to understanding and gaining insight into all phenomena (Clark 2008).

Gadamer's hermeneutics emphasizes the embeddedness of language in understanding our world, considering language as fundamental to how people operate in the world*; 'Language by pre-figuring our understanding of history, culture and self gives us our world'* (Gadamer 1989). Gadamer's concern was that understanding is always situated in people's historical, dialectical, and linguistic traditions, therefore in order to understand better, Gadamer focused attention on the conditions (situatedness) in which understanding takes place (Phillips 2007) David Linge, in his introduction to selected Gadamerian essays in 'Philosophical Hermeneutics' (1976) notes that Gadamer's salient contribution to hermeneutics lies within his effort:

> *to shift the focus of discussion away from techniques, methods of understanding, all of which assume understanding to be a deliberate product of self-conscious reflection, to the clarification of understanding as an event that in its very nature is episodic and trans-subjective* (Gadamer 1976, p. xxviii).

A number of health researchers, from a wide range of disciplines, have drawn upon the work of Gadamer in order to explore the understanding of phenomena central to nursing and caring for individuals, for example (Annells 1996; McCloud, Harrington & King 2012; Pascoe 1996; Phillips 2007; Smith 1998). Fleming, Gaidys and Robb (2003, p. 117), note that research carried out in a Gadamerian tradition is, '*developed from a desire to achieve a deep understanding of a phenomenon'.* This desire for understanding is driving this research: given the deficit of literature on public health nurses within Australia, and their low visible presence and profile within public health, there is a concomitant lack of knowledge and understanding of what it means to be a public health nurse within the Australian disaster sphere. By asking PHNs about their life-world, essentially what it means to them to be a PHN, this will shed light into understanding their

experience of what they do, who they are, and what that means in the context of disaster preparedness and response. The application of Gadamerian hermeneutic philosophy will illuminate or reveal the phenomenon of being of a PHN considering their roles in a disaster; the findings may allow policy makers and educators and most importantly the PHNs themselves to better understand what it means to be a PHN in the context of preparing for, or being in, a disaster at the population level of health care.

A prime attraction of Gadamer's hermeneutics for this research is the method of engagement with the participants' dialogue I am required to adopt; where understanding and interpretation are bound together (Annells 1996). To achieve this, I have to be present to my own preconceptions of my history, culture and language during the 'data' review process, as well as those of the participants, in order to create a 'fusion of horizons' of my interpretation with that of the participants. As Phillips (2007, p. 89) articulated:

> *This occurs through a hermeneutic question–answer dialogue in which we put our ideas at risk of being modified or rejected in the process. Understanding then, is a perceptual and conceptual process in which we fully participate. In this way, the experience of understanding those we nurse increases our understanding of ourselves as well as enhancing our ability to further understand others.*

This process will be further discussed in the sections below.

Epistemology

There is little research which looks at the ontological aspects of nursing within the area of public health in disasters: the lived experience and understanding of the nurses themselves who are central to the disaster preparedness and response effort. The interpretive framework for this research draws upon the more evolved Gadamerian hermeneutic philosophical thinking, acknowledging that his work was grounded in and informed by Heideggerian philosophical thinking. This research declined a Husserlian, reductive epistemological position, preferring the Heideggerian and Gadamerian epistemological stance that phenomena cannot be detached from the observer, they are inseparable (Mackey 2005), seeking understanding rather than knowing, and understanding (in the context of being) requiring interpretation. Annells (1996 p.708) articulates that since the ontological thrust of philosophical hermeneutics does not consider, *'understanding as a way of knowing but as a mode of being',* the epistemological stance is not a dominant feature of the philosophy. With this in mind, hermeneutic phenomenology complements my ontological position: the research relates to understanding the nature of human beings, their experiences and perceptions, their reality (lived experience) and how they interpret their experiences. I therefore aimed to achieve *understanding* from interpretation of the lived experience, the 'being' part of the life of a public health nurse. To achieve understanding I observed, studied and engaged with the language embedded in the nurse-researcher dialogue. Given the methodological research aim for reviewing the meaning and understanding of the

nurses' lived experience, the philosophies of Heidegger and Gadamer resonated well with this research. The main constructs of Gadamer's hermeneutic philosophical thinking which will be used in the framework for analysis within this research are outlined below. It is essential for the researcher (interpreter) to acquire a comprehensive understanding of these key concepts to develop a research plan (Austgard 2012).

In the context of this research, public health nurses' 'being-in the-world' relates to their existence within, and relationship to, their community, their experience of disasters and what it means to them and their ability to question, and hence potential to learn from, the activities they are (and are not) engaged in. The researcher in turn will tap into the PHNs' understanding of 'being-in-the-world,' to gain insight and understanding into what the phenomena - the lived experience of being a public health nurse in a disaster, or the lived experience of being responsible for the public health aspects of disaster preparedness - actually means to the nurses themselves.

Historical Situatedness and Prejudices / Pre-understandings

Gadamer considered that we are all part of history and cannot remove ourselves from our physical or conscious position to look backwards at a situation objectively (Fleming, Gaidys & Robb 2003). As previously discussed, Gadamer rejected the Cartesian dualism notion of subject–object, where the self is viewed as a subject, '*an uninvolved entity passively contemplating the external world of things via representations that are held in the mind, world or environment'* (Pascoe 1996, p.1310). Gadamer proposes then that understanding is not conceived in the traditional way as an act of human subjectivity but is as Heidegger postulated in '*Dasein*' or '*Being-in-the-World*' (Gadamer 1989; Heidegger 1962). Gadamer considered the historian is part of the very field that he observes. However objectively he may pursue his subject, the historian, according to Gadamer, cannot escape his own understanding: 'to try to eliminate one's own concepts in interpretation is not only impossible but manifestly absurd' (Gadamer 1976). As Pascoe (1996, p. 1310) succinctly states, 'History gains meaning only when the historian himself stands in history and takes part in history'. History however does bring with it what Gadamer called 'prejudices' (and Heidegger called 'pre-understandings'). Phillips (2007, p. 91) observes that:

> *nurses from their education and socialisation are collectively orientated towards understanding the problems of people they care for in a certain way. At the same time their preconceptions are shaped by numerous understandings as their life histories are laid down on top of earlier understandings.*

Hermeneutics therefore emphasises the need for me, as the researcher, to explore and remain attuned to my pre-understandings of the lived experience of public health nurses roles in disasters. Gadamer perceived it an advantage to retain ones prejudices (preconceptions) in a hermeneutic context since they actually enhance understanding by providing the interpreter/researcher with an ability to understand what is different; 'it is only through ones pre-understandings that

understanding is possible' (Gadamer 1989, p.x). Binding and Tapp (2008, p. 129) write about this process of the researcher being in a position of a genuine and open conversation with the other person when they are prepared to look into their own pre-understandings. It is during this genuine dialogue that the researcher is more likely to open up the world of human experience they are seeking. This is because being in a position of having our own biases and prejudices revealed promotes a more open position to hear something new from the other person.

Fusion of Horizons

Gadamer, building on Heidegger's work on the hermeneutic circle (Heidegger 1962), used the metaphor of 'horizon' to describe the range of cultural, historical and linguistic preconceptions that researchers bring with them into the process of understanding. Gadamer explains:

> *The concept of 'horizon' suggests itself because it expresses the superior breadth of vision that the person who is trying to understand must have. To acquire a horizon means that one learns to look beyond what is close at hand – not in order to look away from it but to see it better, within a larger whole and in truer proportion* (Gadamer 1975/2004, p. 316).

Horizons are not static and are tied to our history, our past. Horizons therefore move with us as our situations change and as our perspectives shift, things can be understood at different moments in history. 'Fusion of horizons', occurs when we permit expansion of our own horizon and 'fuse' (consciously assimilate) with the horizon of another person. The fusion is not undertaken in a subject-object Husserlian sense, that the researcher tries to stand in the situation of the other, or outside of it by bracketing pre-conceptions, but more in a sense that the researcher allows him/herself to be challenged/confronted by 'differentness' (Gadamer 1976; Phillips 2007). Phillips (2007 p. 91) explains, 'that it is when we are confronted by the differences of others that our own taken-for-granted sense of the world becomes visible to us for the first time'. Binding and Tapp (2008, p.122) confirm this view:

> *by fusing horizons of understanding participants in a dialogue reveal the topic to be different, more expansive, more thoroughly uncovered than either participant might have previously understood the topic to be.*

Hermeneutic Circle and Dialogue

Gadamer uses hermeneutics to describe the metaphorical, interconnected, circulatory process of meaning and understanding, where every interpretation draws on the anticipation of understanding. He describes the hermeneutic circle as the process of 'fusing of horizons' and stresses the infinite nature of the circle since 'new sources of understanding are continually emerging' (Gadamer 1975/2004, p. 309). To understand the meaning of something held by another individual Gadamer suggests, that we don't react to our own preconceptions but remain open to and embrace the meaning held by the other person, or text (Dowling, p.36).

> *…we cannot stick blindly to our own fore-meaning about the thing if we want to understand the meaning of another…All that is asked is that we remain open to the meaning of the other person or text* (Gadamer 1975/2004, p. 281).

The process of understanding is a dynamic hermeneutic project of anticipating, modifying or replacing existing concepts: understanding occurs when all the parts have been considered and are harmonious with the whole. The understandings and the whole are adjusted in a to-ing and fro-ing against each other until there is a harmony. It is the harmony of the parts and the whole that Gadamer claims to be, "the criterion of correct understanding" (Phillips 2007, p.90). Gadamer explains that when we are trying to understand a text we are not actually transposing ourselves into the author's mind, but that we are trying to transpose ourselves into the perspective in which the author's views have been formed (Gadamer 1975/2004). Phillips (2007 p.91) provides a good description of how understanding occurs within the nurse-patient relationship:

> *our understanding proceeds from an idiosyncratic historical situatedness, entering into a hermeneutic circle where preconceptions are progressively replaced or amended with more suitable ones in order to reach a coherent understanding of the person we are caring for.*

Extrapolating this dynamic process of understanding to my research will show how the public health nurses and I participate in a hermeneutic circle in the search for understanding of what it is like to be public health nurses, and from this foundation understand how they experience their disaster roles.

Understanding The Researcher Researching From Within

My chosen philosophical approach, supporting my ontological perspective for this research, required me to be cognisant of my own pre-understandings and historicity regarding the public health nurse roles in disasters. This meant being aware of, and understanding, that my pre-existing knowledge and experience in my own lifeworld of public health and public health nursing could influence the interpretation of the information I received. Given the difficulties associated with trying to balance input from my 'historicity' during the interpretative process of the hermeneutic circle, I practiced 'honest vigilance' or simply 'being mindful', while reflecting upon the information I received and interacted with. I therefore retained awareness of where my preconceptions could be influencing my interpretation. My abilities to maintain a balanced perspective were aided by my previous experience in practicing mindfulness and equanimity when 'observing' arising thoughts and emotions, which could influence my decisions and actions. I acquired this experience through the practice of Vipassana meditation (https://www.dhamma.org/en/about/vipassana Accessed, 26 August 2015). This ancient Buddhist practice of silent meditation aims to '*see things as they really are'* and recognises the connectivity of everything. Vipassana teaches mindfulness when observing one's thoughts: aiming to move away from reactivity, and attachment and towards equanimity of mind, thinking and understanding. This process has attributes which resemble the part of

Heideggerian hermeneutics which Gadamer (1975/2004, p. 279) referred to when discussing the interpretive understanding of the hermeneutic circle:

> *all correct interpretation must be on guard against arbitrary fancies and the limitations imposed by imperceptible habits of thought and it must direct its gaze, "on the things themselves."*

The practice of Vipassana also creates an awareness of the impermanence of everything in life. This has relevance for my understanding of and involvement in, the hermeneutic circle: since as Gadamer explained, understanding also involves an awareness of how everything is influenced from before and continues to be influenced, so is an ongoing process of interpretation (Gadamer 1975/2004).

To summarise: this *Methodology* section reviewed the philosophical foundations and founders of hermeneutic phenomenology in order to acknowledge and understand the influences underpinning the chosen philosophical framework for this thesis. There are many ways to examine the truth of being: the truth of what reality is, what a situation really means to someone and how they will interpret this. I cannot know what public health nurses consider their roles are in disaster preparedness response until I have asked them what they understand themselves from their interpretation of their own experiences. I have selected an interpretivist epistemology due to the belief that nursing relies not only on facts, rules and deductive processes to determine its practice but on the more subtle, less visible, concerns such as perceptions, thoughts and feelings. I cannot transpose myself into my research participants but I can transpose myself into the perspective within which they have formed their views, their attitudes and beliefs which may inform their practice.

Specific Research Method

Gadamers work and contribution to the field is purely philosophical, there is no method or set of rules for the researcher to follow (Austgard 2012). Gadamer (1989 p.xxxi) further makes this point when he wrote:

> *the purpose of my investigation is not to offer a general theory of interpretation and a differential account of its methods...but to discover what is common to all modes of understanding.*

Gadamer requests that interpreters of texts look deeply within their origins to understand the processes that are occurring while they develop understanding:

> *Given the intermediate position in which hermeneutics operates, it follows that its work is not to develop a procedure of understanding, but to clarify the conditions in which understanding takes place* (Gadamer 1975/2004, p. 306).

Due to the absence of rules or method from Gadamer's philosophy, a hybrid approach was adopted based on the philosophical foundations of hermeneutic philosophy previously espoused.

The method therefore for this research combined Gadamer's hermeneutic philosophy with the approach towards phenomenological inquiry described by the modern day philosopher Max van Manen whose phenomenological approach has been used widely in educational and healthcare research (Dowling 2007). Van Manen's 'method,' based on his interpretation of hermeneutic phenomenology (van Manen 1990, 2014), was adapted for use in this study since his approach aligns well with Gadamerian philosophy and also the methodological requirements of the researcher. This approach provided an appropriate method for textual 'analysis,' and formed the foundation upon which Gadamerian philosophy was superimposed for the process of data analysis and interpretation.

Van Manen described hermeneutic phenomenological research as 'a dynamic interplay between six research activities' (van Manen 1990, pp. 30-1). These six research activities have been used within this research as stages to guide and explain the research method. The stages are listed below and described. Additional detail for the analysis stages lies further on in this chapter.

1. *Turning to a phenomenon which seriously interests us and commits us to this world*

This stage was first addressed in the thesis *Prologue* and *Chapter One* where I described how my background in public health, geography and my interest in disasters combined to fuel my desire to investigate the lived experience of public health nurses and their disaster roles. Recognition of my expertise and prior knowledge of the phenomena required me to make my pre-conceptions explicit as a researcher. Prior to commencing the interview and data analysis, I had, through the process of conducting a literature review, become more aware of the external factors which surround the world of public health nurses. This is important, given that I needed to be open to, and engaging with, these pre-understandings throughout the entire research process. These pre-understandings (including prejudices/ preconceptions) also are re-enforced by and linked to my own preconceptions regarding the research area and question. My preconceptions were documented in a research journal prior to the interviews (a reflective account of views and influences upon the researcher). This journal was maintained thought out the lifetime of the data collection and analysis, since my views and opinions do not exist within a single point in time but continually shift. The journal was referred to regularly to reacquaint and remind myself of these preconceptions which were taken into account during the textual dialogue and analysis stages. This aide memoire assisted my being present to Gadamer's concern regarding understanding what is going on *within* the research process in addition to considering *how* things may be done.

2. *Investigating experience as we live it rather than as we conceptualise it*

I have previously outlined that exploration of the lived world of PHNs meant that my research looks into the essence of their 'being' in their lifeworlds within their disaster roles and the meanings they attribute to this. One way of investigating the lived experience is to conduct in-depth interviews.

Other data collection methods, for example questionnaires and document review, could result in more deductive and less interpretive information which may achieve a less robust view of the 'lived experience'. Face to face interviews enables the generation of a large quantity of data from a small group of participants and also provides the opportunity to clarify any ambiguities immediately which may arise during the interview. A face-to-face interview process offers the opportunity to investigate the lived experience thoroughly since the researcher, being present to the conversation, can observe and record both the verbal and nonverbal information, such as the participants' reactions and body movements. The interviews are oriented to how the PHNs see themselves in the world, rather than as I and others may conceptualise how it may be for them. The latter would impose my views and values over theirs and obscure the reality of how they understand their roles. Investigating the lived experience acknowledges that I cannot assume to know their lifeworlds. By becoming involved in their lifeworld experiences however I am one step closer to gaining an understanding of how these experiences inform their roles in disaster preparedness and response. The research data were gathered in interviews and are described in more detail in the section within this chapter specifically dedicated to *participant interviews*.

3. *Reflecting on the essential themes which characterise the phenomenon*

This stage refers to the assembling of meanings, of experiences common to participants, being clustered together and assembled into themes. This stage is described in greater detail later in *Chapter Four* within the *Specific Method Analysis* section. The analysis of meanings elicited from the participants' texts was guided by van Manen's thematic analysis method and was described in much greater detail by using Gadamarian hermeneutic philosophy to both explain and guide the analysis process.

4. *Describing the phenomenon through the art of writing and rewriting*

The act of writing and rewriting was an important part of the interpretation and process for my understanding of the PHNs' experiences, and to elicit meaningful themes to gain insight into the phenomenon of interest in this research. I transcribed the interviews myself which increased my familiarity with and helped to strengthen my initial grasp and formative understanding of the meanings associated with the participants' experiences. My somewhat 'old fashioned' predilection for hand writing notes and writing out ideas, led to what van Manen describes as fixing thought on paper (van Manen 1990). It also was the process I found best to elicit meaning, insight and the occasional epiphany. Hand writing notes were also replicated by documentation of notes on the computer, on my mobile phone and the storage of participants' narratives on the computer. This process of documentation is described in further detail in *Chapter Four: coding and themes - documentation*.

5. *Maintaining a strong and oriented pedagogical [sic] relation to the phenomenon*

Van Manen notes the importance throughout the research process to establish and maintain a strong relationship with the phenomenon of concern – he warns of the risk of getting, 'side tracked, or to wander aimlessly and indulge in wishy-washy speculations, to become enchanted with narcissistic reflections or self-indulgent pre-occupations'

Gadamer also reminds the researcher that:

> *when we try to understand a text, we do not try to transpose ourselves into the author's mind but, if one wants to use this terminology, we try to transpose ourselves into the perspective within which he has formed his views* (Gadamer 1975/2004, p. 303).

This transposition into the perspective in which the participants have formed their views requires considerable effort to attain and much greater effort to remain on the phenomenological path. Staying true to the phenomena of concern was aided by: continually revisiting the research question, reading my notes and interactions with my supervisors and other fellow students.

6. *Balancing the research context by considering parts and whole*

This stage is a reminder for the researcher to ensure the research remains within the perspective in which it is intended; van Manen was concerned that the researcher is in danger of losing sight of what he is trying to achieve and gets lost. He suggests that to avert this risk that the researcher stands back from time to time and asks what is going on within the parts and the whole, to see if it makes sense with regard to the composite research process (van Manen 1990). This process of going back and forth between the entirety of the research and its parts was aided by the tactics described above in stages 4 and 5. In addition, I printed out the thesis chapters in hard copy as they evolved and read them to consider their relationship flow and context to the research question. In this way I was also able to remain oriented to the phenomena under investigation.

Based on the points above, I therefore planned to recruit Australian nurses who considered that they worked within the area of public health, and then interview these nurses, create and analyse their interview transcripts and then consider the meanings of their PHN experiences and understanding of their disaster roles. Prior to commencement of interviewing the participants, ethical permission was required to conduct this research. Detail regarding the process of ethical approval, participant recruitment, interview and analysis of the interview narratives is outlined below.

Ethics approval

Ethics approval to conduct this research was applied for and granted through the Flinders University Social and Behavioural Research Ethics Committee (SBREC), which is a registered

human research ethics committee of the Australian Government. Final ethics approval was granted on 2nd June 2013, ethics project number 6064 (Appendix 2).

Anonymity, confidentiality and storage of information

Strict confidentiality of the study participants was maintained, with no information that identified the participants within this PhD thesis. Due to the low number of public health nurses within Australia, care was taken to remove other identifiers, such as place names, disease outbreaks and hospital names to eliminate possible traceability of the participants. All data were transcribed by me, with all names removed from the transcripts as they were transcribed. On a few occasions I interviewed several individuals from the same public health unit/directorate; in these circumstances no reference was made to other participants, unless the participants themselves acknowledged awareness of each other's participation in the research. I retained copies of all the data (the audiotapes and interview transcripts) on a password protected flash drive, in a locked filing cabinet in my office at Flinders University, which has a security locked door.

Risks to the participants

Risks identified related to discomfort which potentially may have arisen if the participant, while discussing actual and /or potential role in disasters, reflected on issues associated which were stressful and / or traumatic for them. This was reduced by participants entering the interview situation being fully informed regarding the purpose and benefits of the study and being able to cease the conversation and the interview process at any point.

I carried a list of free resources which included the contact details for 'Beyond Blue' and 'Health Direct,' should the participants have felt or requested the need for extra support. The participants were also reminded that they had the choice to seek support from their Employment Assistance Professional in their health department. The participants were additionally advised that they could contact me if they had any concerns; I provided them with my mobile phone number, for ease of communication.

Benefits to the participants

This study will make a contribution to the disciplines of nursing, public health and disaster management, by creating an understanding of how nurses' experiences of working within the field of public health informs and shapes their actual and potential roles and their knowledge of and functions in disasters and emergency events. Providing insight into how nurses understand their roles in disaster and emergency preparedness and response will provide knowledge and identify issues which may inform competencies for future preparedness and response activities for disaster/emergency events. The interview process may also perhaps assist the nurse participants directly by facilitating greater clarity, insight and self-reflection into how they may achieve greater preparedness and knowledge regarding their roles in disasters and emergency events.

The research may also be used to inform education programs with regard to the disaster preparedness of nurses working within public health and the communities they represent. It may also benefit the participants indirectly, by informing other health professionals who do not have nursing backgrounds or nursing training to understand how this group of disaster responders understand their roles. Given that disaster response is an eclectic environment, consisting of many agencies; better understanding of roles would enhance a better disaster response. Having a prepared health workforce is fundamental in addressing these future events, particularly within the public health and nursing disciplines, which are at the forefront of public health protection. Ultimately the benefits this research potentially provides to nurses within the study group (described in the literature as being 'historically invisible') outweigh the low risks of potential discomfort during the interview.

Data (Language) collection

Data collection was undertaken using in-depth, individual interviews with the participants. This personalised method was considered to be the most practical and effective system to gather information which would be of sufficient depth to elucidate the phenomena of interest regarding the nurses lived experience of their disaster role, and so inform the research question. The interview process meant that I could direct conversation around pre-selected focus points concerning the research topic. I would also be actively engaging with the participants' 'language' during the interview while simultaneously being cognisant of any 'colliding' horizons, thereby finding new information from the exchange taking place within the hermeneutic circle. I was reasonably confident that I would be able to gather sufficient numbers of participants willing to be interviewed for my study. This confidence was based on prior experience of inviting public health nurses to participate in a cross-jurisdictional Australian public health nurse forum several years earlier which had resulted in many public health nurses registering their willingness to share their experiences[1].

Participant recruitment

I aimed to recruit 15 or more nurses, working within the area of public health. Recruitment was ceased when the interviews only yielded repetitive information, that is, saturation point. Guest, Bunce and Johnson (2006) suggest that 12 interviews for most qualitative research are enough, when the aim is to understand commonalities of experiences among a group of homogenous individuals. Given that public health nurses are a relatively homogenous group within the Australian health care community, it was anticipated that saturation of themes and commonalities within the nurses' experiences would be achievable with 15 or more interviews.

To recruit those nurses who considered themselves to be public health nurses, an email with an attached 'Letter of Introduction' (Appendix 3) was sent to the Head of Public Health/Health

[1] Due to the 2009 H1N1 Influenza Pandemic occurring the week prior to the conference all communicable disease control staff were required to remain in the respective States and Territories, hence the forum was never held.

Protection, for each State and Territory. The letter provided information about the research, and requested permission to recruit and interview registered nurses who worked within the area of public health in their directorate. The letter requested that they (the Heads of Public Health) distribute the provided information, a 'Participant Project Information Sheet' (Appendix 3) to registered nurses within their departments. The letter invited any nurses willing to share their experiences of working in public health, to contact the researcher (myself) directly. The participant inclusion criteria for the research, was that volunteers were:

- registered nurses
- have worked within the area of public health for at least one year
- currently working in the area of public health (but not a research position)
- have consented to be interviewed

Exclusion criteria were nurses who worked in the area of public health, but who held a research position, since they were less likely to be participating in 'active' disaster roles using practical nursing skills and therefore were less likely to have experienced a disaster in their current work environment. There may be nurses who are in research roles who have worked as a PHN (like me); however, their thinking, understanding and knowledge would be reflective, possibly informed by their research and not representative of a lived experience in current practice. This difference in experience could reduce congruence with the other participants and potentially create confusion in theme generation.

A follow up phone call was made to the Heads of Public Health 3-5 days after the initial email was sent, to answer any questions and, if required, to clarify the research criteria and objectives. Upon contact by prospective participants, I answered any questions, ensured participants understood the research aims, and that they fitted the inclusion criteria.

Participants were asked to participate in an audiotaped, semi-structured, open-ended, interview with me, which was anticipated to last approximately one hour. Participants had the option of being interviewed at a time and at a place convenient to them, either by telephone, by Skype ©, or face-to-face. The benefits and risks regarding participation were explained to interested individuals. Potential participants were reminded that participation was voluntary and that refusal to participate would not impact on their service/employment. Individuals who verbally consented to participate were emailed a consent form and given at least five days to assimilate the study information before being requested to return the signed consent form to me. Upon receipt of a consent form, an interview date, place and time was established. During the selection process attention was paid to maintaining participant confidentiality, obtaining informed consent and non-coercion.

The interview location

There are few specifically named PHNs in Australia and they are geographically scattered across the States and Territories. Given that I had sent out research participation requests to all States and Territories I anticipated that unless I wished to conduct phone interviews, I would need to travel to where the PHNs worked. I had aimed to interview as many of the participants face-to-face as I could. This method is in line with a phenomenological approach which looks to liberate meanings and understanding from within the individuals' own setting – their lived world. Interviewing involves building a rapport with, and being present to the interviewees as they reveal their experiences. This was easier to achieve when the interviews were undertaken within the participants own work setting, or local environment. The participants seemed additionally receptive to being interviewed when they realised that I was prepared to travel considerable distances to meet them in person. I was able to interview all, bar two, participants face-to face. The mere act of driving to and from the PHN's place of work (in their particular geographic locations) further informed my impressions and knowledge of the communities with whom they worked. This also made the interviewing easier since I was able to view their environment and therefore able to see the populations and the environment within which their lived experiences, and the association and meanings they drew from this, were being formed.

The interview process

A semi-structured interview style was undertaken to encourage the nurses to verbalise their understanding and thoughts stemming from their 'life world' or 'lived experience' as a public health nurse in, or preparing for, a disaster. The verbalisations of the Public Health Nurses' actual and perceived experiences are set within the context of their perceptions, knowledge and understanding of their roles in disasters. The aim of the questions was also to elicit a substantial quantity of data to analyse. I had 'chatted' informally with the participants prior to the interview either from my office, during the journey to the chosen interview location and, on several occasions, in a café beforehand. I therefore was able to create a relatively relaxed environment for discussion. Each interview commenced with 'small talk' to create a relaxed environment before the tape recorder was started. The 'small talk' also created time to re-iterate the purpose of the research and clarification of any doubts or concerns that the participants may have had. A few key demographic variables were established at the start of the interview, these variables were: age, gender, position title, position level, number of years in the position, any public health qualifications and any disaster/emergency qualifications or courses that had been undertaken. The interview was preceded with a preamble explaining that open-ended question were going to be used, and the reasons why, (to encourage them to share their thoughts and experience/s regarding their roles in disasters) and that they could cease the interview at any time and interrupt for clarification and/ or questions whenever they wished.

The interviews commenced with the question, “can you describe what being a public health nurse means to you?” Or, “tell me, what is it like to be a public health nurse?” Additional probes and prompts were used such as: “can you explain this further?” “Do you mean by this…;” “can you provide an example of this situation,” This style of interviewing was guided by van Manen who in his book, *Researching the Lived Experience* provides a guide to conducting interviews in a phenomenological way. Van Manen suggests interviewing in a manner which remains oriented to the question to prevent ‘interviews that go everywhere and nowhere’ (van Manen 1990, p. 67). During the interviews I practiced active listening: by trying to hear what was being said to me, rather than anticipating what the participant was going to say next and worrying about how to respond. van Manen (1990, p. 68) advised that:

> *often it is not necessary to ask so many questions. Patience or silence may be a more tactful way of prompting the other to gather recollections and proceed with a story.*

I also tried to remain present to my own preconceptions while remaining open to the meanings and experiences being described during the conversations. My aim was to remain alert for new insights; new meanings which occurred through the process of fusion of horizons during the dialogue and from the descriptions I was hearing.

The interviews aimed to draw out comments and expand on areas of interest to the research. Therefore the questions were not so much questions but more foci for exploration of the lived experience of the public health nurse and their disaster roles. The interview schedule is listed below and as van Manen (1990, p. 94) suggested, I aimed to keep the narratives ‘as close to the experience as lived’. Therefore to facilitate this I needed to be as ‘concrete’ as possible when asking about what an experience was like and to ask for specific events or a person or a situation and then to expand on this as much as possible.

The interview foci

- Please describe what being a public health nurse (working within the area of public health) means to you?
- Given you are a public health nurse, what does a disaster mean to you?
- What do you think, or understand public health nurses can do in a disaster or emergency situation?
- Please describe your experience in a disaster or emergency situation that you have been involved in as a public health nurse?
- Tell me how your experience as a nurse working in your area of public health has prepared you for a disaster.
- Please describe any future concerns that you have regarding being a public health nurse?

The interviews lasted between 45 minutes and 1.45 hours, with an average time of 70 minutes. Field notes and a reflective diary were kept during the course of the interview: this was to ensure that I was as cognisant as possible to the experiences and events surrounding the interview and the interview environment. I took mental and physical notes regarding the location and the setting of the interview, whether the interview took place for example indoors or outdoors, in an office without a window, or on the top floor with a view. Consideration was also given to the reactions and actions/inaction of the interviewee to questions that were posed, and answers that were given. All this peripheral information fed into my presence within the data, and the interpretation of the phenomena as the hermeneutic dialogue proceeded and understanding was sought. This reflective method has been used by many other researchers for example (Annells 1996; Cornell 2014; Munhall 2012) to investigate the lived experience.

Return of transcripts to the participants

The participants' transcripts were not returned to them following data analysis for validation. Gadamer's philosophy postulates that understanding is located within a particular historic situation. Therefore if the scripts were returned to participants, this would be taking place at another point in time: their pre-conceptions and therefore understanding may have shifted (perhaps even as a result of the interview process). Reviewing scripts at a later point in time would mean the participants' knowledge of the research question would not be situated in the same historic context. Additionally, if a participant were to review a script and then return it to me, my own understanding too would have shifted. Acknowledging then that understanding is transient and based in the historical moment at which they are formed, and the research findings are captured from preconceptions in one historical moment, there was little benefit to sending the transcripts back. A modification of the original ethics application was undertaken to inform the ethics committee of the decision not to return the transcripts to the participants (Appendix 4).

Data collection and analysis framework

The interviews were recorded and transcribed verbatim to capture the historical moment within which the interview was undertaken. I transcribed the interviews. This meant that I had more time to reflect and engage with the language in the interview, than had I engaged the services of a professional transcriber. This process also brought me closer to the narrative of the participant whom I was trying to understand. I dwelt within the interview manuscripts, immersed myself in their words and engaged myself fully in the process of forming new horizons of understanding.

The process of phenomenological review means that as a researcher I had to be present to 'what is going on' during the interview process, the data collection and during the analysis of the interview data. There are many methods within phenomenological nursing research which are popular for their systematic approach to reviewing qualitative information, for example those of the psychologists Colaizzi and Giorgi and van Kaam (Polit & Beck 2012; Sanders 2003). I wished to

find a flexible, more fluid framework upon which to analyse the data (language) which would complement the continuously flowing back and forth, ebb and flow like movement and process of the hermeneutic dialogue. The philosopher van Manen (2014 p. 29) cautions the budding phenomenologist to the oversimplification of method in a phenomenological context, stating that it's not just an:

> *engine that will unerringly produce insightful outcomes…the further we delve into the phenomenological literature, the clearer it should become that phenomenological method cannot be fitted to a rule book, an interpretive schema, a set of steps, or a systematic set of procedures.*

Van Manen further emphasises that, (2014 p. 320) 'Grasping and formulating a thematic understanding is not a rule–bound process but a free act of "seeing" meaning'. However the pragmatics of research (and the quest for rigor) require a recognizable approach; a method, a means, a way, to achieve some understanding of the data being reviewed, in spite of the philosophical argument that the nature of hermeneutic phenomenology refutes the existence of method (Robertson-Malt 1999).

To avoid engaging in prescriptive, potentially objective, textual analysis in rigid stages, thereby potentially interrupting, or even countering the phenomenological practice of 'letting things appear', I chose the more ductile approach for phenomenological data analysis offered by van Manen (2014 p.320). This approach enabled me to explore the data looking for themes and insights using a series of levels or, stages. The three stages of data analysis described by van Manen (1990 p.92-3); van Manen (2014 p. 320) are listed below. These stages are described in more detail in the *Specific Method Analysis* section in the following analysis chapter, Chapter 4.

> ***The wholistic reading (or sententious) approach.*** *The researcher reads the complete text, as the whole, looking to see what phrase may capture the fundamental meaning, or main significance of the whole text, and then tries to express that meaning within a phrase.*
>
> ***The selective reading approach****. The researcher reads the text several times looking for particular statements or phases asking, "what statement(s) or phrase(s) seem particularly essential or revealing about the phenomenon or experience being described?" Significant statements are physically highlighted and phenomenological meanings are taken or 'captured' in thematic expressions, or through longer reflective descriptive-interpretive paragraphs. Phrases which stand out, or are 'particularly evocative' are copied and saved as 'possible rhetorical "gems" for developing and writing the phenomenological text'.*
>
> ***The detailed reading approach****. Each individual sentence is reviewed and the researcher asks, "what may this sentence or sentence cluster be seen to reveal about the phenomenon being described?"*

Van Manen does not prescribe the above stages as necessarily sequential; this method permitted the flexibility and the freedom to move my conscious 'analytical' focus back and forth, between the three stages. This fluidity of process made practical sense: for example, when people engage in

conversation or read a text, their minds and thoughts are constantly moving back and forth between individual words, sentences, paragraphs and the whole dialogue, in the search for understanding. Van Manen's process of analysis is still systematic in that themes are searched for in the data, as they would be in a sequential or stepped approach; however the pathway to achieve this is more conducive to Gadamer's search for understanding. The adoption of a process for analysis which did not direct me where, and when, to look for meaning in a text resonated with the chosen philosophy, and accommodated the dialectical process of the hermeneutic circle. It also made it easier to become immersed in the data, thereby increasing rigour, and overall had greater applicability to my chosen epistemology. Although described sequentially, the analysis was not carried out as a linear process, but as circular, going back and forth between the stages.

The three stages are documented separately in the following chapter in order to describe in greater detail the analysis process occurring within each stage, using Gadamerian hermeneutic philosophy to guide the process.

Thematic analysis and NVivo

Thematic analysis was assisted using the software program NVivo 8. The interviews once transcribed were imported into this computer software application. It is important to acknowledge that NVivo was not used to generate themes (this was achieved manually by the process described above) but was used as a useful, practical, storage system for the large amount of collected data. The NVivo program also enabled the tracking of words and sentences back to their original location within the text once I had identified them as of relevance and 'highlighted' them. This 'tracking' capability due to the NVivo software system of layered nodes, enhanced the rigour of the analysis (McCloud, Harrington & King 2012). These highlighted sections of text, could then be aligned with other marked words or sentences, retaining the ability to refer back to the passage from where it came. This also enabled me to maintain a practical method of sustaining a record of the hermeneutic circle. In this way dependability and conformability of the participant data is achieved and satisfied through the layered nodal system achieved by the use of the NVivo 8 program and this creates an audit trail to follow the evolution of a theme from the original verbatim script. In this way rigor is ensured of the data pathways (McCloud, Harrington & King 2012).

Rigor and credibility

The issue of rigor and credibility within qualitative research is a subject of considerable debate within the nursing literature. Similar to the approach I expressed earlier in this chapter regarding the qualitative - quantitative debate in nursing research, my aim is not to overly engage in this debate but to acknowledge that it exists and to establish sound, plausible and comprehensive rigor within this research. Presentation of the various discussions regarding the inherent difficulties surrounding the methodological rigor and credibility will not actually serve to enhance the rigor of

this study; it would only serve to be an academic exercise of knowledge. As Pereira (2012, p. 16) concluded in her investigations into rigour in phenomenological research:

> *on the basis of ongoing debates and integration of different perspectives, I believe that the excessive polarisation of discussion in nursing research despite being intellectually stimulating often results in confusion and makes the evaluation of the quality of studies more difficult for researchers, clinicians, publishers and funding agencies.*

As I ascertained earlier, phenomenology does not have a specific method, and the 'steps' I have taken to 'investigate' the information forming the 'results' of this research have all been described and made explicit to ensure credibility and auditability of the information presented. Rigour and credibility were achieved using the strategies:

- Making explicit my own preconceptions and historical conceptions ('historicity') for the purpose of legitimacy of self during my engagement in the hermeneutic circle with the participants narrative.
- Establishing credibility by including participants who had encountered or actually lived the experience.
- Engaging in relationship building activities with the participants: phoning prior to the interview to ascertain background details and swapping similar information - with myself as the researcher - to build rapport.
- Meeting in a relaxed environment and chatting informally prior to the commencement of audio recording.
- Clarifying the research aims and answering questions about the research and providing contact information for future questions.
- Applying extensive engagement in a hermeneutic dialogue with the participants and their narratives. Remaining true to my chosen philosophy: carrying out repeated, constant back and forth reading of the narratives.
- Undertaking audio recording and verbatim transcriptions.
- Obtaining a thick, rich, vivid description of the PHNs' experiences from the interviews.
- Using the participants' own words and particular phrases from the verbatim narratives and quotes to reveal the evidence, my insights and assumptions regarding their lived experience. Therefore '*the community of readers is able to trace the source of the researcher's findings, while concomitantly providing evidence of the findings'* (Locsin & Matua *2002*, p. 176).
- Using NVivo for the transcript reviews (McCloud, Harrington & King 2012) in addition to hard copies to enable thorough analysis, tracking and viewing of themes.
- Using field notes and a reflective diary.

Credibility for this research lies, in essence, within the delivery and visibility of the evidence I revealed from my understanding of the participants' experiences; this evidence lies within the transcripts, as Sandelowski (1995, p. 205) observes, 'the transcript is itself a testimony.'

Chapter Three Summary

This chapter presented the philosophical framework for the research inquiry and, in the context of the research question, explained the main tenets of hermeneutic phenomenology and how this approach will assist in answering the research question. The ontological nature of the research: the importance of 'being rather than 'knowing' was highlighted as a key concept in this research, to understand the lived experience of a public health nurse and their understanding of their relationship to, and roles within, disasters. The philosophers Husserl, Heidegger, Gadamer and van Manen were discussed in relation to their relative contributions to the philosophical framework selected for this thesis. Attention was bought to the importance that Heideggerian phenomenology (specifically the concept of *dasein*, or Being-in-the-world) has for underpinning the foundations of the research methodology and the contribution of this to the more evolved form of hermeneutic phenomenology espoused by Gadamer which informed this research. The interpretive framework for this research therefore draws upon the more evolved Gadamerian hermeneutic philosophy, acknowledging that his work was grounded in and informed by Heideggerian philosophical thinking. Gadamerian hermeneutic philosophy was discussed in terms of how it can inform the process of understanding and interpretation of the research data (language). The middle section of the chapter focussed on the specific framework for study, which included: a detailed description of participant recruitment, considerations related to ethics and the interview process itself as the core 'data' collection component of the study. The final sections of this chapter introduced the specific analysis framework for the participants' transcripts, followed by an overview of the considerations related to rigor for the methodological and specific framework which was adopted.

The focus of the following chapter is the actual analysis of the gathered participant data concerning their lived experience. Chapter Four will describe the research participants, the process of data (language) analysis and the evolution and the extraction and interpretation of themes from the language provided from the participants' narratives.

CHAPTER FOUR – FUSION OF HORIZONS: ANALYSIS OF THE LIVED EXPERIENCE

Chapter Outline

The previous chapter described the philosophical framework for the research enquiry and the specific research method for the study, and how this framework was applied to explore the lived experience of PHNs' roles in disasters. The purpose of this chapter is to provide further detail on the interview process, gathering of the interview 'data,' the demographics of the research participants and analysis of the resultant interview information. This chapter also describes my experience of the process of interpreting and analysing the interviews, being informed by Gadamarian phenomenological philosophy and van Manen's thematic process of analysis. Van Manen's existential 'life-worlds' are introduced in this chapter as the phenomenological framework within which the resultant themes from the analysis of participant interviews are further considered.

The participants

The recruitment of participants and interviewing took place between September 2013 and February 2014. The recruitment process was unproblematic: a steady influx of nurses, who held roles in public health (though not necessarily in a position called 'nurse') responded to the recruitment letters and were keen to be included in the research. A total of 18 public health nurses were interviewed, resulting in 18 interview transcripts. As noted in the previous chapter, all the interviews, with the exception of two, were conducted face to face. Locations chosen by the participants, as a place where they felt comfortable to meet and to talk, included: offices, parks, canteens and coffee shops.

Participant demographics and geography

The collection of demographic information from the participants was kept to a minimum since these variables were not the focus of the research. The demographic information was to provide a basic outline of the group of individuals whom I would be interviewing and not intended for comparison or analysis, but more to provide a description of the participants. The research question was to look at the lived experience of the public health nurses' disaster roles *within Australia*, hence there were no geographic boundaries placed on PHN recruitment. Rural, regional and metropolitan areas across the entire continent were therefore included in the participant research invitations. The 18 public health nurses who were recruited represented five different States within Australia. The majority of participants were from Queensland and New South Wales. This was to be expected, since they are the two most populous Australian States, and have correspondingly greater numbers of public health units supporting their larger populations. Given the very low numbers of specifically named PHNs in Australia I have not named the other States, due to the risk of identification this may pose to the participants.

Gender, age and role

The gender and age of the research participants was representative of the Australian nursing population demographic profile, the majority being female and a mature age (the average age of registered Australian nurses in 2014 was 44 years, with females representing 90% of the nursing workforce (Australian Institute of Health and Welfare 2015). Of the study participants, fifteen of the eighteen nurses were female and three were male. The average age of the PHNs was 48 years, with an age range of 35-65 years. There was a broad range of time that each public health nurse had spent in the current role, the minimum being 2 years and the maximum 25 years. The average time in the role was 9.5 years. One possible reason for the longevity for some participants in their roles was the passion for, and interest in the work, that they did. For example, one participant described her job as:

> *It's like that ad. isn't it, 'the best job in the world', those kids who get to run an island for a year and say it's the best job in the world. I think it's the best job in the world but you have to make it good for yourself. You know people who just do the day to day work…and they don't put a lot into it so they don't get a lot out of it. But I think that it's an area that's very interesting and so if you want to put a bit of effort in you can make it the best job in the world for yourself.*

The study participants had (as was stipulated in recruitment criteria) all identified that they considered themselves to be nurses working within the area of public health. The majority of the participants were specifically named public health nurses, while others carried other role titles which reflected their current position within areas such as, immunisation, policy; infection control and emergency services. Most participants worked in the area of communicable disease control.

Participant qualifications and background in health profession

The participants were all nursing professionals, many holding multiple postgraduate nursing qualifications and certificates. Over half the participants had completed a Masters level qualification; mostly these were in Public Health, with one individual holding a Master of Tropical Health and another holding a Master of Primary Health Care. Several of the participants were also midwives and had undertaken additional community training, such as child and family health. One participant held a qualification in environmental health. The practice background of the nurses was very varied; all had originally trained as registered nurses, but had subsequently worked in other nursing settings prior to moving into their current public health nurse position. Other areas of the health industry in which the participants had received training and worked as nurses included: intensive care, the emergency department, operating theatre, paediatrics, school nursing, the Royal Flying Doctor Service, immunisation and indigenous communities. Additionally, several of the participants' health related experiences extended to volunteer work and training within organisations such as the Red Cross, St John Ambulance and the State Emergency Service.

Disaster qualifications

The participants were asked to describe any disaster training they had undertaken or any disaster qualifications they had achieved. Four PHNs reported that they had not undertaken any disaster training. The remaining 14 individuals described a diverse range of disaster training which varied from short on-line courses (2-6 days) in Emergency Management / Incident Management Training, to short courses/modules conducted by Universities and by institutions such as Emergency Management Australia. Several of the participants had received disaster training through the Australian Red Cross (ARC), specific to ARC national and international disaster preparedness programs. One participant had undertaken workshops through the State Emergency Service (SES), another had completed a MIMMS (Major Incident Medical Management and Support) course and one study participant had completed emergency/disaster related courses within the St John Ambulance organisation. A total of eight participants described undertaking short online training modules facilitated by their various health departments. No participants described any essential disaster or emergency qualifications that they were required to have for their position as a public health nurses. The courses described above were therefore undertaken for: their own interest; as a requirement for a voluntary role; was a recommended pre-requisite for overseas deployment; or had been undertaken as they had come across them during their day-to-day roles.

Specific Method of Analysis

My roles as a researcher within this method was to transform the experiences of the PHNs' lifeworlds into language, and to share these experiences revealing what these experiences meant to them (Streubert & Rinaldi Carpenter 2011). van Manen (2014, pp. 26-7) describes the process of 'phenomenological method' as being driven by sense of 'wondering pathos.' His words caution researchers not to underestimate the challenge of the task of phenomenological inquiry:

> *phenomenology is more than a method of questioning than answering, realizing that insights come to us in that mode of musing, reflective questioning, and being obsessed with sources and meanings of lived meaning.*

Continual musing over and reflective questioning of the participants' narratives was carried out by the method described below. This process resulted in identification of themes.

Identification of themes

In the previous chapter the three stages of data analysis described by van Manen (1990 p.92-3); van Manen (2014 p. 320) were described in brief. The stages are reiterated below but described in much greater detail by using Gadamarian hermeneutic philosophy, overlain by the practical assistance of van Manen, to both explain and guide the analysis process I used. Each of the stages either liberated or assisted in the liberation of themes and meanings, which in turn informed the findings section of this research.

The wholistic (sententious) reading approach

The transcripts were read through, to acquire a feeling for the overall language and the direction of flow of the dialogue which occurred within each interview. Sentences were read aiming to glean an overall impression of the experience of each nurse, as relates to their lived experience of their disaster role, for each transcript. This sententious approach was the precursor to the development of subsequent themes or subthemes as the scripts are repeatedly read (van Manen 1990). Each transcript was re-read multiple times, generating a greater in-depth experience as I became familiar with the prose and its meanings. Given that Gadamer considered interpretation is equal to understanding, in order to gain this understanding I 'subsumed' myself into the text, becoming a mediator between the text, and what the text said. The mediation process became textual dialogue, where I engaged in the 'hermeneutic circle' in order to realise meanings inherent within the taped conversations. As I read/listened to the text back and forth, my mind, both challenged and stimulated by information, created questions, raised by my pre-conceptions and the research 'foci' being discussed by the participants. This process was continued until 'the meaning of the text becomes so persistently audible that it breaks through what the interpreter imagines it to be' (Gadamer 1975/2004, pp. 281-2). Fusion of horizons occurred as questions were answered, new information was concurrently assimilated and experiences were revealed by the participants. In this way my perspective was broadened and my knowledge deepened as reading continued: my mind 'listened' and responded to the process of understanding. The preconceptions brought into the hermeneutic circle were my own unique key to understanding. Each time these precepts were challenged, there was potential for new understanding, and whether or not I agreed with the meaning, it became available to be reflected on as the position and understanding for the participants regarding their experience at that point in time. As articulated by McCloud, Harrington and King (2012): 'understanding evolves from the position of obstruction of understanding to a position of facilitation'. Glimpses of the life world of a PHN emerged, becoming visible as the participants' language was liberated into information.

The selective reading approach

The process of textual dialogue, as described above, creates core or initial information. Meanings and statements from the dialogue which resonated with my pre-understandings, as well as those which provoked new, and or, unexpected knowledge, were identified within each transcript. This was achieved in three ways: by listening, by marking and by writing. I listened to the taped transcripts, at least three times each. Each time I mentally noted the cadence and resonance of the nurses' voices as they described their world and then I physically identified meanings. This was achieved by printing out several hard copies of the transcripts. I then used a highlighter pen to mark identified sentences and words which stood out as: interesting and/or which had 'themed meaning' (it stood out as being a subject, a pattern or a word evoked in other scripts) related to the research question. Hand written notes were made concurrently in the margin as ideas and

meanings and questions arose. I drew mind maps and drew out words which I considered may be linked with a common thread or a shared meaning.

The detailed reading approach

This phase of analysis required me to read each sentence of the transcripts, methodically moving from line to line to identify if, and what, the text revealed regarding the research phenomena of PHNs' experiences related to their role in disasters. The transcripts were downloaded into NVivo and the manually highlighted areas were coded as nodes within the program, retaining the links to the passages from their origins within the text.

Patterns of meanings and of experiences common to participants were clustered together and assembled into potential themes. This process was conducted both in hard copy and also within NVivo. While this was a duplication of work, it aided my analytic thinking to work on themes which were documented both in hard copy text and in text already sitting within the computer. It was also a practical choice; due to work-life commitments taking me away from the computer, I found it beneficial to have a 'portable text' to read through in spare moments. The themes were patterns, running like threads throughout the texts. Themes are considered by Austgard (2012) to be like keys, which will unlock a deeper meaning or understanding of the question being asked. The themes which emerged from the transcripts were repeatedly checked back with the original text for validation. Information that did not fit into themes or patterns was not ignored since it was new information established from the truths in the text and was therefore saved to be reflected on. I again entered a dialogue with the resultant themes to understand how they related to the experience of the public health nurse and their disaster role.

Theme identification and life existentials

I have established in the previous chapter that my chosen philosophy does not provide a set method to follow, or allow for a list of guidelines upon which to ease the analysis journey. I therefore considered that in addition to the thematic analysis described above I would adopt an additional tool to aid the consideration and identification of themes. van Manen (1990 p.101) considers that, 'all phenomenological research efforts are really explorations into the structure of the human life world.' The identification of themes resulting from the data analysis was therefore also aided by using the four existential 'life worlds' as a framework and also a guide to consider the themes within. These life-worlds permeate the experience of all human beings and according to van Manen (1990 p.102) are 'productive categories for the process of phenomenology question posing, reflecting and writing'. Smith (1998 p.215) notes that as they are universal human experiences these 'proved useful in organising data without imposing an intrusive theoretical framework'. This was also important given the necessity to adhere to the philosophy of Gadamer, so this simplified the organisation process of the data that emanated from the interviews. The four life-existentials resonated with the guts of the research question, 'what it means to be a public

health nurse,' and within this life-world, 'what a disaster means to a public health nurse,' and how these meanings transfer into what nurses consider their understanding is of their roles in disasters. The life-worlds provided apt scaffolding (or framework) from which to suspend the themes from the thematic analysis within. Lifeworlds have been used within contemporary phenomenological nursing research (Everingham, Fawcett & Walsh 2014; Locsin & Matua 2002; McCloud, Harrington & King 2012; Robertson-Malt 1999) to assist in organising research data with the recognition that the results are and remain grounded in the participants' day-to-day lives.

The life-worlds are listed as follows:

> ***Lived Space*** *(spatiality) - the physical environment - considers the world in which humans find themselves; concerning felt space, not space in terms of distance.*
>
> ***Lived Time*** *(temporality) our situatedness in, and sense of, passing time. Subjective time, as opposed to objective (or clock) time.*
>
> ***Lived Body*** *(corporeality) our corporeal and mental experiences – refers to how the physical body can reveal or conceal aspects of the person; we are always bodily in the world.*
>
> ***Lived Human Relations*** *(relationality) – our interaction with others- concerns how we relate to others in the world and the interpersonal space we share with others.*

(Munhall 2012; van Manen 1990, 2014)

Coding and themes – documentation

The stages of thematic analysis described and concomitant consideration of the existential lifeworlds led to the liberation of 931 individual 'meaningful' statements. These statements were considered 'meaningful' as they were the collated words, phrases, expressions, verbalised observations, understandings, perceptions and intuitions which were identified from the participants' transcripts as having context to the research question as a result from the method documented above. Locsin and Matua (2002 p.176) described the stage of data analysis which transforms participants' narratives into meaning, as: 'from linguistic transformations of descriptions of the experience emerged thematic structures describing the experience'. As articulated in Chapter 3 the process of thematic analysis was assisted using the software program NVivo 8: the transcribed documents were imported into the computer and the scripts were reviewed. Meaningful sections of language were identified and highlighted (coded). These meaningful sections and segments were then reviewed and grouped within NVivo into thematic clusters of words and phrases. Further review and continued mental 'sieving' resulted in the emergence of 138 key word/phrase groups. These key meanings were then grouped into word clusters which resulted in seven major themes (see Figure 3). I chose not to document all the word clusters within the main thesis text. This is because viewing individual words in isolation from their origins leaves them without context and this can be misleading. The word clusters only retain significance to me, since

I can link the word back using NVivo to the original text. Therefore the themes will be documented and described with just their individual headings within the subsequent chapters.

Chapter Four Summary

This chapter has provided background information on the eighteen research participants, specifically demographic information relating to: geography, gender, age, time in the role, their professional backgrounds and their academic and disaster qualifications. The specific framework was described for the data analysis process (the interpretation of the interview information) using both van Manen's stages of thematic analysis and Gadamerian philosophy. Codes and themes resulted from the analysis of the interviews. Identification of themes was also aided by consideration of van Manen's existential 'life-worlds': the life worlds were introduced as the phenomenological framework within which the themes from the analysis of participant interviews could also be described. The specific documentation process of the words and codes which emanated from the information exchange was outlined. The following chapters will describe and discuss the themes in detail which were liberated during the data analysis phase.

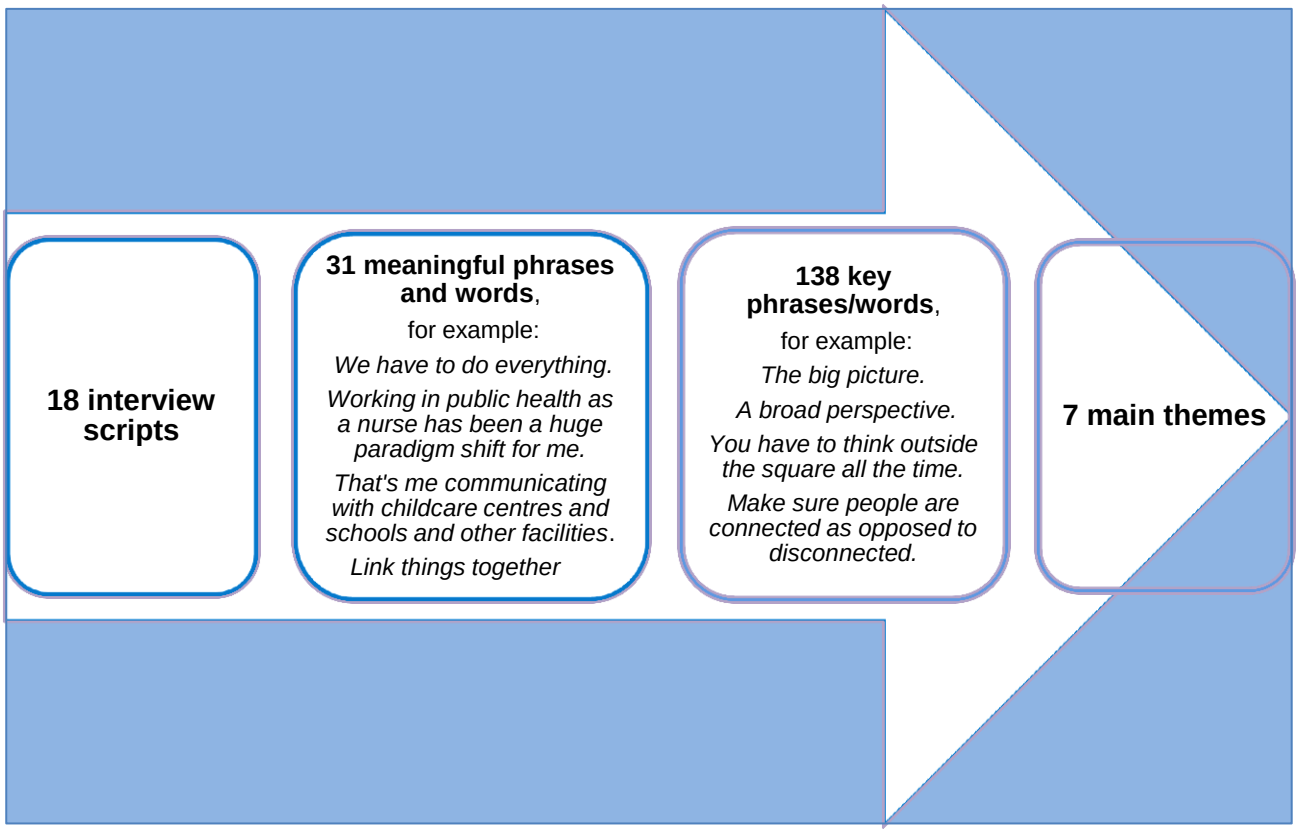


Figure 3: Overview of the thematic analysis process.

CHAPTER FIVE – ACQUIRING HORIZONS: THE PUBLIC HEALTH NURSE DISASTER EXPERIENCE

Chapter Outline

The previous *Analysis* chapter introduced the research participants and described how the research themes were revealed from the participant narratives. This chapter begins with a brief discussion regarding the way in which the PHNs relayed their experience to me. This is followed by describing what a disaster actually means to the PHNs and what their experience was of disasters from their PHN perspective. This background information provides a foundation for and also a context for the findings, which are expressed as themes and described in the following chapter. I have included some discussion alongside the results: this synchronises with Gadamerian philosophy through continuation of the hermeneutic dialogue while discussing and describing the findings, therefore further contributing to the horizons of understanding. Some discussion points identified within this chapter will be continued and expanded upon in the next chapter.

The Public Health Nurse Disaster Experience: An Introduction

PHNs: 'We' not 'I'

An interesting observation from the participant interviews was that the PHNs, more often than not, spoke using the plural 'we,' rather than 'I,' when addressing the interview questions/foci regarding their disaster experience. This depersonalisation of 'self' has several possible explanations, one being that they were not confident to articulate their experiences and actions as their own. This explanation seems unlikely given that the PHNs were all mature and experienced nurses who volunteered for the research, knowing that they would be required to discuss their disaster experiences, and reveal information specific to them and their professional role. I concluded that this phenomenon was more likely to be an unconscious positioning of themselves into a team, since this is how they usually work, and therefore is a natural default when discussing their experience. The collective use of 'we' indicated that the PHNs interviewed held a strong attachment/commitment to their teams; they did not consider themselves working alone at the population level of health; rather, they were an inseparable, integral component of the public health network working with a collective mindset. This collective mindset will be important to consider in context of the interpretation of the findings in later chapters.

Enjoying being a public health nurse

What it means to be PHNs is important to understand their disaster roles and provides a window into how they interpret their lifeworlds. When I asked the PHNs about what being a public health nurse meant to them, they all expressed that they really enjoyed their role, offering unprompted recognition of this during the dialogue. Dianne provided a glowing account of her PHN role, *It's like*

that ad. isn't it, 'the best job in the world'. The PHNs described the positive attributes of their experiences of their PHN roles as being: '*incredibly interesting'*, *varied, busy, autonomous* (Rachel), *stimulating* (Lynne), being inspired by other dynamic public health professionals, enjoying an analytical side of public health, *dealing with different people each day* and *being in a job that's emotionally much easier to leave at the door* (Joanne). The PHNs particularly enjoyed the experience of the broad life-worlds which they described within public health, *the bigger picture of health* and the ability to view health *from a different perspective.* This experience of the broad perspective appeared to both require and generate autonomy in order for the PHNs to undertake physical and conceptual care for a whole community. The more autonomy the PHNs had experienced within their roles, the greater their enjoyment seemed to be: as Joanne said, y*ou are quite autonomous and I think you have a little bit of leeway in going with your gut a bit*. *You get to sniff things out, explore, that's what I love about the job.* Autonomy of role was due to factors such as: being a team manager / leader; being able to make independent decisions; working in a remote setting which provides a greater variety of work and more responsibility. The latter group of PHNs described the experience of wearing 'many hats' in their roles and this multi-tasking, multi-skilling appeared to contribute to their love of the job. Tony stated his passion for the PHN role, describing that he was able to influence decision-making and have an impact on national policy.

What does a disaster mean to a public health nurse?

What a disaster means to a PHN provides a portal of insight into the PHNs' thinking with respect to disasters, thereby facilitating understanding of what their disaster experience means to them. For example, given that most of the participants said that they worked within the area of communicable disease control, it was therefore not difficult to understand why the majority of PHNs, when asked about what disaster/s meant to them, and if they had been involved in any disasters, mentioned infectious diseases and pandemics. As Tony articulated, '*pandemic influenza is a communicable disease disaster so public health nurses are the operational arm of the public health response*.' In Australia public health is the lead response agency for a pandemic, therefore public health nurses working within communicable disease control are expected to be the experts and to assume key roles in a pandemic event.

The PHNs' disaster experience and the meanings they drew from their experiences were affected by: the disaster type; their geographic location within Australia; their previous disaster experience and their relative exposures to the pervading geographical, topographical and climatological hazards. Their disaster experience was also influenced by their work settings being located within, and/or serving, an urbanised, metropolitan area or a rural area, as well as their understanding of what their roles were in, or preparing for, a disaster. The PHNs were all familiar with and able to articulate what a disaster is, in terms of understanding and defining a disaster definition. Although most participants cited pandemics as their main disaster, it was apparent many PHNs had also experienced disasters related to physical natural hazards, such as floods, bushfires and cyclones.

The following sections contain quotes from the participant narratives regarding what they consider a disaster means to them.

The PHNs employed in the northern and eastern regions of Australia had been exposed to a greater number of disasters due to extreme weather events, for example flood and fires. These more 'disaster experienced' PHNs were able to provide greater detail of what they considered their roles were in the context of a disaster and therefore have valuable knowledge and insight from this experience to take into future disaster events. Their narratives were more confident and reflective of their disaster roles and they were pragmatic about what they saw as being an extreme weather event, relative to a disaster. Preparing for a disaster was an important component of their roles, thereby fitting in with their core public health function of prevention:

> *Often it's more the preparing for a disaster rather, than having to react to it. I mean with cyclones that hit, well we don't always say they are a disaster, it's just like, 'they are a cyclone'* (Vicki).

Jane, to the contrary, when describing what a disaster meant to her explained that due to the lack of natural geographical hazards in the region in which she worked, the only disaster she considered to be a 'true' disaster, was the 2009 influenza pandemic:

> *A disaster is something that is beyond what is normal within your working time. It's usually got a start point and end frame with a bit of luck, and impacts a lot of people and absorbs a lot of resources.*
>
> *That's the pandemic in my take, and we don't have a lot of um those greater number disasters out here, purely because the geography doesn't allow it in general. That said if Hep A got out there it would have affected multiple communities…it just would have been a disaster for us to try and get resources and stuff to them...*
>
> *So our only true disaster, which absorbed a lot of time and a lot of energy and um physical and financial resources, was the 2009 pandemic.*

Jane considered this a 'true' disaster event due to the amount of human and financial resources it absorbed. Darlene when describing what a disaster meant to her also mentioned the pandemic:

> *In terms of disaster, I guess it's something, something really, really bad. I think something that is significantly going to impact on people's health and wellbeing, and whether that's you know, Swine flu epidemic or a bushfire or, yeah whatever.*

Antony described that while pandemics were the disaster domain of a PHN, he also articulated the broader PHN involvement in communicable disease surveillance for disasters caused by natural hazards:

> *Like flood emergencies, fires…earthquakes…major storm disasters…and ones that go on for longer...our role in that as part of the wider disaster response around communicable disease surveillance and consultancy is providing services to GPs and other health care workers about disease risks and setting up additional surveillance systems where we need to for gastro or Ross River virus or influenza…or whatever else is a risk depending on what the situation is and the time*

of year…so it depends on what the disaster is, the nature of the disaster and the size of the disaster…

Jazzy also mentioned that in her community disasters were usually related to extreme weather events: *Well disasters here in the north usually involve natural disasters so weather, you know…cyclones.* She considered that her involvement as a PHN commenced post disaster in a disease surveillance capacity, noting that she was: *not usually involved from a public health nursing perspective as part of the disaster response but in the past we have set up disease surveillance…post disaster disease surveillance…*

Joanne concurred with Jazzy that her disaster focus was natural disasters: *I suppose up here our disasters are very focused around say natural events you know, cyclones and those sort of thing,* but she also noted that her concerns sat within communicable disease control:

…but for us specifically in [location removed] a disaster could be bloody 100 dengue notifications in a week.

Vicki articulated that disasters to her meant preparedness and prevention activities:

We have lots of outbreaks, so not all outbreaks would end up being a disaster. I think a disaster is more something that's either really big, as far as it affects a large population…if it extensively sort of affects a bigger population and a big area, then it potentially could be a disaster. Often it's more the preparing for a disaster rather, than having to react to it. I mean with cyclones that hit, well we don't always say they are a disaster; it's just like, 'they are a cyclone'.

As the quote above shows, Vicki didn't necessarily equate cyclones with disasters since they were a normal climatic feature of her geographic region and, unless they had impacted on her community, would not be regarded as a disaster. Vicki's experience of disasters led to her understanding that her role was related to activities to mitigate the potential negative health effects of disasters.

Darlene described her experiences of preparedness and prevention activities for heat waves being, for example the co-ordination of public health messaging:

It's a funny one yeah, cause you kind of think oh a few years ago who cared if it got hot…but it is the highest cause of deaths of a natural disaster in Australia ever um, and you know again we do have that role to look after...you kind of basically coordinate public health messaging, um 'drink water', 'stay inside', 'don't swim in the pool if it's too hot', which is a weird one cause everyone wants to go swimming, but amoebic meningitis or whatever.

Her understanding of the threat of heatwaves had changed over time and therefore she perceives her role differently to a few years ago, when the health impact of heat waves received less attention.

Rachel described a plethora of disasters that she had been involved in:

> *I am just thinking back to what we'd been involved in in the last 5 or 6 years, well we've had things like the pandemic. And cyclones which are our regular occurrence here and certainly we've had cyclones on top of our emerging dengue outbreak in areas such as [location removed] which verges on becoming a disaster. But I suppose a disaster would mean that we A…don't have the capacity to deal with the incident or B the environmental effects are such that it makes it difficult for us to do our job.*

Jane while discussing her quite extensive disaster exposure and experience concurred that her main PHN disaster focus was concerned with disease outbreaks, considering her role outside of infectious disease as limited. She talked about her experience being related to preventative and preparedness activities, for example checking vaccine stocks:

> *My main focus, being a public health nurse in a disaster, is an infectious disease outbreak. In the other physical disasters, thinking of floods that we've had through here, bushfires um and the impact of that, the public health nurse has got an extremely tiny role. I've um been asked for advice on what needs to happen with vaccinations in a town where they're getting lots of injuries from flood waters and that sort of stuff, but other than that, um, yeah, when the hospital was trying to prepare for the oncoming flood, what they needed with vaccinations, but an actual active role in disaster management of something like a flood, no.*
>
> *...what our information base is, you know, what infectious diseases might we expect to come with the flood, how can we prevent those; what vaccinations might we need to stock up on that we might expect to have to use in that particular town. So that's where our um direct assistance is-is I think very important, but very, very limited in the scope of preparing and actually managing a disaster.*

This experience was shared by Jess who considered the '*Swine Flu'* was the main disaster event she had experienced: *In my time here I suppose the major event that we were involved in was the Swine Flu, which was um, a major thing for public health.* Jess notes that although PHNs play a role in disaster events such as bushfires they do not take the lead disaster role. Jess and Jane both understand that PHNs have a role in areas such as surveillance and information delivery:

> *But there are other incidents that have occurred that public health has had a role in, but not a lead sort of role in. So the [location removed] bushfires last year, I wasn't actually involved in that personally, but some of the other um public health nurses were. In terms of setting up surveillance systems for gastro in the um, in the [evacuation] centres…there was a lot of things they were involved in um, but main role for the nurses in that was about putting together sort of surveillance pretty quick, you know, little steps on what to be looking out for, and information for people* (Jess).

Jane's description of disasters was influenced by what she understood the popular notion of disasters was to other people, something visibly dramatic, such as bombings and plane crashes. The meaning she drew from this led her to consider that perhaps people do not necessarily consider that infectious diseases could result in a disaster, until it actually happens:

> *…most people see a disaster as being a um geographical type disaster or a man-made sort of disaster as in plane crash, bombing, something on those lines, not so much infectious diseases disaster. So they sort of get contained under the terms of*

outbreaks and epidemics and not really a disaster until you get to there.

Jane's words identify the notion of 'potential' disasters. The potential for a disaster was an ongoing issue which concerned the PHNs and describes the PHNs experience of preparing for a disaster. Protection of their communities was paramount; therefore to let an outbreak get out of control could be a disaster for communities, as well as being a failing of the system and also their roles. Jane in her narrative (below) divided disasters into 'potential' disasters for example the ongoing diseases at endemic level in vulnerable communities and *true* or *actual disasters* such as the pandemic:

> *…it was only a potential disaster it wasn't an actual disaster. The potential was that you had over 30 children exposed to the household situation that would then be spreading back out across that remote area and back into other households, that if they got sick - if they're acutely unwell, they're in remote isolated community so individually they're at high risk of morbidity of disease from not being able to access easily um high-quality medical facilities…*
>
> *Yeah, see the hepatitis A was only sort of a potential one, and the prevention of that, which is almost day-to-day work except, if you didn't manage it, it will look like a potential disaster, um as a routine sort of thing, then they get out of hand. Um a lot of people can say, "well you know, ongoing things aren't a disaster", but really if you look at whooping cough in communities, and it's endemic in our community, then um that is, it was actually that are super endemic level. That's not a disaster which you think is contained by timeframe of any sort, it's ongoing. But that um is certainly a large-scale infectious disease consideration that needs action and activity and a lot more research.*

The concept of a 'potential' disaster was also expressed by Traci who described that her role became overwhelming when trying to manage an extended disease outbreak. She perceived this as a disaster, not just in terms of her personal workload, but a fear that the outbreak would not be contained:

> *…so you get notifications, thirty to forty a week, and then you were following up. So you had to ring the GP about every case, and under-fives…so you look at a child care centre…then you've got pertussis in the centre…So this too has been a bloody pandemic over here and it's interesting in that and when we've had our whiteboard meetings…and people would draft up stats and they were so, 'God, we're running at the highest'. And you go to these frigging meetings and they'd have these things they were saying, 'how high it is? 'And you know like I was always the laying off buckets of overtime. And you'd be saying it's, 'it's not sustainable, it's not sustainable'…*
>
> *So this too… has been a bloody pandemic…Like you know, what's a pandemic?…we've got the highest, we've got an outbreak. So to me it was a [expletive] disaster…Like, this is my pandemic* (Traci).

The description of potential disasters by the PHNs was not from a sense of drama, but a real fear that an outbreak would become out of control in their communities and they carried the responsibility for prevention of this potential occurrence.

Revealing the PHN disaster experience

This section provides insight into the actual disaster experiences revealed by the PHNs, relating to the range of skills they considered they needed following their experiences, and what this meant in terms of their roles.

Rachel shared part of her disaster experience while responding during a flood emergency subsequent to a cyclone:

> *Communication was really difficult, mobile phones were all down, obviously other people had their own agendas about what they needed to do, which was to sort out their electricity…all those type of things that were going on, so for us it was a case of that you jump in the car and go down, door knock and find out in the area that we were concerned about whether there was actually anybody else sick in that area. It's that kind of thing where especially in a place like [location removed] that there tended to be quite a lot of hospitalisations, these people were taking up hospital beds for between 2-5 days whilst they were sick with dengue so obviously post disaster you don't want that as there are a lot of beds taken up by people with chain saw injuries and all those type of things that followed on. So it was a case of having to go down and take blood and give education, try and assess what was going on in that area, try and get an idea about, you know, the scope of the outbreak and to try and get people to do the right thing which is how do you clear up a yard when your whole house is devastated, not much you can do but you can wear insect repellent and it was just giving over those public health education as well as things like taking bloods to be able to see the scope of the problem.*

Rachel revealed that her disaster experiences meant that she was involved in the provision of clinical nursing practices in addition to carrying out broader public health activities such as, disease surveillance, health education and health promotion. In the above quote she describes visiting her disaster struck community to '*assess what is going on*', and she went '*door knocking*' and '*taking bloods*' to be able to '*see the scope of the problem'.* For Rachel her disaster experiences meant that she could carry out direct nursing care as well as public health nursing functions; for her this experience meant that she could endeavour to understand the larger, more holistic, picture of community health issues and needs. Rachel's understandings of her experiences were that the communities priorities were perhaps more focussed on clearing up after the disaster rather than their health.

Jess's experience in the 2009 influenza pandemic is described below:

> *We're a very small unit. Um and despite good efforts to try and get people on board quickly, like it's in that initial phase that there's a lot of activity, and you need people there who know what they're doing pretty quickly um, and that wasn't sort of forthcoming, so…ah overwhelmed, people working extremely long hours, you know ten, twelve hour days. People who were part time were juggling things so they could be here more often, and the system sort of relied on that to function.*
>
> **Researcher:** What was it like for you? What was the experience like for you?
>
> *Um, horrible! I felt…this sense of obligation to be here um, part of the team, and if I wasn't here, it, you know…it was going to mean other people were left sort of more*

under-the-pump.

Yeah, just um, extremely stressful and very good from the team point of view, like we all really pulled together. So that was really good sense of collegiality, and all those positive things, but um, pretty much burned out pretty quickly.

Jess described feeling overwhelmed and unable to rest due to her commitment and sense of '*obligation'* to her small team. The consequence of this experience was that she suffered rapid burn out, although she also drew positive meanings from the experience, such as working within a team which worked well together showing '*collegiality*' during the long days she worked. Jess also understood that 'the system' relied on individuals being committed to working these long hours and knowing what they were doing, or the system would not function.

Lynne described her disaster experience as being *surreal*, she also talked about the exhaustion she witnessed amongst the *firies* responding to a bushfire disaster she had been involved:

…well it was a bit surreal, 'cause we weren't that far, even though we were safe. Everyone looked exhausted, you know, people coming in you know, Firies covered in smoke and dust and soot and you know all the air was horrible, cause there was so much smoke in the air, and the pervading thing was that everyone looked exhausted, and people that we were talking to um, had been, you know, up from [location removed] for nine days, and had worked nine days straight, they were going back, and there was another team coming, and things like that.

Fatigue and exhaustion were commonly acknowledged by many PHNs to be at the forefront of their minds when they were recounting their disaster experience. The feeling of exhaustion was heightened by the PHNs' experience of being 'thrust' into a more senior role. This elevation of position was understood by Anna (in the quote below) as meaning that she was then expected to be 'more available' to work more shifts and longer hours to train the more junior staff. It also meant that she had to adjust to working in a position she was inexperienced in, thereby adding to the stress of the situation:

So they were very long days, um, and we were training some of our staff to then become supervisors, um so it was sort of train the trainer, but [myself] being at the time, one of the most senior [PHNs]… only because of the emergency, I was really quite junior, but thrust into a more senior position…so I was expected to be more available. So yeah, we were all exhausted by the end of it, and a lot of us were doing…We weren't doing 16 hour days, but we were doing our 8 hours and then staying on later, or coming back.

Matt also revealed his disaster experience led him to understand the potential for disaster events to produce stressful and challenging situations to manage. He was pragmatic about this stress:

…in any disaster there's a degree of uncertainty, and um it's trying to make sound decisions in uncertain times, which is the challenge, um you know you can have the heatwave, but then you don't know that this is going to happen, and what are the knock on effects of that. Yeah so, so far we've had pretty straight forward heatwaves, where yeah, it's been hot, but power's been OK, there's no been no

> *water mains that have burst which have caused problems and people drinking water downstream. Um, so yeah, so far that's been OK, but yeah like if you were to say we were to have rolling power cuts. So then it becomes a disaster. It becomes stressful, 'cause it's unexpected.*

The 2009 influenza pandemic was described by most PHNs as a rapid disaster learning experience which absorbed many resources, especially time and energy. For most PHNs, the experience of the pandemic was perceived as being very negative, and a disempowering experience. While there was a sense of collegiality, for most PHNs the bottom line was, Jess recalled, that she and others '*pretty much burned out quickly*.'

The following quotes describe this pandemic experience of several PHNs:

> *the pandemic was…chaotic* (Vicki).
>
> *I think it was so badly handled that you don't want to remember it.* (Jazzy)
>
> *…there was a lot of pressure about um, we didn't have enough knowledge…there was still a lot of angst*…(Anna).
>
> *It was a very, very stressful time and its difficult trying to recall a lot of it, because I think um, you sort of just block it out (Becca).*
>
> *I think everybody was scarred by pandemic. It was a really long protracted event…it's challenging to go from working in everyday work, to going into a disaster setting because when you move into a disaster setting decisions get made whether you like them or not…political risk is very big so decisions get made that clinicians nurses and doctors don't necessarily agree with, and find it very disempowering* (Liz).

Antony similarly had also experienced a sense of being briefly overwhelmed during the pandemic; he attributed the initial chaos within his work setting as being due to the lack of PHNs he needed to carry out the increased workload the pandemic created within his unit:

> *Public health nurses are seen as the experts in this situation and we need to expand 'cos they're under a lot of demand public health nurses, and so there's not enough, wasn't enough space [time/people] to go to that next level of surge we needed to manage to go into it. So it was one or two days when we were really under the pump something terrible…and then the surge worked and we then were all right after that.*

Sophia when she was asked what a disaster meant to her replied '*a new mode of working'* explaining further:

> *Ok, so, I think…the way that we [the public health nurses] operate, is that we, we do go into this new mode…A lot of our role is about um, teaching others and about mentoring others.*

Becca was aware that the 2009 influenza pandemic could have been much worse:

> *We can only do so much with what we have got in place and I think the real problem would have happened if it had gone very Hollywood.*

Some PHNs spoke about experiences they considered as disasters, but which may not have fitted into the standard disaster definition, as described in the *Background* chapter; however to them it was a disaster. For example Jane describes an event which occurred during a routine mass vaccination session she was managing:

> *So a disaster in that incidence is…There was a joyous time I remember. It was the meningococcal program…and one school I did…we had three children transported to hospital with anaphylaxis. We actually had 5 go down…it was in the same clinic, and at the same time…you had to have the kids who'd been vaccinated still sitting within the clinic with you for 15 minutes. I had a whole primary school class sitting in the hall… behind the dividers I had kids going into anaphylaxis, and so all those 30 other kids were then responding with [hard breathing] "I can't breathe miss – I can't do this". "Have you got asthma"? "I have got asthma". "Take your puffer".*
>
> *So, you know, that's an incidence of a nursing type disaster, which comes in under public health – not as an infectious disease, but as a public health action...within a mass vaccination clinic.*

Understanding the politics and education

A finding which emerged from the PHN interviews was how they experienced and understood the effect of politics upon their roles during disasters and the meanings they drew from this. The PHNs perceived that there was a general lack of understanding surrounding what public health is, and how this affected disaster preparedness and response. The PHNs' experiences of their disaster roles led them to be initially surprised at the extent to which politics played a role in public health, but they also understood that this was the nature of public health and that political interest and involvement was increased during disasters. Politics and politicians actions during disaster times were perceived by the PHNs to sometimes undermine what they were trying to, and they felt at odds with this situation. The PHNs revealed frustration regarding the amount of time and energy that was required of their role by 'political gurus' during disasters. '*Having their own agenda*' was a phrase attributed to the governments' roles in a disaster by one PHN, while other PHNs gave examples of undertaking specific functions during a disaster just because:

> *they just need to be perceived as doing something' and 'that there were decisions made that were not based on evidence but on how it was going to be perceived if they didn't do something* (Liz).

Liz's experience regarding her disaster role led her to understand that sometimes it was identical to her role in non-disaster times, however the lack of understanding regarding, '*what public health does,'* led to the perspective that PHNs were perhaps not actually doing anything – and then having to explain their role during a disaster. The following narrative describes Liz's adaption to the politics of disaster, whereby she has to explain her role in public health and what is does to those in power:

> *What I have learnt, [is that] sometimes in disasters we're actually doing the same job, but nobody understands what public health does…so political decisions get made because they think we're not doing anything. So what I learnt out of the 2010-*

> *11 summer season is you have to have a proactive plan written fast, to actually explain what you are going to do, and how you are going to do it. So it doesn't matter if it's exactly the same as what you would do normally. The Minister doesn't know that so the trick is a short sharp document that explains what public health does.*

The risk associated with politicians' ignorance of the role of public health in disasters creates potential for confusion, mismanagement, or even indifference, as regards the PHNs' roles in disaster preparedness and response. It also creates a lack of role identity which several of the PHNs voiced: *I think maybe there's a lack of definition or a lack of um, identity for public health nursing* (Traci).

Rachel's experiences revealed her frustration with how politics affected her role during the 2009 influenza pandemic. Rachel's understanding of politics during the disaster was that it had negatively impacted on her relationship with their community: *we got the community totally offside*. This negative connotation has implications for future disaster preparedness roles, since the community lost their sense of trust in what the PHNs were trying to do:

> *…we have had pandemics and that was difficult. I suppose the lesson I picked up from that (the pandemic) is that that public health is political.*
>
> Researcher: why was it difficult?
>
> *Because it was very hard to do your job, because you knew what had to be done. You know the information you have to give out to communities and staff, you know health providers everywhere. But the pull back from the political gurus was that they were to be kept informed of everything all the time, so there was a multitude of meetings. There were decisions that were made that were not based on evidence but on how it was going to be perceived if they didn't do anything. Umm the whole thing was very much a moving target so it was very hard to sell what we wanted to do when it changed at the drop of the hat. And I think we got the community totally offside with the whole closing of schools and all of a sudden we are not going to bother and I think that was a public health I wouldn't say disaster but I think as far as we were looked at by the public we did not come across there very well at all. The public perceived that we oversold it and it wasn't as bad as what it was and that we were just interfering with their lives and trying to be Big Brother about it.*

Training

The *Analysis* chapter detailed the disaster qualifications and training that the PHNs had or had not received. There were differences in the type, amount, availability and level of education that some of the PHNs had undertaken. Some did not consider training a priority, although they understood that nurses had a duty to respond to disasters, others queried how you would keep nurses upskilled for what could be potentially rare events. Jane's understanding was that she would not be able to access training since she was in a rural area and she was not sure that on-line training would work for her, preferring a 'hand-on' approach. Anna's understanding was that the training she received inspired/enabled her to develop further disaster plans. The interviews revealed that the PHNs' experiences of disaster education were inconsistent, as was their understanding of the

value of disaster education for their roles. The reality of the PHN experience was that the PHNs' disaster education was ad hoc and fragmented; dependent upon their jurisdiction, their own motivation or being a pre-requisite for another role, rather being than a single uniform policy directive for PHN disaster education within public health.

The PHNs' understanding of their roles in a disaster

The PHNs understood that their roles essentially remained the same in a disaster:

> *I mean basically all we did in that was amplify what we already do* (Jess).

Brianna concurred:

> *I don't know whether you could generate a disaster competency for public health nurses because I think that it's about delivering and doing the things you normally do, ordinary things in an extraordinary environment I suppose.*

The PHNs' experiences meant that they understood the importance of having an understanding of the hazards they would encounter while carrying out their roles in a disaster:

> *You need a knowledge of whatever hazard it is that you're dealing with, I think that's pretty important* (Jane).

It was interesting however that unless a disaster was caused by disease, such as a pandemic, the PHNs were less confident at articulating their disaster roles although they conceded their roles were important in preparing for disasters. Jazzy's experiences of disasters within her community were usually related to extreme weather events, she understood that her role was in surveillance, but to her this role was seen as being separate from the main response: '*we're not usually involved from a public health perspective as part of the disaster response, but in the past we have set up surveillance'*. Jane considered that her role in floods and bushfires was: '*really tiny,'* relative to her understanding of the '*direct assistance'* role of preparing and '*actually managing a disaster'*.

Some PHNs understood from their experiences that if a disaster was not a disease specific disaster, then their public health roles became secondary to the main response, secondary to the acute health services or other disaster services. Brianna observed that, '*public health still is taking a secondary role'.* Darlene's understanding, in the example below, from her experiences in overseas disaster responses was that public health takes second place behind emergency medical care. She pointed out the difficulty in quantifying public health outcomes in terms of preventing ill health. Brianna concurred; her understanding of the value that PHNs brought to disasters was their broad skill set and that this meant, '*taking a lot of work to convince people that you actually need people with the broad skill set.* Darlene's understanding was that public health always has to justify its existence:

> *I think one of the things is public health isn't always recognised as an immediate need…I know other people were working in public health areas, but I really think*

that um, it's essential…it's not recognised, because it's not easy to say 'we stopped this many people dying because they didn't get dysentery', or you know, 'we stopped this many people getting malaria' and I think that's really unfortunate, but I think that is across the whole health context, like public health always seems to have to justify their existence, whereas if you're in a hospital…

Being aware of the domination of the acute care sector in disaster response led one PHN to describe her experience whereby she was requested to assist a hospital emergency department with their struggling pandemic flu clinic operations. This experience raises questions regarding who should be the designated response agent for public health emergencies, who are best positioned, informed and sufficiently staffed to undertake these type of public health roles, as Liz asked:

One thing that interests me is they have the planning for emergencies they have the state emergency plans and they want a response agent for it. Are we going to sit in that space and inform that or are we going to say ED nurses will do it all. They might run the flu clinics…but with heat events why should they have to do it as we are actually probably in a better space to deliver the information and then do we need to increase the numbers of public health nurses?

There was also a concern expressed by the PHNs regarding the extent of involvement of hospitals in preventative care, to the exclusion of those who are the experts and to the potential detriment of the public. Liz commented:

Public health nursing is lost in public health space, and public health in general isn't very well understood in this space…We have a culture that is individual care based, and while you have an individual care focus…what I find is that that they [people] don't worry about preparedness until it taps you on the head…and when you get into the event, all of a sudden they want you to fix it, which you should have fixed it back here…

With the present dominance of the curative health system in Australia the challenge for the public health nurses is to promote their roles in community protection and to orientate their mindset to their strengths of being positioned at the centre of the community. This challenge was recognised and articulated by the PHNs as needing to move them forward into the disaster space and to better articulate what their roles are to the public and to other health professionals. PHNs may be few in number relative to nurses working in the acute sector, but this does not mean that they considered themselves powerless. Antony understood that the small scale of the public health network meant that PHNs can make a difference in the disaster setting:

in nursing in a hospital I think you don't have much power and much influence, but in public health nursing I think it is different and I think we have influence and connections and see that we can make a difference on policy and resources and approach, and which is also true in the disaster setting. So I think that public health nurses, who are then working in disaster, know that it's automatic that if it's being overwhelmed we know that there is a whole system there behind it that can respond and that we can influence that. Whereas maybe in hospital based nursing, one of my experiences there is that if stuff going wrong nobody seems to care and you sort of work by yourself to sort it out. Whereas public health network, because it's a smaller network, we work across the network all the time and that is our expectation

that there is strong network and a system to help in our response and I think that same understanding also applies in a disaster setting…(Antony).

Chapter Five Summary

This chapter has provided an overview of what a disaster means to the PHNs, and articulated the lived experience of some of their roles and functions in disasters. These revealed disaster experiences provide a backdrop to understanding the themes elicited from the PHNs' lifeworlds in the following chapter. The quotes in this chapter illustrate that the PHNs had encountered a broad range of disasters within Australia. For some PHNs, extreme weather events were just part of the normal weather patterns for their particular geographical region. However their experience within these events contributed to informed planning and preparedness strategies for potential disasters and other events such as mass gatherings. The PHNs were all vigilant to potential disasters, seeking protection for their communities. Commonalities and differences were found between what the PHNs considered disasters to be, and what their roles and experiences were within disasters and the meanings they each drew from these experiences. This section forms the bedrock of the research themes. It provides context for the following sections which look deeper into understanding what the PHNs' experiences meant to them regarding disasters and the interpretation of these experiences into their disaster role, from my perspective as the researcher.

CHAPTER SIX – REVEALING HORIZONS: PROTECTING MY COMMUNITY

Overview

The previous chapter, *The Public Health Nurse disaster experience: acquiring horizons,* established a foundation for the research findings by exploring what a disaster actually meant to the interviewed PHNs, and included examples of their understandings of their actual disaster experiences.

This chapter describes seven themes which emerged from the participant narratives and information gleaned from my expanded horizons as the researcher. Meaningful phrases (sub themes) have been identified and are also described within each main theme. These subthemes describe the qualities which, for example, relate to the different ways and the different scales in which the PHNs' experience their disaster roles and they add context to the main themes. All seven themes describe the ways in which these PHNs carry out their disaster roles and the way in which they inhabit, understand and experience their PHN lifeworld in the context of disaster preparedness and response. For practical reasons I have identified and described each of the themes separately, however within the PHN disaster lifeworld, they are strongly inter-related. The experiences and the meanings which the themes represent do not exist in isolation from one another; therefore some of the thematic content, as exemplified by the selected quotes from participant narratives, may overlap. The interconnectedness of understanding and experience reflects the reality of the PHNs' lifeworlds and their roles in disaster preparedness and response. The exploration and understanding of the interconnected themes revealed is reflective of the PHNs' holistic approach to health care within their communities. Furthermore, the interconnectedness of the themes represents the PHNs' engagement in a hermeneutic circle with their communities, and the other agencies with which they constantly interact, in order to achieve the health protection they strive for. The themes are underpinned by the PHNs' desire to protect individuals and groups within their communities from harm.

The principal and overarching theme, the *public health mind,* is described first since its fundamental characteristics both underpin and inform the remaining six themes. Having *a public health mind* reveals the essence of the PHNs' experiences of their roles in disasters - how they understand and interpret their roles, at the population level of health care, in addition to being mindful of the needs of the individuals within their community. The second theme, 'Safeguarding my Community,' reveals the PHNs as being *sentinels:* interpreted from their experiences of safeguarding, being vigilant to disease and health threats which have, or could potentially affect their communities in the pre, during or post disaster phases. The third theme, 'Understanding my Community', describes the PHNs' disaster experiences, from which they drew strategic insight into

the health risks of their communities, enabling them to take action where required, and thereby '*making sure'* that their communities are protected from the actual and potential health consequences of disasters. The fourth theme, 'Knowing my Community,' describes the PHNs' understanding of who the vulnerable individuals and groups are within their community, and the resultant meanings they drew from these understandings, which led to them being *advocates* for groups in disaster situations. The fifth theme, 'Connecting my Community,' reveals the PHNs' understandings of their roles in disasters as being *bridges and connectors.* These experiences revealed how the PHNs interpreted their roles from their PHN experiences transferring and connecting information between communities, other health professionals and stakeholders during disasters. The sixth theme, 'Adapting to my Community' reveals the PHNs' experiences of being *adaptors*, adapting to the changing physical and social environment caused by disasters, to the changing needs and expectations of their communities and other involved agencies, and to the changes which disasters bring into their own roles. The seventh theme, 'Being Unknown Protectors' reveals the meanings that the PHNs drew from their disaster experiences, regarding their perceptions that they, and their roles, were unknown and /or misunderstood by their community and their own profession.

Theme One: a public health mind

The principal theme which emerged from my hermeneutic engagement with the participants' transcripts was the experience of having a *public health mind.* Having a *public health mind* appeared as a theme, a concept, a thread, a mode of being which permeated throughout all the narratives. The concerns and challenges presented by the actual and potential delivery of healthcare to an entire population, as well as to individuals in a disaster, were frequently articulated by the participants. The meanings that the participants drew from the problems associated with the delivery of health care in a disaster, as well as their experience of the ways in which this could be, or had been achieved, resulted in this main theme. As my understanding of the participants' experiences increased, having a *public health mind* emerged as being an all-encompassing theme, a concept which describes the PHNs' worldview. The actual phrase having a *public health mind* was articulated by one of the research participants (Joanne) as a quality she perceived as being necessary to carry out the PHN role. To Joanne her experiences meant that she considered her role at the population level of health to be one that not just any nurse could, or would want, to do because the role requires moving away from the more traditional one-on-one nurse-patient relationship. Joanne's explanations of her experience resonated with the stories I was hearing in the other transcripts and that I had interpreted from their conversations:

> *…if you are talking about a disaster you are talking about something that is out of your control and it's affecting a large group of people and that is public health, dealing with large groups of people, you are not dealing with one-on-one. You are looking at it from a population perspective: what could affect this population? Not, you know, Joe Bloggs and his sore toe. You are looking at it from a big perspective.*

You know from mosquito borne illnesses, you know from gastro, from that sort of thing and there's always a role for that…for a public health nurse in that…and I think you have to have a public health mind for that. I don't think any nurse either can just step in.

Researcher: So what's a public health mind?

A public health mind: you need to be able to step back and look at the bigger picture and I don't think…people aren't…that's, that's not natural in every nurse, if that makes sense. You know a lot of people are more comfortable thinking one-on-one, looking at, 'well we need to do this, for this, for this'. You know, but look at the bigger picture and what is going to have maximum impact for the majority of people? Not, 'what's good for this niche population?'

As articulated in Chapter 3 on *Methodology,* the Heideggerian concept of *dasein* describes how humans exist in the world and how they relate the meaning of 'being' to themselves and to all others and everything around them. The theme of having *a public health mind* evolved from analyses of the narratives and how they revealed the essence of how these PHNs think – how they understand and interpret their roles, including disaster roles, of being a PHN at the population level of health care, from their own experiences. By harnessing the essence of what lies within this theme, I can better understand how the PHNs translate this way of thinking, this mindset and what it means to them, into their disaster preparedness and response activities within their respective communities. Having a *public health mind* has evolved from the PHNs' origins in curative, individualised health care and their subsequent extension to their PHN roles of providing care at the population level of the community. The skills associated with this adaptation – to having a *public health mind* – form the core of the remaining themes. Quintessentially, having a *public health mind* was found to be the nexus of PHN care, the *dasein* of being a PHN, protecting their communities at the population level of health, and is the locus from which the other themes arise and are intimately entwined. The evidence for this theme is articulated in the following section, as well as how the PHNs' experiences of having a public health mind led to the six subsequent themes.

In order to comprehend how PHNs' experience their roles in disaster, it is firstly necessary to understand how *their* understanding of their role - and their *public health mind* - both underpins and informs their disaster preparedness and response thinking. As Gadamer (1975/2004) reasoned, understanding requires transposition into the perspective of how other individuals (in this case PHNs) form their views. In the process of conducting this research I retained an awareness, while interpreting the PHN information and considering collective themes, that the PHNs are individuals with unique backgrounds, histories, and experiences. These individual differences were important to consider when discussing ideas within a theme that inferred a collective mindset such as having a *public health mind.* The theme of having a *public health mind* is supported by evidence from the subthemes found within the participants' language which describe: *the bigger picture,* having a *unique role,* an e*xpanded universe* and a *different way of thinking*.

Lived Space – spatial challenges and experiencing the 'bigger picture'

Understanding the *public health mind* requires understanding PHNs' work environment and how they relate being in this environment to informing the way they care for the communities they serve. PHNs work at the level of the community; therefore, they interact with both populations and individuals, as articulated by Joanne in the previous section. This creates unique geographical and demographic challenges for the delivery of their health programs, and for consideration of disaster preparedness and response activities. It also creates conceptual challenges to addressing the health needs of entire communities which during a disaster may be dispersed over a large area, as well as the challenges faced by the provision of individual health needs for people living in their own homes or in a health care setting, such as a hospital.

The geographical areas that Australian PHNs may be expected to cover can be vast. As Jane described, the area she is responsible for is larger than Germany:

> *It's a large area, and of that I've got, um about two thirds of the geographical area, and probably about one third of the population of that region. So, it is massive; it's geographically larger than Germany but… our population base is much smaller of course than the metropolitan area.*

Almost all the PHNs made reference to the large physical spaces and conceptual parameters in which their PHN roles existed, when discussing what being a PHN meant to them. The PHNs understood from their experiences that their roles were 'broad', needing a 'broad perspective', and also that having a population approach required looking at the 'bigger picture' Furthermore, all the PHNs agreed that public health, as a discipline, was 'big', 'huge' and 'multifaceted'.

Sophia noted that although her focus within communicable disease control at the population level was managed across a distance – at arm's length – it was nevertheless a focus that could have an impact across a large population:

> *Public health is about populations. Um, and so it's about you know, we might work with, briefly with people on a one-on-one basis, but our, our focus is about um, working with populations…It means that you're at arm's length I guess, from disease in a way, but it also means by doing that you can, I think that you can influence a larger group.*

Anna concurred:

> *Public health is really about um, the bigger picture, not, but not…The bigger health picture, not…not the specific treatment of the individual, but about preventing the exposures and um, reducing the risk of illness, and that's how I see my job in an emergency [disaster].*

As did Becca:

> *It's being part of a bigger picture, and yeah, moving away from the one-on-one, to the community and the health of the community.*

And Rachel:

> *I think probably the reason that I like public health, and the thing that gets me up out of bed every morning, is probably the interaction between a hospital system and a community system, so it's not just a case of working for, or looking after an individual patient, it is much more broad-based than that and it's the variety of the work, so because we are actually in what we would call a city…we also cover communities and very rural and remote areas too. So the variety can be vast...*

Having a role which requires a broad perspective – and the pleasure gained from working as a PHN within this perspective - is exemplified below by Joanne who stated:

> *It is a big broad thing isn't it? Well, I suppose you're looking at health from a different perspective than being a sort of on-the-ward nurse; you are looking at it from a population perspective, you are looking at it from a broader perspective as such. I think it's, well certainly where we work it's exciting, it's an exciting job, you are always looking for the next outbreak or the next outbreak comes knocking on your door.*

Given that having a *public health mind* concerns how the PHNs' experience and operationalise their roles at the level of the community, when considering van Manen's life existentials, the lived space life-world of a PHN is therefore entire communities. Their PHN modus operandi is in large in terms of population numbers and also large in terms of physical dimensions. However, the PHNs did not consider their environment so much in terms of distance, but more in terms of there being communities of individuals to protect. Communities are their spatial unit. They mostly deal in terms of 'populations' in entire communities rather than 'people' as singular units. The PHN disaster experiences are interpreted therefore as meaning that they have a need to engage with, and deliver direct care to, the community as a unit, as Matt clarified:

> *I think with public health, you're more taking a step back and going 'OK, what are the wider implications?' We're not looking at individuals, we're looking at populations. We're looking at…we're not looking at Mrs Jones at forty-two Smith Street; we're looking at OK, um, we're looking at the whole suburb, or we're looking at the whole metropolitan area; we're looking at the whole state.*

From the interviews it was apparent that Matt and other participants were applying the same basic holistic nursing principles that they would have used while caring for individuals in the curative sector, but with a different approach which requires a different type of thinking - *a public health mindset*. From this particular mindset stems a particular way of thinking. To explain this further, the way the PHNs experienced their roles reinforced for them the same principles as that of caring for an individual; however their 'community' had replaced the 'individuals' they cared for. Instead of interacting with radiologists, social workers, dieticians, occupational therapists, physiotherapists, and other health care workers in the hospital, the PHNs understood that they were carrying out their work at the macro-level, by liaising with, for example, environmental health officers, general practitioners, practice nurses, councils and school teachers within the community.

Traci described how the meaning she took from her nursing background experiences were translated into her PHN thinking, 'in a public health situation':

> *Cause you think past what you're actually doing, we're nurses, you know. We have to look after the whole patients. So, you sort of think outside that actual one, sort of, feature…and so, you know, coming from clinical background over to here I think had that same level of thinking. So you bring that with you. So when you're in a public health situation…you can think of a few scenarios, as opposed to just focussing on like my one role. I can sort of be thinking like 'OK, this has to happen, and this has to happen, and this has to happen'…I think that you recognise problems… more than one problem, and you sort of can think 'this might be a situation, how…' you know, before it starts.*

Another example of this experience of a transition of thinking, and ultimately what this means for the PHN role, was described by Jane. In the following example Jane is describing a emergency situation in her PHN role and comparing it to the way in which she would carry out this same role in a hospital ward:

> *Um, the first thing you've got to do is, if something happens, it's out of the blue, is totally unexpected and extremely different to what your normal day's day job is. You take a second, you breathe, and then you go "OK is this real? If it's real or how do we know it's real? What do we need to do with this, who do we need to talk to about this, if we're going to action it what will we need to action it with?*
>
> *And that's very much what any nurse does when they're looking at a patient, and their temperature and the respirations have just gone off, they're thinking along those lines although they may not be able to encapsulate it quite so succinctly when you're in the ward. I think that comes with possible training, and being a public health nurse you got this case and it's a case of measles. 'Really? Is it a case of measles? Can I just verify that with the lab? OK where's this person situated? They live alone and they don't do anything? Fine, they're in a childcare centre – OK let's look at it differently'.*

Jane describes pausing to consider the reality of the *unexpected and extremely different* situation which she finds herself in. She understands that the circumstances require a departure from the routine thinking required for her usual 'day job', requiring 'expanded thinking' to consider what actions need to be taken, in order to adapt to the evolving situation.

The spatial challenges experienced by the PHNs were recognised in terms of how they articulated 'managing' this space at the population level, to address the challenges associated with their preventative, protective roles. It was very apparent within the interviews that the participants were well aware of the unique geographic, spatial dimensions of their PHN role. The way in which the PHNs understand and 'manage' this space, whilst carrying out their disaster roles, informs the themes in the following chapter sections.

Subtheme 1 - Being in an expanded universe and experiencing expanded thinking

As mentioned above having a *public health mind* evolved from the PHNs' origins in a curative-based health sector and encapsulates the process of the re-orientation and adaption of their

mindset, their thinking, to the challenges implicit in the provision of care at the population level of health. The PHN narratives highlighted how the PHNs' experiences led them to transition their thinking from being a nurse in the acute curative sector to being a nurse working within public health, and how this *different way of thinking* helped them understand and manage their roles in disaster planning and response. For Lynne, her move from the acute curative setting to the public health setting was a 'paradigm shift':

> *I guess working in public health as a nurse has been a huge paradigm shift for me...Working from a focus where we're focused on the facility and acute facilities and what happens there, as opposed to then working um and looking at the bigger picture…[I used to work in]…an acute facility in infection control of a big hospital…so you know it was different. Our population demographic was all very focused on what happens here. What people bring in, and what we give them to take out, and reporting that up, so it was very much, 'this is it. This is the centre of our universe'. Whereas now, my universe is really expanded.*

Lynne's experience of being a PHN meant that she had entered a bigger world (both physically and conceptually) which contained larger, more distant (and possibly more fluid) boundaries. Lynne's previous nurse-patient relationship - working as an infection control nurse in a hospital, with its more circumscribed, defined boundaries of care - had been replaced by her entry into a nurse-community relationship:

> *Um, and I think that's where public health nurse is very important, because we have that clinical background, you know if, and I think that's where the nursing is very beneficial in these roles in public health units, because we, we have that [way of thinking], that other people don't…I think that's where the place for public health nurse is, I think because we have that clinical focus, it's very easy for that to filter through to everything we do, and I think that's been a great thing with coming to public health is that, everything has come with me and it's very easy to then fall back on the knowledge that I have* (Lynne).

For Lynne this transition required a different way of thinking in order for her to adapt, and to be able to apply her nursing skills to the broader community role. This adaption, with its concomitant transition of thinking, was often described by other participants who recognised that their way of thinking and the meanings that they drew from this, had been informed by their background training and experience as a nurse:

> *Yeah, I mean I guess that's what it just means to me. I think um, going from a clinical nurse to a public health nurse, um isn't necessarily just a sort of easy transition, like I think it's, it is a bit of a different skill set, but I think aspects of clinical nursing are highly sort of valuable to public health nursing* (Travis).

> *We'll I think that's nurses, or so I'm thinking and so, you know, coming from clinical background over to here I think had that same level of thinking - so you bring that with you. So when you're in a public health situation you can sort of think about situations…you can think of a few scenarios, as opposed to just focus on like my one role* (Jess).

Matt commented that although his current position in public health did not require him to have a

nurse qualification, he did possess one, recognising that he still thought like a nurse and the way he experienced his PHN disaster role was by using his nursing skills:

> *I'm not necessarily employed as a nurse, but I take a lot of my nursing skills with me, and so um, yeah it's kind of a bit of a unusual um, well it's not, it's not your typical public health nurse role, um and as I said I'm not employed as a nurse, um but I think like a nurse, and I think the skills I bring are as a nurse are obviously there…*

Liz similarly articulated that although she did not believe that a person needed to be a nurse to respond to a disaster, she found from her own experience in disasters that nurses' broad background of knowledge equipped them to critically analyse and make decisions, for example, around issues such as prioritisation:

> *You don't need to be a per se a nurse, although I would have to say it helps because your broad background of knowledge comes to play in a disaster. You understand when people are telling you stuff around things and you can actually look at it, so… someone says something to you about patients or people or whatever and you are able to critically analyse it and go, "well that's crap, you can't do that",' or, "OK, fair enough, I understand the importance of that". Like you've got that background that comes in and says, "whilst I understand your issue, that's not as big an issue as this issue"…Smokes and mirrors come out when you're playing in the disaster space and everybody thinks what they are doing is important and it is. And you as a nurse are able to really kind of go, "what's the priority on this?"*

Darlene recognised the holistic attributes that she brought with her from her nursing background into her PHN role in the disaster setting. She explained that this holistic view provided her with insight into the challenges she faced in different situations which other responders may not have:

> *Nursing kind of gives you a good, a good insight into not just the immediate issue, but the further effects, and whether that's going to be you know, psychological effects from traumatic events so that you'll say 'oh, well I think we should you know get some mental health support, let's activate this plan'…So you've kind of got that ah holistic view, as opposed to someone who um, whose role you know, is still in disaster management but um, they don't have that experience and that background.*

Antony, similarly to Darlene, described the positive attributes that nurses brought with them into the disaster role in public health:

> *I think nurses can bring a good skill into that setting. And so team work is there, recording, communication and um nurses I find are...work good under pressure. We have had that experience elsewhere in our training or previous lives and disaster times are pressure times, in addition the thing that we definitely intentionally do, is bring in the vulnerable populations approach to disaster management.*

Subtheme 2 - Experiencing a different way of thinking

As mentioned in the preceding paragraphs, the interviewed PHNs recognised that the ways in which they experienced working at the level of the population meant that they needed to think differently about how they organised care for their respective communities. These different ways of thinking included: thinking broadly (at the level of the population); thinking of how to pre-empt

situations and thinking outside the square. For example Vicki describes below how she understands '*a really different way of thinking':*

> *if you get an acute nurse in and say, "well you have to be involved in this public health response to do blah, blah, blah," they will just start veering back into where they know best, which is that acute care clinical model. And you know our thinking is you know broader than that, we are not thinking just of the individual, you are thinking at the broader population level and all the different avenues to tapping into that...it's a really different way of thinking and a great way of thinking.*

PHNs having a, 'different way of thinking' was articulated further by Vicki:

> *I mean we do think differently don't we. We pre-empt. I know with me I am often thinking of what can we do before, rather than waiting for it to happen.*

Matt noted that there are always emerging issues with public health and they required '*extensive thinking'* and his understanding was that public health was a more 'dynamic area' than the '*curative side of things.'*

The 'bigger picture' of health, in which PHNs operated, was recognised as being a default position. To an extent, they are involved whether or not they wish, as Lynne acknowledged:

> *So I think that's the interesting thing with public health [nursing]. Whether you want to get involved, in the bigger picture, or not, you automatically are, because it's the nature of public health. Um, yeah – nothing is as simple as, you know, 'all this is mine, and they live here', and you know… 'They're never going to come in contact with anyone else in the world', because that's just not what happens.*

The concept of the PHNs' roles being inextricably tied to health was described earlier in Chapter Three *Methodology,* as being part of *dasein*. This phenomenon was revealed by the PHNs being unable to extricate themselves from caring for and protecting those around them. This experience of having an inability to disconnect, was partly due to the nature of their engagement with the community and also partly due the PHNs seeing themselves in their role as being carers and protectors.

A key driver for being involved in a disaster was articulated by one PHN to be a moral and organisational imperative, rather than, for example, receiving additional experience and training. In her narrative Becca, from consideration of her disaster experience, reported that she expected to contribute to working in disaster, feeling that she should, since she worked in the area of public health:

> *Well I think in that instance it's a matter of again the big picture and you might not think you can help but I think you should if you are under public health* (Becca).

The sense of being obligated to work in a disaster relates to the PHNs' perception of their central place in their communities as carers, protectors and their position of being involved in disasters response as part of this default condition of care, their *dasein*.

The nurturing and protective element of nursing creates a dichotomy for the PHNs: following their transition from curative / clinical nursing into a population health role, they are then tasked with protecting large numbers of individuals simultaneously. This leads to the crux of the *public health mind* thinking: how can they carry out their caring PHN roles and protect everyone, when there are so few looking after so many, and what does this mean for their disaster roles and their disaster experiences? The quote below by Traci articulates the PHN dichotomy of defining and managing care at the population level for communities and also describes how she understands that she has adapted her thinking to protect her community:

> *This sounds a bit sexist, but you know how like a mother thinks about her entire week, you know she's thinking 'I've got… I've gotta do food, the kids have got to be here, I've got this, this, this, this and this', and she's thought out the whole week, and she's pretty well much fool-proofed the week, and pretty much…so it all goes smoothly.*
>
> *So the job looks easy and everybody thinks you know, 'how hard is it to be a mother?' You know, and 'how hard is it to be a public health nurse?'*
>
> *Because we're state-wide…and there's one-and-a-half people that protect that…five hundred thousand people from as much as they possibly can…And I don't say mothers have to be female, I'm not totally being sexist, but I'm just thinking it's the way we think, and I think that's how we think, and I think nurses think like that a lot, because they have to plan a fair bit more than they do others.*
>
> *That's how I think of it [hmm], it's exactly what I think, that you have to think outside the square all the time.*

Traci in the quote above articulated another facet of having a *public health mind;* when she describes her experience of '*thinking outside the square.'* Traci uses the analogy of 'a mother' to describe what her PHN experience means to her, likening her experience to the way that a mother would manage her busy family workload. This involves applying 'fool-proofing' strategies to prevent things arising which could hinder the smooth running of her week, and applying preventative strategies so that nothing untoward occurs. Traci recognised that her protective role was not necessarily easy, even though it may appear so; but like a mother organising her week, it takes considerable planning. Traci stated that in order to succeed in this planning and 'fool-proofing,' and to achieve her goal of protecting her community, she had to continuously '*think outside the square*.' This subtheme is expanded in the section below.

Subtheme 3 - Being outside the square

'*Outside the square thinking'* is a subtheme which sits within the theme of having a *public health mind*. This creative, lateral thinking quality describes the evolution from and adaption to, working within, for example communicable disease control, at the population level to consider the risks and vulnerabilities embedded within communities. For the PHNs, *thinking outside the square* is understood to be an extremely important tool for disaster mitigation, during the disaster response and recovery phases and also for their role in moving their communities towards the consideration

and development of resilience. This type of thinking, enabled the PHNs to look inside their disaster struck communities, as Rachel stated, to see '*what's going on underneath.*" The participants gave numerous examples of *thinking outside the square;* they recognised that it was both a quality that was needed, as well as an ongoing tool to facilitate prevention activities, such as described below by Lynne:

> *Well there's been a project happening at the moment with um trying to increase the measles immunisation rates in Pacific Islander populations, and they're actually using churches as a way to get to the children and the families...So there's lots of you know, you've gotta think outside the square with all this sort of stuff.*

There were many participants who also articulated their experience regarding this way of thinking, related to their disaster experience. Matt (below) provided an example of *outside the square thinking* when describing a storm event. Matt's quote is immediately followed by a quote from Michael, who while discussing the issues of what a disaster actually meant to him, described how the Christchurch earthquake in New Zealand initiated a post disaster lateral thinking discussion, regarding who should, and should not be, included in the disaster response.

> *Yeah so I think it's a lot of it is assessing and going 'ok, ok, cyclone's going to be coming through, obviously there's a lot of wind and destruction and potentially flooding, but what are the side effects of wind doing?… the wind? Hey we might lose power, we may have infrastructure damage to key critical assets, the water may cause…our drinking water to be undrinkable um, and we may not be able to dialyse with it'. Or if the power goes out we might not have any water supply whatsoever, um. What are the public health aspects of that?' And I guess it's looking holistically at the community, um part of our role as well, 'cause we're part of the Department of Health, is to look at the effect on the acute setting with hospitals as well, but you know, from a broader perspective that's the public health issue there, and I think nurses definitely have a role in that way* (Matt).

> *...there were a lot of people who were not in the disaster zones, so to speak, but were very much impacted and that had, err, a real flow on effect to those communities and so they responded, or reacted, as if they had been immediately or directly impacted. But the reality was they weren't, so do you treat them differently? Are they part of the broader disaster? I don't know, if someone comes into hospital with a broken leg, unrelated to the earthquake, are they still a part of that disaster or treated differently? So I guess the community can be impacted either directly or indirectly but I still think it's still very much part of that disaster* (Michael).

Jazzy described, similar to the other PHNs, that her understanding of her disaster role was assisted by her ability to think laterally and this was a quality which characterised individuals who worked as PHNs:

> *And in a real disaster it's all hands to the pump. You need that sort of thing and everybody needs to do their bit, so you want a health nurse that's willing to be a lateral thinker. And if the job needs to get done, to help pitch in and do it…From my experience most people who go into public health are lateral thinkers, they're very good, it's people like that that are drawn to this type of work.*

Jane also alluded to the PHNs being 'practical people,' who also have the ability to think laterally

about disasters issues and are able to '*identify what is outside the norm,'* the importance of which could life-saving in a disaster:

> *they [PHNs] have to be extremely practical people. They have to be able to identify what's outside the norm and what's important and what's got to be actioned, 'cause otherwise you may lose valuable time and you may lose a life to it.*

Jane's experience and understanding also aligned with that of Traci, who spoke about her PHN role being like a mother, protecting her family and needing to consider what adverse events which may happen, so that she could establish mitigation strategies; the family, for Jane and Traci, are the communities they worked within.

Subtheme 4 - Uniqueness of experience

Having a *public health mind* describes the PHNs' experiences of carrying out their day to day protective roles within the community. It is also how the PHNs have re-orientated their thinking regarding the use of their core nursing skills and applied them to caring for a community. Some of the PHNs considered that this skill set and way of thinking places their role into a unique category. 'Unique' was a term that occurred several times within the interviews, for example Travis, when explaining what being a public health nurse meant to him:

> *I think also um the role of public health nurse is kind of unique in that having the nursing background, you kind of, I've found, public health nurses sort of often kind of bridge that gap between clinical care and clinical practice, and sort of just the more general, broad population health side of things.*

Joanne had similar thoughts; she thought that nurses are ideally placed to move into the role of public health, considering nurses' skills as 'unique' and transferable into the PHN role, 'I don't think anyone else can do it'. Joanne also commented that public health officers (those who do not have a nursing background) do not have the same skill set which orientates itself into the public health nurse role.

> *…you are always scared that your job's going to get cut. But in terms of a disaster, there is always a place for a public health nurse, whether the hospital acknowledges that or not [participant laughs]. I think there is always a place, like...you've got umm public health officers but they're not nurses, they don't communicate the same way with people, they don't understand disease processes. They don't have that background, that life skill of being around sick people, talking to sick people, or promoting health, or I don't know…I think there is always going to be a place in um that, I do. I can't put my finger on it. I am not saying it well. I just think as a nurse you have a unique set of skills that transfer very well into a public health nurse role. I don't think anyone else can do it.*

For some PHNs, such as Joanne, this uniqueness of role was defined by geographical location. However, being 'unique' also had negative implications, since for her; it created an experience of her role not being understood which Joanne found frustrating:

> *I suppose we like to think of ourselves up here as very unique, we see unique*

diseases and we have unique issues geographically and those sorts of things and so we…they don't understand the uniqueness of what we do...

Theme One summary

The theme, a *public health mind* was revealed by the PHNs as being a specific way of thinking: it both describes and informs their worldview, the way in which they understand and experience their public health life-worlds in the context of undertaking their protective nursing roles at the population level of health. Having a *public health mind* has evolved from the PHNs' origins in curative, individualised-based health care and their subsequent adaption to their roles of providing holistic care across and within their communities. Having a *public health mind* was found to be underpinned by and to embrace the qualities of being able to 'think differently'. This meant being able to think 'outside the square', to think broadly about disaster events and related issues and to pre-empt potential risks. Quintessentially, having a *public health mind* was found to be the PHN nexus of care, the *dasein* of being a PHN, protecting their communities. The main theme of having a *public health mind is* crucial to understanding how the PHNs understand their disaster roles and both underpins, and is inextricably entwined through, the themes described in the following chapter.

Theme Two: the public health nurses' experience of being sentinels – safeguarding my community

Being sentinels

A strong theme which emerges from the participants' narratives is their lived experience of being '*sentinels'*. The dictionary definition of 'sentinel' is: '*someone or something that watches, or stands as if watching;* verb*: to watch over or guard as a sentinel'* (Macmillan Publishers Group 2015).

The experience of being a *sentinel* emerges from the PHNs' descriptions of, and actions surrounding, being vigilant: being ever alert and watchful of their community horizons for actual and potential health threats. The PHNs' narratives reveal that the meanings inherent within their lived experience disaster roles, are concerned with protecting their communities and extrapolating this meaning into their disaster role. To the PHNs, being a protector is about guarding their populations and exhibiting protective strategies and behaviours towards their communities. The narratives provided me with an image of the PHNs projecting a circle of protection around their communities within which they practiced their vigilance. As I transposed myself into the perspectives from which the participants' views were formed, I observed a world in which the nurses' experiences were one of standing guard over their communities, continually scanning their community horizons for health risks. These health risks were mainly infectious diseases, but the PHNs in their roles of being sentinels were poised to detect and positioned to act on other health risks, such as injuries. The PHNs' horizons are being informed from their desire, and their *public health mind* thinking and being, to protect their communities from harm. Being *sentinels* was also a role expectation for most of the interviewed PHNs, given that public health is the lead agent in Australia for disasters related to communicable diseases. As Tony articulated, "*our role is surveillance and we always take the lead on that."*

Public health needs to have sound surveillance systems in place to manage diseases and other health hazards that potentially pose a threat to Australian communities. The PHNs' experience of being *sentinels* therefore evinces their roles in mitigating and preparing their communities for potential emergency and disaster events, specifically communicable disease outbreaks. Being *sentinels* for their communities was however more than, for example, keeping track of communicable disease data and following up disease notifications. The PHNs' *sentinel* behaviour and *sentinel* thinking was also expressed with consideration of the 'bigger picture', that of preventing an adverse event which could impact on the acute-care services. The PHNs were united on this goal. For example:

> *...the whole purpose of disasters with public health is to reduce the impact on health services and to try to keep people, the community, as healthy as possible so they can recover* (Liz).

> *...for me public health is all about prevention…stopping problems before they occur, and that is obviously going to help the hospital system and the broader you know [location removed] health issues* (Darlene).

> *…the public health stuff is also assisting with hospital avoidance through to empowerment back in the community* (Michael).

When Matt, spoke about issues relating to the health care of elderly individuals in evacuation centres, he described actions he undertook to prevent their unnecessary presentation at hospitals:

> *[The] big issues there were about prescriptions for, for elderly…one of the roles there is to make sure the public is staying healthy and out of hospitals. So rather than saying, 'oh there's a whole lot of people here who have lost their medication prescription charts,' part of our role is to go, 'right ok,…how can we stop these people from coming into hospitals? Send a doctor up there to try and assist and write up some scripts that they can take up to the local pharmacy, or dispense some medication'.*

The *dasein* of the PHNs in the sentinel context was their understanding of having a sense of duty to protect their community by preventing emergency events and disasters which would otherwise impact on the hospitals. The PHNs therefore articulated experiencing their roles as acting, indirectly, as sentinels for the acute health system, as well as for the immediate community. Matt, in the example above, revealed his experiences of being a sentinel as extending protection to his entire community by reducing any extra burden on hospitals during the disaster. Matt described how he extended his vigilant, protective gaze from the elderly individuals in the evacuation centre, to the hospital. Matt's, and also other PHNs' narratives revealed, that they considered their sentinel roles in disasters were about being vigilant, which also meant being able to think laterally to find solutions and also to better understand their communities.

It was strongly articulated by the PHNs that their 'bread and butter' was communicable disease control, therefore much of their PHN *sentinel* meanings and activities were related to disease surveillance activities. Joanne stated of her post disaster role: '*it's that real surveillance type role'.* Jess also revealed that she considered her main role lay in surveillance and that this also meant looking at the bigger picture around specific disease notifications:

> *… the role that I've been employed to do is um, basically mostly about the disease control sort of area…it's fairly much surveillance orientated, but then it's also taking public health action around certain notifications and putting into place control measures where we can.*

Jazzy also acknowledged that, for her the PHN disaster role meant being involved in surveillance:

> *People in disease control, they're setting up surveillance and response and making sure that people have the resources to respond and that the public have the knowledge to know how to prevent um injury and disease after a disaster.*

Antony described his experiences and understanding of his role in surveillance activities occurring during floods, fires and within evacuation centres. In the quote below Antony explained that his

disaster role included identifying and treating individuals symptomatic with 'gastro,' which also averted a potential 'disaster within a disaster,' and thereby reduced the potential burden on the acute health sector:

> *…but then our job particularly is the surveillance around presentations for gastro and getting people tested and treated appropriately and investigating what the risks were with that and trying to and then getting the information within the team to help reduce the ongoing risk in reducing that.*

Rachel described her sentinel role in surveillance to me as one of being vigilant for new and emerging diseases. Rachel's geographic work location was as she described situated '*right on the edge.'* This was a suitable metaphor, since the borders of her work area lay in close proximity to a country with endemic communicable diseases not found in Australia, but were diseases which she understood, '*could take off potentially at any time*.' Rachel's work setting meant that she experienced ongoing surveillance work to prevent infectious diseases from nearby countries entering, or being able to proliferate within Australia, in addition to dealing with ongoing routine surveillance and surveillance activities within disasters events.

Other sentinel experiences described by the PHNs were concerned with looking for patterns in data, connecting these patterns and discerning different ways to gather and seek out links between incoming disease information, so that disasters are averted. This experience was described by the PHNs under the following subthemes: 'being a detective', 'hoarders and gatherers' and 'making sure.'

Subtheme 1 - The sentinel experience – being a disease detective

The experience of being a *sentinel* was described and understood by many PHNs in different ways, by using analogies and analogous phrases which fitted with the theme of law enforcement and protection. For example Jazzy described that her experience of being a *sentinel* meant, '*watching diseases'* and being '*a detective'* which involved '*solving the myst*ery':

> *…I think surveillance is an integral part of response, no point doing surveillance if you are not going to do anything about it…I think it is interesting work. It sort of picks that little bit of a detective. I am sure there's some of that detective in everyone... it's solving the mystery and I think its learning about new diseases all the time and even keeping up to date with old diseases…*

Joanne also described this *detective* role, when she recounted her post disaster surveillance experiences of being in a flood related disaster. For Joanne the skill of being a detective meant that she actively sought information to carry out her *sentinel* role, and this also meant enjoying her *detective* work role within public health:

> *We went door knocking, 'anyone been sick?' And if they had...we were doing case report forms, we were sending them to doctors for bloods… providing them with health information if they were symptomatic…We rocked up to one guy and he was*

sitting outside, and he was just covered in a rash…I suppose I talk about mosquitos a lot but that is our, one of our major issues up here is mosquito borne illness.

Researcher: What was the experience like then, of doing that when you were down in [location removed], door knocking?

I love it. That's what I love about public health. I think that's what I like. I like that, the detective stuff behind it…I really find it exciting.

Just as a detective has to look for clues to solve mysteries, similarly the PHNs described their experiences of gathering and collating health information, establishing patterns and linking information together. The experience, of being a *sentine*l, was understood in terms of the PHNs considering it their day to day surveillance role. This practice of being a *sentinel* continued when there was a disaster situation, or a potential disaster. Disease outbreaks are potential disaster scenarios and all can potentially cause harm to the communities the PHNs are trying to protect. Therefore the PHNs' sentinel roles were their usual roles which they understood they would continue to carry out, albeit potentially extended in a disaster event.

Subtheme 2 - Being hoarders and gatherers

This subtheme describes the experiences that the PHNs articulated to me regarding their understanding of undertaking surveillance work to inform activities such as population health needs' assessments. Surveillance activities are a vital part of disaster planning, response and recovery. The PHNs' narratives describe 'gathering data', hoarding' and 'actively seeking':

> *Gathering of data, so that we know, 'what do we need to identify um what the demographics are of our communities?'…What our ratios of male and female, pregnant women, children…that assessment needs to happen very, very quickly so that we can um put into place some, some plans, and where the money needs to go* (Brianna).

The PHNs' lived experience as being *sentinels* is evident in Jazzy's narratives below, where she ponders if PHNs are 'hoarders.' She talked about not throwing away any information that she had gathered. Jazzy demonstrated her *sentinel* thinking by describing how she always asks extra questions when she interviews people, '*you always ask, "is there anything else" don't you*?' Her understanding of being a sentinel is therefore also gathering information which may be useful for future preparedness activities, information which has been retrieved, just in case. Jazzy also extended her sentinel thinking to others by transferring resources which may potentially serve to further extend protection of her community through this act of information sharing:

> *…in the past we have set up post disaster disease surveillance…so we are actively seeking information from the areas that have been hit. Maybe public health nurses are hoarders, you don't throw away any information. You keep everything as there may be benefit in something and then it's about being able to take all this information and sift through it and see what's important I think…well you never ask just what's on the questionnaire you always ask, 'is there anything else,' don't you? As you never know what's going to come in.*

Jazzy further comments that her collection of information may be of use to other health professionals - she saw a purpose in preparing for the unknown. Jazzy's actions are altruistic; being a *sentinel* benefits the community:

> *…even if it's not important to public health. Sometimes you pick up information that's important to somebody else, like important to health promotion, important to environmental health. And even issues with the lunch boxes, we really didn't follow up on that as public health nurses, but environ. health followed up on it as they were talking about food handling and they were quite involved in food preparation for the emergency response too. So yes...maybe if you can't act yourself, it is of value to someone else.*

Liz's *sentinel* experience includes 'investigating rumours' and 'working out' if there are outbreaks related to a disasters:

> *there is also…the surveillance and the operational arm of that, so you know establishing you know…rumours…investigating rumours and working out if you actually have an outbreak in a disaster affected community.*

Other PHNs understood that their roles were to collect information, and store it for future use. This ability to collect and collate disease information is a core function of the disease surveillance role. Therefore to a degree all the PHNs are information hoarders by default, and they all described at some point in their narratives collecting information. Vicki (below) pointed out, however, that she understood there needed to be a purpose for collecting and hoarding information:

> *If you are just doing stats sitting there day in day out watching things come in and hoarding numbers, there is no joy in that, for me there is no joy in that. I am sure that there are people that just watch the numbers click over but unless you are going something with that information that's pointless. You are gathering information for action aren't you? Whether that's an intervention or a prevention, and long term prevention, not just short term prevention.*

The PHNs also understood the need to have information stored and ready to go in the event of a disaster, or the threat of one. In the following example Vicki describes how she has prepared cyclone fact sheets which are ready to disperse through the affected community, thereby ensuring that the community has been provided with information pre-disaster:

> *If the cyclone hits and it causes extensive damage in that community, then it is swinging into gear that response, that plan, that we had, that we had already pre-empted and had things in place ready to do that, if it's the worst case scenario. Which for me in that public health stuff I would have made sure before that, that they had all the information on emm you know like looking after the vaccines, boiling water, having all that sort of storm and cyclone fact sheets that can be disseminated in the community, about you know food and water and sewage.*

Antony described another component of being a *sentinel*, this was that the PHNs' surveillance experience, their understanding of looking for patterns and linkages within information, meant that they were always looking at the bigger picture, with a view to prevent potential problems:

> *…if there is meningococcal case and we are helping the family with the contacts…we can take a step back and say, 'what is the pattern of this illness?' And 'what can we do better as a health service?'…then we take a further step back and…there is an immunisation program and other things that help to reduce risk for larger groups. We can influence that and the decisions as well* (Antony).

Antony's quote highlights how these PHNs gathered data to try to ensure that nothing else could occur from the event they were investigating. This sentinel approach also links into thinking of the' bigger picture' and risk reduction strategies, the 'what if' scenarios, and making sure that all outcomes are covered. These are themes which are explored later in this chapter in the following sections.

Lived space, lived time and being *sentinels*

The way that the PHNs understood their lifeworlds in the context of 'lived space' was discussed above within the theme, a *public health mind.* Lived space was considered in the context of strategies and tools that the PHNs employed, informed by their experiences, to manage their PHN disaster roles across their communities. The PHNs' experiences of being *sentinels* can best be described, however, using the life existential of 'lived time'. This is due to the fact that the risks the PHNs were protecting their communities from oscillated between being at a future point in time and current time.

The experience of being a *sentinel* was relayed by the PHNs as not always being a physical process (for example collecting data) but it also took the form of having a heightened awareness, or the conceptualisation of a potential situation which could impact on health outcomes. The PHNs' experience of the life existential of 'lived time' within a disaster is one which existed across many dimensions, in order to conceptualise and consider the many health risks and their potential trajectories across time and space. Therefore, lived time for the PHNs as *sentinels,* presented an opportunity to project their thinking, back and forth between the present, past and future. This 'time travel' of mind enabled the PHNs to gather, assimilate and deliberate future, potential disease outbreaks and disaster events. The PHNs' experience of the passing of time therefore was not passive, but active and transient. Being *sentinels*, their vigilance of thinking travelled back and forth as they considered potential health threats and variations of disease scenarios. They were always on guard, as *sentinels*, ready to 'do battle' with disease; linking evidence and information which may indicate or lead to adverse health events, and finding strategies to defend their populations. This understanding is all informed by their background knowledge of nursing and previous health experiences. Being *sentinels*, is aided by the PHNs' experience of having a *public health mind*, and from this, their ability to think broadly and extensively to consider the many possibilities that could occur, for example from a disease outbreak, within a disaster. As noted above, sentinel thinking and behaviour are the tools employed to both manage, and carry out, their PHN roles at the population level of health.

Theme Two summary

As seen from the examples within this section the experiences of being *sentinels* means that the PHNs are being vigilant to the health of their communities, to see what is going on within the large spaces they are charged with caring for. The sentinel role is a process informed by the PHNs' public health mind worldview, the public health mind thinking which enables them to look ahead and to think broadly about what may occur within their communities. Being a *sentinel* means watching for patterns in disease, or disease related information and gathering this information within their community lifeworlds and the lived spaces of these communities. The experience of being a sentinel is part of the PHNs' day-to-day role, and continues in a disaster. Being sentinel is also revealed to be altruistic, in the sense that the information the PHNs collect is made available to others who may benefit from it.

From my own position as the researcher engaging within the hermeneutic circle of the participant narratives, I became more aware of the meanings which underpin the processes that the research participants adopt to orientate and alert themselves to disease threats and their mitigation. The experience of being *sentinels* reveals the PHNs engaging in a continuous dialogue, a hermeneutic circle with their communities. The PHN surveillance activities lead the PHNs in a to-ing and fro-ing of questioning, gathering information, interpreting patterns of disease and scenarios of disease emergence. This intrinsic dialogue enables them to identify health threats to their communities for which they can establish counter strategies. The PHNs' pre-understandings and their *public health mind* are informed by their background training in nursing and also their subsequent nursing experience. In their roles as sentinels, the PHNs transpose themselves into the perspectives of the public and the health care providers whom they interact with, to better understand the disaster issues which they actually and potentially face, the ultimate goal being to protect their community.

Theme Three: the public health nurses' experiences of making sure – protecting my community

The third theme describes the PHNs' disaster experiences as being one of drawing strategic insight into the health risks of their communities, enabling them to take action where required, thereby '*making sure'* that their communities are protected from the actual and potential health consequences of disasters. The experience of *making sure* links with other PHN disaster roles, such as being *sentinels:* being vigilant for information which would enable the PHNs to pre-empt hazardous situations; thereby *making sure* that they are aware of what actions were needed to be taken to protect their communities. *Making sure* is the next step in the circle of protection and prevention which the PHNs draw around their communities. This theme reveals the PHNs' desire to protect their population by their roles in: ensuring, checking, confirming, making certain that strategies were in place, so that potential hazards are known and mitigated.

The theme *making sure* emerges as a protective, nurturing quality which appears to stem more from the PHNs' background training in nursing than from a risk management driven approach. The PHNs' roles are driven by the desire to *make sure* that all is well, that they have done what is needed to look after their communities in a disaster, as a nurse would for a patient in a hospital bed. This theme sits within a framework of the PHNs' understanding their communities and being able to engage with them to address identified disaster risks, as Liz stated:

> *I think that is probably our biggest role…to keep the community [informed] and understanding the public health risks. We can't get in there with them…we haven't got a lot of staff, so it's really about making sure the information is out there, that all the agencies know that we've got the information.*

This theme further reveals the very protective feature presented within the described PHNs' disaster roles and goes hand in hand with the other six themes described within this chapter. The theme of *making sure* also reveals the PHNs' ongoing understanding regarding the need to engage with their communities, to inform these communities what their disaster roles and public health actions need to be. This engagement is in essence a PHN-community, hermeneutic circle. Their actions of *making sure* are the result of the continual interaction between the community and their PHNs.

Making sure is understood to be integral component of the PHNs' experience of their disaster roles. These roles included actions such as: *making sure* that evacuation centres were resourced, *making sure* that vulnerable populations were being heard, *making sure* that people were informed about disease threats and *making sure* that hospitals were less impacted in disasters.

For Jazzy, one experience of *making sure* was exhibited in the context of checking that resources that were needed were provided:

> *…people in disease control, they're setting up surveillance and response and making sure that people have the resources to respond and that the public have the knowledge to know how to prevent um injury and disease after a disaster.*

For Liz '*making sure'* meant that she ensured that a whole cascade of interventions was in place for an evacuation centre:

> *…there is also then the surveillance and the operational arm of that…investigating rumours and working out if you actually have an outbreak in a disaster affected community and making sure that if we've got an outbreak…that evac [uation] centres…they've got appropriate service provision and that the food handling and everything is sorted and then if not, and there's an outbreak within it, what are we going to do…*

During a chemical spill in Matt's community he was concerned with *making sure* that a plan existed for a response to the emerging incident, and *making sure* this plan was distributed to those individuals in the community and also to other agencies responding to the incident:

> *… it was also damage control – making sure that proper briefings were going out. But I felt that the role in respect to public health was you know, more of a um 'ok it's an issue to do with a chemical spill', it's dealing a lot with environmental health and scientific officers, and um, and the patients that were affected, and making sure that we had a sort of an action plan together, and in a way it was, it was massaging that and making sure it was going out.*

Rachel revealed the very human, caring side of being a PHN while she was engaged in a post disaster response role, for her this meant taking to the streets with her colleagues to talk to flood affected individuals within her cyclone devastated community. Her aim of being 'on the ground' was to be directly in contact with the disaster affected individuals. By communicating directly with her community Rachel understood that she could *make sure* they knew that they were still being looked after, and to make sure that they knew, "*we cared what happened to them.*"

> *It was a good role as we could get an idea of suburbs that were affected and the amount of people that were affected and also how difficult it was going to be a) to contain the outbreak, because of the debris that was left around, that was not going get cleaned up for a long time. But also I think it was also a case of touching base with the community and making sure that they knew that we were still interested and that we cared what happened to them, that this was a significant illness on top of everything else that was going on* (Rachel).

Subtheme 1 - Avoiding being in the hospitals

Making sure is also seen within the PHNs' narratives as being part of their role of engaging in hospital avoidance strategies. As articulated earlier in this chapter, the PHNs' disaster experiences led them to understand that a key part of their disaster role is to reduce the pressure on the acute sector, by actively engaging in strategies to reduce hospital presentations and admissions, as exemplified within the quotes below:

> *…so one role is in preventing the hospitals getting overwhelmed…make sure our processes are such that in a mass casualty incident or something like that um, we*

> *have done our best to use our resources as efficiently as possible…do the best for the hospital system who'll be receiving those casualties* (Darlene).
>
> *…you're trying to basically put the hospitals out of business*…(Matt).
>
> *…public health stuff is also assisting with hospital avoidance through to empowerment back in the community* (Michael).

Rachel articulated how a post-cyclone increase in diseases, such as leptospirosis, could create an increase in hospital admissions. Rachel's understanding from her position of being a nurse working in public health was that she could assist in mitigating the potential hospital surge by instigating public health measures, to *make sure* that hospital beds do not get 'clogged up':

> *…is also a very big banana growing area, so the chances of things like leptospirosis are really, really high, and obviously that can create hospital admissions, clog up beds and needs early treatment with...people with knowledge of what they need to be looking for with those disease and how they need to be testing. There are a lot of things that we do in the public health domain that the average GP, unless they are in that area, has no idea what to look for, or what to test. That's because they just don't see it that often.*

The experience of *making sure* links to the PHNs' intrinsic desire to care and to protect: this is further affected by the PHNs' increased need to care during a disaster situation, and their duty to respond. For the PHNs this is an inescapable role, their care being inextricably bound to their communities to *make sure* they are protected. In Chapter 3, *Methodology and Research Framework,* I discussed that Heidegger's concept of *dasein* extended to meaning 'care'. In this context, *making sure* is part of this inescapable central role which PHNs play in protecting their community. *Making sure* is therefore another expression of the protective role of PHNs, checking up and ensuring that things have been undertaken to reduce a risk or to investigate a risk.

Making sure also describes the PHNs' practice of being in the mindset of practising continual quasi 'risk assessment' for their communities. I have used the term 'quasi' since the PHNs' experiences revealed a unique, self-styled version of risk assessment. *Making sure* was more about checking that health risks had been considered, as well as the consequences of actual and potential actions or inactions. The 'active' term 'risk assessment' was seldom articulated by the PHNs, while the more colloquial phrase *making sure* was used repeatedly, since this was what they were experiencing. The frequent use of this 'lay' language therefore, rather than the use of disaster and risk management language, indicated that for the PHNs *making sure* was part of their day to day experience. The PHNs did note a lack of enthusiasm for using what Jess described as, *'that disaster management speak... it was all a bit abstract…I couldn't really relate it to our own framework.'*

Subtheme 2 - The 'what ifs'– looking ahead

The desire to *make sure* that their communities were safe appears to have been a trigger for the PHNs to engage in *making sure* strategies. These strategies meant being engaged in

preparedness activities for example: looking ahead, striving for 'insight' or 'vision' into the 'what could be', the 'what ifs' of a situation and seeking to find potential health risks and adverse health scenarios which could affected their communities. Having insight and vision stems from the PHNs' experience of having a *public health mind,* meaning that the PHNs are able to consider the 'big picture', look 'outside the square', and engage 'lateral thinking', when considering their communities' health risks, thereby *making sure* that they were protected. Darlene was considering all the issues related to a potential disaster, whereby the power sources were cut, her intent and her thinking was to *make sure* she had all risks considered and planned for:

> *I haven't got a lot of experience with public health disasters, but if you know there's a situation occurring…there's a problem with the generators…the engineer's said 'um I'm a bit concerned about this'. You're not just going to do nothing. You're going to get your plans out. You're going to say, 'OK, this could occur. If it does then we're without power…We have surgery booked. We have…all these people on ventilators. We have dialysis'…we have all these things. We have to prepare for this, and make sure that we've got a backup plan.*

Sophia's experiences led her to understand the risks of a cyclone; this meant that she considered all the risks (for example the loss of power) related to its impact on her community:

> *Yeah so I think it's a lot of it is assessing and going 'ok, ok, cyclone's going to be coming through', obviously there's a lot of wind and destruction and potentially flooding, but what are the side effects of wind going to be?...the wind? 'Hey we might lose power;' we may have infrastructure damage to key critical assets; the water may cause… our drinking water [to] be undrinkable um, and we may not be able to dialyse with it.*

Anna similarly described the 'what if' scenarios of a flood and understanding that she needed to *make sure* that her community was aware of the adverse health risks associated with the flood waters:

> *Yeah, they wouldn't normally be exposed to raw sewerage...and just because there's a flood doesn't mean they necessarily will, but potentially they could. Um, and you want to prevent that from occurring and get things in place, even if it's only warnings about you know, how to avoid – 'stay out of the water' if possible, and you know, 'make sure you've got shoes on', and you know, 'you don't go surfing in the road'. You know that's no longer a road, but you know potentially it's sewerage.*

The theme *making sure* represents a strong component of the PHNs' disaster role experience. To the PHNs it meant their role is about being protective and guarding within the disaster preparedness and response event. For example: Matt's experience led him to be concerned with *making sure* that people's voices were being heard within the disaster situation:

> *...you need to make sure that from an advocate point of view, whether it be championing for the residential aged care facilities; making sure that their voice is being heard, or the vulnerable groups or whoever you're…you are dealing with, that um, there's a voice out there for them as well…*

Subtheme 3 - Being in the community

The PHNs' experiences show that they understood a need to connect with their communities vis-à-vis disasters. This connection meant that they could aim to achieve a greater level of insight and understanding to facilitate *making sure* they could carry out their PHN roles in a way which was more likely to be met with success. For the PHNs, although knowing and understanding their communities was an important part of their role, its importance was highlighted in disaster situations. Understanding their communities and how to network with them, was key to the PHNs being able to *make sure* that they could understand what they needed to be done to protect their populations. This was not easy, given the human and physical scale and also the diversity within the regions and populations they worked in. Rachel understood this complexity:

> *We are in a city…but we also cover communities and very rural and remote areas too, so the variety can be vast…so this week we can be dealing with post strep GN on an island community, and all the complexity that goes with dealing with communities…and also dealing with urban…areas where we are dealing with dengue outbreaks and we are only at Wednesday!*

Making sure is fed by the PHNs' understanding the nature of their communities and what the disaster risks were for them. Tony articulated that in the case of flood and storm emergencies he considered the disease issues were a '*smaller component of the larger response'.* For example when he was describing his disaster role in a flood, he had looked at the issues of contaminated water and wanted to be certain that families were informed that their water may not be safe. Tony was also concerned about *making sure* people who had diseases related to contaminated water were being tested, as he said: '*undertaking surveillance around presentations for gastro and getting people tested and treated…and investigating what the risks were*...'

The PHNs reveal from their experiences that they understood their communities needed to be involved in knowing what their disaster risks were, and also what public health's role was within area of disaster preparedness and response. Some PHNs described their disaster roles in community engagement activities they had been involved in, which were designed to inform their communities about public health. The aim being, that in a disaster event an informed community would understand what they are asked to do, be more adherent to instructions and ultimately more resilient in a disaster. As Sophia said, it's about the '*dynamic of working with people rather than doing unto people.'*

The theme of *making sure* is therefore a two way risk assessment and community education process. Sophia understood that her role in disasters involved investing knowledge and understanding, about public health and public health nurse roles, into the community and to other health care professionals. She described how her experience in public health was one of building relationships in her local area. Sophia achieved this by conducting presentations on public health to staff in hospitals, GP practices and also to Medicare Locals, '*so there is a face to public health*.'

Sophia understood that this investment benefited both the PHNs and the community. She had no illusions that in a disaster public health nurses would struggle to be listened to, unless she and her PHN colleagues worked with the community beforehand:

> *You can't go around telling people what to do, and I think it's the same with public health – you don't, you can give…You know you give messages out there, and, and you work from the ground swell up, to um, to, for the community to make changes. You can't make them make changes. You can put things in place, but doesn't mean that they'll take it up.*

Rachel's understanding was similar to Sophia's, in that following her own disaster experiences she had also understood that PHNs needed to gain the trust of, and have a level of strategic insight into, their communities. These PHNs understood the need to balance community expectations of what public health agencies can do, by creating understanding of what public health is, and does. Imbuing and maintaining community trust was seen as essential so that in a disaster the community would accept actions and advice offered by the PHNs. Rachel suggested, *'you have to kind of bend on different skills,'* by which she meant, needing to think broadly and to engage different strategies to achieve desired goals of health protection. She mentioned a whole range of potential 'what if,' scenarios that have to be considered to avoid the loss of trust from the community:

> *…when you are dealing with communities, different communities…have different viewpoints and different ideas about what is important to them, versus what is important for you or things you want to get across. You have to kind of bend on different skills. You have to find out who is the important person in that community who you need to talk to. How do you get a whole load of Tami-flu from [location removed] to an area you know that's got no regular flights to and is like an 8 or 9 hour drive from where you are sitting at that point in time?…*
>
> *So it's very much broader experience, and trying to organise that so it's workable for everybody, because you have to keep people on side and a lot of the time you are doing this on people trusting you to do it and they are also giving the benefit of the doubt up to a point. And if you lose them you have lost them and they just won't communicate with you because they are not your next person up in charge, or your person that, you know, they are responsible for having to do things. You have to get them to buy in* (Rachel).

Sophia similarly spoke about understanding the need to 'invest' in the community. The community, in this context, also included other health providers, 'our area has worked on developing relationships'. From Sophia's perspective an important part of her disaster role was informing her community as to whom public health nurses are, and what they do. As she explained below, this was a mutually beneficial activity:

> *'we've invested, cause we know that…it will be to our benefit...whenever it's needed…we can't operate in a goldfish bowl and we can't get this ivory tower syndrome where people are coming and saying…"oh, you need to do this". "Well why?" "Public health said so." "Tell them to get lost. Who are they anyway? We've got no idea who they are.'"*

Tony articulated his understanding of what a pandemic meant for the indigenous communities in his jurisdiction; his 'on the ground' knowledge and insight enabled the instigation of preventative strategies at both the local and national level for pandemic preparedness and protection:

> *…we consciously make good connections across the public wider public health network both in the State nationally and internationally and work together with people…in a positive way and so we're able to influence both policy and to help people on the ground…an example of that is our work done around pandemic influenza and aboriginal communities.*

Liz described that her understanding of her disaster role in a tropical cyclone was derived from previous experience of working in cyclones. Liz had conducted post cyclone surveillance, gathering insight from this into potential public health risks. She was then able to inform her community, the assisting relief agencies and also other health professionals about these risks, thereby making sure they could be protected:

> *so when we had Tropical Cyclone [X] we'd done a lot of work in that space… about how to stay safe. We'd looked at the statistics and worked out what kind of things people presented to EDs with…to work out where we needed to put out information. So we got a lot of sunstroke, we got a lot of umm cellulitis, that sort of stuff…because people who'd never been outside were suddenly the mud army. People…[were] getting cut working in mud full of slop… mud that's come down the river, and you know it's got chemicals and you know e-coli and all sort of things in it…[we saw] a lot of conjunctivitis where they'd been hit with mud in the eye.*

Liz was one of the most senior and experienced (in terms of years and position) PHNs that I interviewed; her perspective on disasters always led back to the community, and understanding the way communities worked. Liz's understanding of her disaster role in the area of *making sure* was to '*have a community organised and ready to go into a disaster.'* Resilient communities was not a strong theme identified within the PHN narratives, however this did not mean that the PHNs did not consider its value. Resilience was not a focus of the research questions and therefore it may just not have been expressed in the interviews at that point in time. However Liz revealed in her narratives that she considered the way forward is for public health nurses to invest in resilience strategies within disaster preparedness and response.

Theme Three summary

The theme of *Making sure* is grounded in the PHNs' public health mind worldview. It emerges as being an innate quality, as well as a tool, which underpins the protective essence of the PHNs' disaster roles. *Making sure* reveals that the PHNs' experience of their disaster roles embodies: wanting to know, wanting to find out and wanting to understand their communities' disaster risks, so that they can engage with them to protect them – to *make sure* that something did or did not happen. This protection is psychological as well as physical. It matters to the PHNs that their community knows that they care about them, and understand that their roles are to support and protect their health. The theme of *making sure* is also revealed as a need to create a presence in

their community as well as building relationships with other health professionals and to establish trust in these community-health professional relationships. *Making sure* also extends to protection of the acute care services by preventing hospital admissions.

This seeming desire of the PHNs to protect and to extend protective behaviours emerges from their engagement with their communities, other health care providers and other PHNs in a hermeneutic circle, using their public health minds to expand their horizons. Fusion of horizons determines what the PHNs perceive they need to know, to *make sure* their communities are protected. The fact that the PHNs frequently favour using the term *making sure*, indicates that there are no other suitable words or phrases in health or disaster terminology which are either favoured by the PHNs or fit the compound processes involved in the actions of *making sure* their communities are protected. The PHNs' language therefore fits their actual experiences, they are *making sure* as part of their day to day thinking regarding their roles in their day to day language. Not being understood is, however, not new to the PHNs: as Rachel said, '*people don't understand what we do and they have no idea about what we do or how we do it.'* This lack of knowledge regarding what PHNs do, who they are and what public health does, is a theme which is considered later in this chapter.

Theme Four: the public health nurses' experience of being an advocate – knowing my community

From the PHN narratives it is apparent that a key role of being a PHN revolves around caring for and protecting their communities. The role that the PHNs play in a disaster context therefore is one of being advocates for individuals and groups within their communities who they identify as being vulnerable. This theme describes the PHNs' understanding of their roles of being vigilant for vulnerable people and being *advocates* in disaster situations. The experience of being an advocate is linked in part to the previous theme, *making sure,* since the PHNs need to know and to understand their communities in order to find out who their vulnerable populations are. However the meaning for PHNs in their roles of being *advocates,* relates more to the awareness, vigilance for, and identification of vulnerable individuals or groups to protect in disasters, rather than being focussed on generic protective actions described in the previous theme.

Being advocates

The role of all the PHNs at some point in their disaster experiences related to being an *advocate* for their communities. It seemed to be an understanding inherent in their nurse psyche, their *public health mindedness* and part of their lived experience of being a public health nurse. The PHNs' background training in nursing predisposes them to this role…as Antony articulated, *'that's sort of the day to day work for public health nurses';* and, as Matt stated, PHNs ensure that for vulnerable groups, '*there's a voice out there for them:'*

> *You need to make sure that from an advocate point of view, whether it be championing for the residential aged care facilities, making sure that their voice is being heard, or the vulnerable groups or whoever you're… you are dealing with, that um, there's a voice out there for them as well.*

Matt understood his PHN experience included being able to identify the vulnerable groups in a disaster (in this case a heat wave) and then connecting with them to communicate health advice:

> *…it's also going around and identifying who are our um, who are our stakeholders, who are the vulnerable groups that we need to make sure that we can reach out to? How can we public message that across to make sure we are raising our awareness about the heat?*

The role of being advocates benefits both the PHNs and the community since, as Rachel observed, the community were comfortable having the PHNs among them and in this way the PHNs are able to undertake their other disaster functions*:*

> *[the community were]…more than happy and willing to let nurses into their zones.. to hear what they say and get advice, and you know heed advice, and turn up to get their bloods done…as they see you advocating for them basically.*

The PHNs understood that their advocacy services were also required for other groups and other within contexts, such as, extrapolating their advocacy skills to consider the risk and needs of

external groups who came in to assist with the disaster response, and not just the affected community. For example Rachel described an outbreak of gastroenteritis amongst a telecommunications repair crew who assisted in the recovery effort, for which she understood the need for health promotion advocacy provision.

The experience of being an *advocate* also took place pre-disaster. The PHNs' knowledge of their communities meant that they were able to identify those individuals who may be at risk and then they could instigate preparedness activities. Tony, for example, spoke passionately and at length about his experience and understanding of potentially vulnerable groups in his community, such as indigenous groups and migrants. He considered this awareness and understanding was an integral part of his day-to-day role PHN role. He saw that part of his role was to engineer policy and programs to better suit '*the people who need help the most':*

> *I've got these opportunities to be able provide some support and influence in a range of settings from um families who are struggling…we try to bring a community focus and our understanding of people and the struggles of people in our area. Understanding that in a way so that we can influence policy and programs, so that the policy and programs are better suited to the people who need the help the most. And…connect them to the ground as well as to connect them with the policy makers.*

Tony further revealed his advocacy role, through his insightful consideration of what the impact of a pandemic flu could mean for indigenous individuals in his community. From his understanding of current indigenous housing scenarios Tony described how he understood his role in decreasing vulnerability for this population group in a pandemic situation:

> *…we consciously make good connections across the public wider public health network both in the State nationally and internationally, and work together with people to um in a positive way and so we're able to influence both policy and to help people on the ground…*
>
> *…an example of that is our work done around pandemic influenza and aboriginal communities. So a number of aboriginal health workers and aboriginal families that are I know were concerned in 2007 with the talk about pandemic flu and what it would mean for aboriginal communities...and the conversation turned to thinking about well, 'what does it mean, home isolation in an aboriginal household that's got a lot of people in there, one bathroom and little access to services or infra-structure that will help prevent bugs from spreading?' So it seemed to me that at the time, that the pandemic policies were built around European houses with Mum and Dad and 2.6 kids, and everybody [has full access to] health services. So that ended up as a local project trying to explore that…and then ended up as a national project.*

The quotes from Matt (below) express his concerns about who could become vulnerable if a disaster were to occur, describing his advocacy concerns and roles pre-disaster. Matt understood that his advocacy role also meant considering the 'downstream' effects of a disaster upon a community, for example communities who could lose power as a result of a heatwave:

> *…if you look in heatwaves, turn the power off to a community in the middle of a heatwave, that's got particularly big implications, and I think from the advocacy role that nurses take you say, "well, hang on a tick"…*
>
> *You know, Black Saturday, twice as many people died from the heatwave as opposed to the actual bushfires that went through. If you're turning power off downstream, the advocacy role you kind of think, "well you know, we need to" I feel from my nursing background kind of makes me go and stand up and say, "'well hang on a tick".*

Several PHNs described their roles of being health advocates for mass gathering events to prevent disasters occurring among the attendees. Their roles included: surveillance and risk assessment activities, extensive networking, planning and engagement with local stakeholders and the local communities. Vicki, for example, described bringing together all the key individuals in her region, to brain storm potential health risks and to develop preparedness activities to mitigate adverse outcomes for a planned mass gathering event:

> *We needed to be prepared, so then it was left to me to develop a preparedness and response plan…we did bring together key people…and kind of brain stormed what might be the medical conditions that we are likely to see…so we had to be aware that all these injuries or incidents might happen at any time…Fire risk was huge, sunburn was huge, dehydration...*

Tony also revealed his understanding that he brings a 'vulnerable populations approach' to his PHN role in disaster preparedness and response. For example during the annual local mass gathering event in his region he describes his understanding of mitigation strategies being key to risk reduction and to preventing the local hospital being overwhelmed with potentially avoidable admissions:

> *As you can imagine in a small regional city, if the hospital had 30 or 40 people turned up with gastro because the food was mismanaged in the, during the festival, that would overwhelm the hospital and so we tried…to reduce that risk beforehand, mitigating those risks though surveillance and education… working with council to ensure…food handling, safe water, waste disposal, surveillance and communicable disease...So what it means for me is a time when we shift to a modified model of working, where we are quite focused on erm mitigating, reducing or responding to the risks and the threats and we then work, across our team…and connect it with the health service to er enable us to get through that that disaster…and with that we try to bring that vulnerable populations approach too, in each of those things we're are involved in.*

Subtheme 1 - Understanding and advocating for vulnerable communities

Antony described his role of being a PHN in a disaster included keeping a 'vulnerable populations approach'. Antony's understanding of his role is that he does not do anything different to identify vulnerable populations in disasters, but that is simply part of his day to day role. He explained that the skills that PHNs have, regarding their understanding of who is vulnerable to disease and ill health, naturally transfers along with them into the disaster setting:

> *I think that it's a public health nurse thing [knowing] that people who get meningococcal disease, who get TB, where the outbreaks of disease happen, is most frequently seen in vulnerable populations [and] that's sort of day to day work for Public health nurses, which is why I think it flows on...in our day to day work, and we know it is important so we take that knowledge and understanding and take it into other settings, and into the disaster setting.*

Antony also advised that during disasters there was now a greater focus on advocating for the vulnerable populations than in the past, which has translated into the PHNs' roles. He described bringing his knowledge about risks and vulnerability into the disaster setting:

> *We have had that experience elsewhere in our training or previous lives and disaster times are pressure times...The thing that we definitely intentionally do, is bring in the vulnerable populations approach to disaster management, so…public health nurses thinking around people getting diseases and the risks around and, because of the vulnerability, bringing that same understanding into the disaster setting…In the past disasters were more focused on doing the best for the most, and bugger the rest. It's now more changing into a vulnerable populations approach and nurses and health care workers have been a part of that.*

Antony articulated the populations that he would consider vulnerable in a disaster. His approach to advocating for the communities and families he described stemmed from his *public health mind* thinking. This enabled him to consider the bigger picture of the communities in disasters, drawing from his background experience in public health and nursing:

> ***Researcher****: who do you mean by vulnerable populations when you are talking about disasters then?*
>
> *Isolated communities, aboriginal families, lower socio economic areas, people with their houses, the poorest people always live in the most dangerous areas, and they are down by the river and their houses get flooded, poor people, not the rich people living on the hill. So it's sort of keeping the involvement or a population focus within what we are doing in a disaster response I think is what is really important.*

Understanding who the most vulnerable communities were in disasters, was also articulated by other PHNs. Vicki articulated how she experienced her role relating to health messaging and surveillance while engaging in preparedness activities for communities at risk of flooding. She understood the potential risks to '*people down that end of town.'* This meant that in her role being an advocate, Vicki could see the potential health risks to the community, she could then alert other health professionals to her concerns, who could then consider taking action:

> *We know that in some communities, if they get a lot of flooding that there're certain parts of communities that their houses will get inundated with water, and then there will be sewerage problems…If we knew that there was a big low coming over, say one of the communities where that would be a known risk, we would be saying to the director of nursing in our emergency planning meeting, "look people living down that end of town - you need to be aware if their houses flood this can be the risk. You need to talk to the council to make sure they have got their pumps ready. People need to be aware they may need to move out. You need to start, if it does occur, here's the surveillance sheet, so, if we start seeing gastro we know about it early and we can do something about it early".*

The PHNs' experiences of protecting vulnerable populations occasionally needed to be focussed upon particular groups who required their support pre, during or post disaster. This is because the PHNs' understood their roles were to identify health risks within their communities during disasters, and then to work back from this point of identification in order to support, provide recommendations and facilitate linkages to those agencies that needed to be involved.

For example, Rachel (in the narrative below) described her role and actions to me while recounting her experiences in a flood: she left her office and took to the streets post cyclone, to visit her disaster struck community who were at risk from dengue virus that was making them, 'really really sick':

> *It was great because it was very hands on. Usually we talk to people on the phone. So it was good to actually go down, and plus it gives you a physical view, so actually you are looking at the situation rather than being on the phone. As we said it is difficult for me to get out, but you look at it and say, "yes this is really going to be difficult for you to get out," but we are also very aware that it is a vulnerable community. At that point in time they were under stress because of the cyclone and the effects of the cyclone and coming down with dengue that was making them really, really sick.*

Rachel understood that her aim had been to conduct effective real time surveillance, hoping to establish the levels of illness which were significantly compounding the stressors of an existing disaster. Her intention was to strike a presence in the community, and to provide health advice, based on what she and her team found. Although there were significant communication and transport issues, and no mobile coverage, Rachel described preferring a hands on approach, since she was aware that the community was vulnerable at this point in the disaster and for her this meant that she could establish what was really going on.

In her interview, Rachel recounted finding many sick individuals within the community. Her understanding of her role was to establish who and what the community vulnerabilities were, and to then act as an *advocate* to make sure that other agencies were aware of these people and their particular situations. This included ensuring that the hospitals and the GPs were aware of the situation, while also ensuring that the individuals themselves received health advice.

Staying in touch with communities during a disaster was something the PHNs identified as being important to them. This was both from a practical perspective of being able to conduct real time assessment, as Rachel said above, '*it was great because it was very hands on…it gives you a physical view',* rather than being on the phone, one step removed. It was also from an expressed desire by the PHNs to be closer to the community they advocate for, since it brought, as Matt stated, '*the humanistic side, I kind of feel I bring to the area, into the PHN experience'.*

Being vulnerable in disaster situations can be exacerbated by factors such as low literacy. Liz described that within her community low levels of literacy existed and that, *'under duress people do*

struggle to take in information.' Liz understood that her role included the development of suitable literature to distribute to her community to explain simple, but important health messages such as, reminding people to wear hats, gloves and sunglasses in the post disaster clear up.

Subtheme 2 - Understanding post disaster neglect

The phenomenon of 'post disaster neglect' within disaster affected communities was revealed and described by many of the participants. Post disaster neglect describes a situation where individuals are at increased risk of illness and injury, due to their priorities being directed towards cleaning up and rebuilding after a disaster, often neglecting safe work practices. The post disaster clean up takes priority over their physical and psychological wellbeing. This situation is exacerbated by extreme fatigue and by individuals taking on roles that they may not usually do, for example engaging in heavy manual roles outdoors and using electrical devices, such as chainsaws and generators which may not have been recently serviced, and are unsafe to use. The PHNs understood that post disaster neglect creates vulnerabilities within their communities. For the PHNs this meant being advocates for these groups by undertaking surveillance and health promotion activities to avoid excess hospital presentations due to a related increase in post disaster illnesses and injuries:

> *You know we ended up down there basically trawling through the neighbourhood looking for cases because people were not presenting to medical centres, you know, they were too busy cleaning up and that sort of thing. So J. and I were literally walking the neighbourhood finding dengue cases…Often after those sorts of events people's health isn't an actual priority as such, they are busy doing other things, so I suppose that's where you step in, you are trying to prevent anything else happening* (Joanne).

Rachel commented on the extra hospital burden created by admissions for dengue and chainsaw injuries, which she understood that part of her role was involved in preventing:

> *People had their own agendas about what they needed to do, which was to sort out their electricity… all those type of things that were going on…there tended to be quite a lot of hospitalisations, these people were taking up hospital beds for between 2-5 days whilst they were sick with dengue. Obviously post disaster you don't want that… a lot of beds taken up by people with chain saw injuries and all those type of things…*

The PHNs' understanding of their roles as advocates within post disaster scenarios is further exemplified by their interaction with 'mud army'. This is the spontaneous, volunteer workforce who arrive to assist with the immediate 'clean up' following, for example, floods, storms and cyclones. Individuals within a 'mud army' are often inadequately clothed, lacking in suitable equipment and protective attire (hats, sunglasses, sunscreen, work gloves, covered shoes, water supplies, and so on) and may not be familiar with the physical environment of the area they are assisting in. As Liz describes, *'people who had never been outside were suddenly the mud army, people were getting cut working in mud…that's come down the river'.* The PHNs understood that their role in this

situation was to prevent disasters within disasters and to consider the health needs of these volunteer workers, to prevent further overload upon the health system.

Theme Four Summary

This theme reveals the PHNs' understanding of their disaster roles as being advocates for vulnerable individual and groups within their communities. Being an advocate is an extension of the previous theme *making sure.* For example, *making sure* that vulnerable individuals and populations have a voice and *making sure* that their communities are all protected. Being an advocate is also underpinned by the PHN disaster roles as being *sentinels,* since the PHNs understand the need to be vigilant for vulnerable groups and / or individuals in their communities, and to be able to identify them either before, during, or after a disaster event, for example post disaster neglect. The PHNs identified that being an advocate was an extension of their backgrounds in nursing; they brought awareness and understanding of the meaning of 'being vulnerable' from their curative backgrounds. They then extrapolated this holistically across their communities; holistic in the sense that all individuals and groups were considered as being potentially vulnerable pre, during and post disaster. This also included those people who engaged in disaster relief efforts, as well as the affected communities.

The PHNs' disaster roles as advocates also meant involving other agencies in their advocacy efforts, by informing hospitals and informing policy regarding who the vulnerable individuals were, and how they could best be protected in a disaster or emergency event. The PHNs also described ways that they understood their roles could assist in seeking out and connecting with these vulnerable groups, for example going into disaster struck communities and personally engaging with individuals to establish what resources were needed. Being an advocate was informed by the PHNs' *public health mind* thinking, which assisted recognition of who the most vulnerable groups were requiring protection in their communities.

Theme Five: the public health nurses' experience of being connectors and bridges of knowledge – connecting my community

The fifth theme, revealed from my interaction with the participant dialogues, describes the lived experience of the PHNs' understanding their roles pre, during and post disaster as being *connectors* and *bridges* of information and knowledge within their communities. To communicate across, and within, their large and varied health landscapes, the PHN narratives reveal their understanding of their disaster roles as being one of connecting information to people, and people to information. This experience involves piecing together data regarding health risks, networking with and transferring information to other health providers and the community in order to achieve a flow of health information across their large health landscapes. The PHNs also reveal that implicit within their roles of being connectors was that they understood their community, their specific risks and that their community trusted them.

The theme of being connectors and bridges evinces the core of the PHNs' disaster roles – it is about understanding and managing their roles as 'protectors.' Just as being sentinels evokes images of the PHNs encircling their communities with protective vigilance, this theme similarly reveals the PHNs creating a protective network of communication channels, conduits and bridges, across and within their communities to transfer, collect and connect information from A to B. Being connectors and bridges is a key disaster role, strongly articulated by the PHNs and is also revealed as an extension of their established PHN roles. For example Antony articulated the critical role of communication in disasters and that communication is a skill which nurses are good at, '*In every disaster our lynch pin is communication and so I think nurses can bring a good skill into that setting*'.

The PHNs understood that communication is a problem in the field in disasters. Darlene and Rachel both voiced their concerns about this. Darlene evinced that due to the confusion in a disaster, getting accurate health information from the field was difficult. Her experiences led her to perceive that she felt distant from the disaster information source and considered that the way that she had to send public health messages to the public (through the media department) was problematic and could be improved to ensure that it was more timely:

> *I think communication is always really bad in disasters and emergencies, and not just in health, in other agencies, and in other agencies talking to each other, and there's always confusion. It's always like 'there's a thousand casualties! Oh actually there's only eighteen'. Like it's never accurate, and getting information from the field is just ridiculous – I really feel that um that could be improved. I think public messaging – the way we connect with the public [could be improved]. Cause we're so removed, and if we want something to go out anywhere, you know, we'll go through communications and then you know they'll do something, but it's very yeah, and it's really important to be timely with your messaging.*

Rachel shared Darlene's concern regarding communications and finding the best way to do this. Her experiences led her to understand that it took a lot of work to gain peoples' trust in her diverse community, so that they would '*want to'* communicate with her. Rachel understood her community well enough to know that if she did not communicate in the right way, it would mean she would not be able to connect or communicate with them at all:

> *…you know, you really have to work very hard to you know, get people to communicate with you, to want to communicate with you. And believe me if people here don't want to communicate with you, you will never speak to them again, so it's very much a communication job.*

Traci's understanding was that PHNs have the potential to communicate with '*everybody*' they need to, due to the way they think and also due to her experiences of PHNs being well organised and having a logical way of thinking. Traci inferred that the PHNs' capacity to communicate has been informed by their nursing background:

> *We [PHNs] have the capacity to communicate with everybody. We are organised people predominantly, and we're um, we have a, a logical way of thinking. So I think that those three characteristics of nurses in general, tend to be going to owe into planning easily, so I think if you're coming across to a situation, you pretty well can…you look around and 'well OK, this, this, this and this needs to happen'.*

Matt also revealed having same understanding as Traci. He noted that PHNs, being nurses, have the ability to talk to everyone across the public health network; there are no boundaries to whom they may need to talk to in a disaster. Being able to talk to 'everyone' was understood as a core PHN skill since diseases and disasters alike do not respect boundaries, therefore potentially anyone in a community could be affected and require health information or advice:

> *nurses [have]…the ability to talk to the cleaner…the patient, the doctors, the team, the relatives, all those sorts of people. I think we're similarly setup in public health to be able to talk to patients, to, to stakeholders, to um you know to a vast array of people* (Matt).

Relationship building and networking was revealed as being important to the PHNs' disaster role. This is exemplified below where Jess describes her experience of working in an evacuation centre. She acknowledged the information she received regarding a potential outbreak in the centre, was due to her existing relationship with the hospital staff:

> *It was pretty much inventing the wheel as we went along, and responding…I think that probably came as a result of… because we've got good sort of links with the hospital staff, that they let us know that they'd had someone from one of the centres in with 'gastro' and that might become an issue.*

The experience of being bridges (of knowledge)

From the participants' narratives it is clear that an important part of the PHN disaster roles revolves around the issue of communication. For example understanding who (or how) to communicate what, to whom, and when. The PHNs understand their roles as *bridges* through their ability to

connect their communities, health care providers and other involved agencies to health information. The meaning of being *bridges* is used by the PHNs to describe connecting individuals and/or groups where gaps existed, and also as being a conduit for the conveyance of information from one individual or group to another.

The PHNs also describe making informed connections (regarding health issues) by using their clinical knowledge base from their nursing backgrounds, and transferring this to inform practice and knowledge at the population level. The PHNs therefore act as *bridges* of *knowledge* by connecting information to address knowledge gaps and also by supplying this information to other agencies in the disaster setting. The meaning of these bridging, connecting and facilitating practices is to reduce the risk of their community to disasters by *making sure* that the risks to their communities, and the individuals therein, are being addressed.

Travis, for example used the word '*bridge'* to describe how PHNs provided a link between the clinical world of nursing and population health:

> *The role of public health nurse is kind of unique in that having the nursing background, you kind of, I've found, public health nurses sort of often kind of bridge that gap between clinical care and clinical practice, and sort of just the more general, broad population health side of things.*

Rachel revealed her PHN role was involved in connecting her community, piecing, fitting and linking information and people. She understood that she had a view of the 'bigger picture' of health and therefore her role was in trying to connect the parts together that others could not see. In the quote below Rachel also uses the analogy of being a bridge to describe her experiences of her PHN role:

> *it's a good thing about this job is that you look at the bigger picture and you see everything from woe to go and realise they should all fit in together and you know maybe our job is to bridge it or try and bridge it as much as we can.*

Becca also used this analogy when describing how her PHN disaster role meant '*getting information out to the public as well as providers*':

> *The PHNs have a dual function, to provide information both to the health professionals in the community and also the individuals in the community. Therefore they are always the bridge between the two.*

Liz concurred, acknowledging the significant role that PHNs play in communication. Liz's experiences led her to recognise the limitations of their small PHN workforce numbers *'we can't get in there with them.'* This meant that Liz understood that her role was also to communicate and disperse health information to relief agencies as well as to her community:

> *I think that is probably our biggest role – to keep the community informed and understanding the public health risks. We can't get in there with them…like it's very,*

> *we haven't got a lot of staff, so it's really about making sure the information is out there, that all the agencies know that we've got the information* (Liz).

Tony, while discussing communication issues in disasters, provided an example of his experience of his role of being a *bridge* while working in a flood disaster. For Tony this role involved bridging the information gap between the community, the local health services and the media. Tony also understood that his role was to assist with 'messaging'. This meant that he also played a role in interpreting health risk information from the disaster into a more lay form of communication which could then be understood by the community:

> *…we've been out on the street and talked to people. Or if it's distant places, (like our last flood disaster was at a place 3 hours from [location removed]) we work with the local health service and the local council to get information out about gastro, and about hand washing and about not drinking the tank water or town water if it's been contaminated and get sort of local…we help with the messaging for the local media and the local hospital around that'.*

Subtheme 1 - Looking for patterns, connecting the dots and understanding puzzles

The PHNs' experience of being *connectors* or *bridges* is also related to understanding the need to connect pieces of information together in order to recognise and interpret disease patterns. Information (for example communicable disease data) in their communities was usually described, and understood, by the PHNs as 'patterns'. For example Antony talked about patterns of illness:

> *…we can take a step back from that and say, 'what is the pattern of this illness?'*

This observance of 'patterns' is related to the PHN *sentinel* activity which, as Theme Two reveals, describes the PHNs' vigilance regarding the assessment of disease and health risks across populations. Implicit within this sentinel activity, is also the PHNs' ability to understand the need for the recognition and interpretation of disease patterns, which meant they could inform communities and health care providers of risks.

Some of the interviewed PHNs described the health related information, they were in contact with, as being like a 'puzzle'. For example Joanne described how she enjoyed the process of finding and connecting health information, she understood that her work involved creatively fitting pieces of information together, so that they made sense and so that they could be considered in the sense of being whole.

> *You get to sniff things out, explore, that's what I love about the job, that that sort of 'Ahh, OK' so this and this, putting two and two together that is interesting...You walk around and all of a sudden you have seen that person has been sick and they have stayed over here, and it's like connecting the dots of a puzzle. It's like putting a puzzle together.*

Similar to their day-to-day roles, the PHNs' understanding of their disaster roles mean looking for patterns within their health landscapes which will allow them insight into emerging health risks, which they can then alert health care providers and their communities to. The PHNs describe their

experiences of connecting pieces of information, understanding their actions as being one of 'joining the dots' to work out the 'jigsaw puzzle'. Brianna's experiences of her disaster role led her to understand that it is the act of joining all the individual aspects of communicable disease control information together which inform public health itself:

> *So that to me is what public health is, is um, is all about. It underpins this higher thing of communicable disease control, you know, to be able to do communicable disease control then yes, I do need to know about immunisation practice, and um ah, vaccine preventable diseases and all of that so, it's all like this big jigsaw puzzle* (Brianna).

Matt's experience was similar in that he understood that his role was to bring pieces of information together in order to ascertain the health risks implicit within the disaster event, which could impact on his community:

> *I kind of felt my role was more kind of joining the jots…the dots in a way, so, 'what's the role…what's the effect going to be on patients – oh right we need to send a team out there to do an assessment'.*

The PHNs' experiences as *connectors* and *bridges* therefore also meant looking at patterns of diseases in order to understand the health risks within their communities. The objective of 'joining the dots' was to link and connect pieces of health information. Ultimately this aim, as Matt said, is to ensure that people are *connected as opposed to disconnected,* and*:*

> *It's also going around and identifying who are our um, who are our stakeholders, who are the vulnerable groups that we need to make sure that we can reach out to? How can we public message that across to make sure we are raising our awareness about the heat?*
>
> *Um, so it's a case of liaising with people like the media, it's a case of liaising with people like um key community stakeholders to make sure that they're aware, and that they're trying to raise awareness, putting out fact sheets, those sorts of things.*
>
> *So in a way it's pretty much joining the dots together, so you can make sure that people are connected as opposed to disconnected.*

Subtheme 2 - PHNs in communication and networking

The importance of having good communication skills and established community links, as noted above, and in the *Background* chapter literature, is paramount in disasters. As the following quotes show, the PHNs also understand they are a key component to linking information to their communities in a disaster. Liz understood from her experiences, however, that communication is complex, multifaceted and that other tools are also important to consider such as social media:

> *…I got told the other day that public health nurses were the experts in communication, ' you understand media and you understand social media' (which we want to use as its one way of getting information to the community very fast through Facebook and Twitter and other things)…Communication is much broader than one tool. You know it's very complex* (Liz).

In the following example Anna reveals that not only are there are different groups of individuals who require information but also that this is achieved using different modes of information delivery, for example writing situational reports (sitreps) in addition to verbal communication. Anna's experiences also led her to understand that, '*keeping everyone informed'* was important in her PHN disaster role. This means that within her community she has a broad circle of information recipients with whom she networks and a broad range of information to be delivered.

> *…as a public health nurse in an emergency situation…my emergency management training is about being a commander. So, about helping with advice, about…environmental health stuff…and supporting the environmental health team, um, you know, writing sit reps, being able to pass information up the ladder, so that um, a wider group of people know what's happening… keeping everyone informed. I think that's, that's a big part of the issue.*

Lynne's experiences also revealed this understanding of the importance of relationship building:

> *…you have to network, you have to build up um your relationships with your NGOs and all your other partner organisations…aged care facilities, or you know um, Medicare Locals, commonwealth partnerships, you know…The Water board, I mean and I know some of them are obviously funded, but even just the individual aged care facilities that are private or church based* (Lynne).

Sophia similarly to Lynne, also talked about networking in the context of developing effective surge capacity for her PHN unit. Sophia's experiences of networking were also informed by the knowledge that people needed to understand why it was important to engage in surge training for disasters:

> *We have developed surge capacity with our clinical colleagues…and that's taken some [time], a lot of background [effort], a lot of working with people, a lot of networking, making people understand why it's necessary, um, and then training that surge group.*

Subtheme 3 - Understanding advice and communication

The PHNs' experiences of their disaster roles as connectors and bridges occurs across and within different disaster settings. For example, Anna describes her understanding of being a conduit of knowledge with regard to the provision of preventative health advice for evacuation centres:

> *OK, so again, it, it's mainly around advice, um and protection from exposure or transmission, um, you know, in the case of err evacuation centres, you know, we can be providing advice about, you know, gastro outbreaks, or um no doubt [yeah] as soon as there's a large group of people in a confined space, someone's going to get sick with something that's transmissible, be it flu or be it um gastro [yeah], or measles, um so about reducing that risk, and about preventing that from happening.*

The PHNs deal with multiple agencies in disaster situations, understanding that they need to be able to network and link with all the responding and involved agencies in order to communicate and mitigate health risks. As Jazzy stated:

> *In Cyclone Larry the GP office was inundated and flooded, so the GPs were working out of the hospital - so it was local health service, plus the GPs, plus the community health nurses. And we are dealing with some of the emergency response people as well.*

Rachel described her experience of connecting post disaster with her community. Similar to the other PHNs, Rachel's understanding from her experience was that communication was difficult in a disaster. This understanding reinforced her decision to engage directly with her community, by knocking on the doors of her disaster affected residents thereby gaining firsthand insight into their health issues. This experience was also driven by the desire to retrieve information which would serve to protect the community. Rachel understood that her community's priorities were directed towards post disaster cleaning up, rather than their health, therefore face-to-face communication was appropriate to establish the reality of the situation 'down on the ground'.

> *We obviously held back until the Emergency Services went through and were able to make sure that we could get through to the area that we needed to. Communication was really difficult, mobile phones were all down, obviously other people had their own agendas about what they needed to do, which was to sort out their electricity…so for us it was a case of that you jump in the car and go down, door knock and find out in the area that we were concerned about.*

Traci (quoted below) described her experience of communicating about potential public health risks in an evacuation centre to residents who had been displaced by a bushfire. Access to the evacuation centre had been partially cut off. Traci established communications with an individual working in the evacuation centre and together they conducted a health risk assessment. Traci was also liaising with a medical team who were visiting the area. She understood that having these connections, in addition to monitoring and maintaining communications, were vital to prevent more health problems:

> *So for me when I was monitoring the fires every day for gastro, I would link up with somebody in each Centre and then I'd communicate with them on a daily basis, and we'd work out what's going on. And we also sent down um, you know like a check list with the um, the medical team that were down there, sort of saying like, 'are you getting any gastros?' and stuff like that, just to sort of, you know, help monitor – and you'd be getting them out – you know what I mean, like they'd become a priority to get out, so that you didn't have a bigger problem on your hands.*

Brianna described understanding that in her role as a connector she had to find a way to communicate with individuals and communities in a disaster situation:

> *Um, you also need to know um, how they're going to get food and water, what your cooking facilities [are]…have they got some warm shelter um, you're looking to see how they're monitoring any outbreaks of illness um, that's when…how are we going to communicate with them?*

While describing her role in the 2009 influenza pandemic Lynne revealed her understanding regarding the complexities surrounding communications in a disaster. She spoke about having established networks and lines of communication and her experiences of having this all planned

and documented. Lynne understood that it is too busy once a pandemic strikes to be able to make the connections you need. She used the phrase '*I can't stress it enough'* when talking about the importance of having processes in place prior to the event, and having good communication skills in a disaster situation:

> *…communication skills was one of the biggest things with H1N1…information was coming out and changes were being made to information on a daily basis almost…Communication is such a big thing and I can't stress it enough… Everyone is so busy, when it's wide scale like H1N1, you literally can't get people released to give you a hand. So you need to communicate very effectively and get processes in place, to streamline all that, so that you can get the information out.*

> *…for the poor emergency staff, every day there was an update. We had to change the enhanced triage, classifications and case definitions, so it was very hard for the staff to stay current…that was a real challenge. I think the big thing is already having your networks and communication lines in place… it's really important to develop, these networks and relationships, right from the beginning…I think you need, need to know who to get in touch with, in all these places, where you may need to pull staff from, pull resources from, in a disaster, and already have those established lines, so that you know and, have them obviously written down.*

Antony understood, from his experiences during the pandemic, the necessity of having strong networks. He noted that some of the public health units, with weaker networks, collapsed under the pressure of the pandemic response:

> *…one of the reasons the pandemic control plug was pulled, 'cos a couple of the units folded as they could no longer cope, as they did not have as strong a network response as they could, and that was part of the debrief.*

Antony described his role of being a *connector* in his public health nurse disaster role. He considered that he was comfortable working within the disaster realm, his understanding was that public health provided a supportive system behind him, relative to hospital nurses. He considered that, as a PHN, he had the advantage of having 'influence and connections,' to assist his capacity to both view and influence the entire health system, the bigger picture:

> *But in nursing in a hospital I think you don't have much power and much influence, but in public health nursing I think it is different and I think we have influence and connections and see that we can make a difference on policy and resources and approach, and which is also true in the disaster setting. So [I] think that public health nurses who are then working in disaster know that it's automatic that if it's being overwhelmed, we know that there is a whole system there behind it that can respond, and that we can influence that. Whereas maybe in hospital based nursing one of my experiences there is that if stuff going wrong, nobody seems to care and you sort of work by yourself to sort it out. Whereas public health network because it's a smaller network we work across the network all the time, and that is our expectation that there is strong network and a system to help in our response…I think that same understanding also applies in a disaster setting, and because of that I think public health nurses are comfortable within it…probably other reasons as well but that is one of the reasons is why public health nurses are comfortable in a disaster setting for public health work, because they understand that there's*

systems, and they understand that they have an important part to play in it, and can influence it.

Sophia also articulated a similar understanding to Antony's, regarding being able to influence a greater number of people in her role as a PHN, considering this as an asset in a disaster situation. She perceived that her role as a PHN in a disaster lay working within and across populations. In the quote below, Sophia describes some of the public health risks from a cyclone that she considered could affect her communities. She considered it was about being 'a little bit visionary', being able to consider the 'what ifs' of a situation which also means being able to connect and communicate disaster events to what they actually mean for those individuals and communities who are affected:

Public health is about populations. Um, and so it's about you know, we might work with, briefly with people on a one-on-one basis, but our, our focus is about um, working with populations and, um, and yeah, what was it? What does it mean? It means that you're at arm's length I guess, from disease in way, but it also means by doing that you can, I think that you can influence a larger group.

And I think particularly with disaster management, like with [cyclone X], a big role for the public health nurse would be to look at, 'ok what's going to be the aftermath of this? Gonna have flooding, gonna be things like dengue outbreaks. Um, is there going to be problems with'…Um and you know I think it's a little bit visionary in a way, to be going: 'ok, what's going to be the aftermath of this?… Ok, cyclone's going to be coming through, obviously there's a lot of wind and destruction and potentially flooding, but what are the side effects of wind doing?…hey we might lose power, we may have infrastructure damage to key critical assets, the water may cause… our drinking water be undrinkable and we may not be able to dialyse with it, or if the power goes out we might not have any water supply whatsoever…What are the public health aspects of that?'

Lived Space, Lived Human Relations and being connectors and bridges

The way that PHNs understand their lifeworlds in the context of 'lived space' was discussed above within the main theme, a *public health mind.* Lived space was considered in the context of strategies and tools that the PHNs employed, informed by their experiences, to manage their PHN disaster roles across their communities. The PHNs' experiences of being *connectors and bridges* can be described using the life existential of 'lived human relations'. This life existential relates to the dimensions of human interactions with one another and their shared interpersonal space. Within the context of the PHNs' disaster roles lived human relations represents the PHNs' perceptions and management of their functional and strategic relationships within and across their communities. It is a shared space because the space is a communal 'disaster environment,' where information relating to health risks is 'captured' and then shared across the PHN networks, due to a shared vision to assist those who are actually or potentially vulnerable within the disaster space. Lived human relations represents the experiences of continual engagement by the PHNs, across and within, their communities to create networks and build relationships with and between relief agencies, health professionals and their communities in order that information can be collected,

and then extrapolated to those who require it. The PHNs' experiences of lived human relations are to bridge gaps in relationships and to be connectors of knowledge, for example between the community and the hospital, and between 'first responders' and the hospital. This life existential is underpinned by the PHNs' experiences of being protectors. The PHNs' ability to connect, bridge and network is also underpinned by their recognition of the need to imbue trust in their roles. This is so that their communities, other providers and relief agencies will engage with them in the disaster space and strengthen the circle of community protection.

Theme Five Summary

The PHNs, through their lived experiences of their disaster roles, understand that they have a central role to play regarding the communication and transfer of health information throughout their communities. The PHNs' experiences of being connectors and bridges of information means that they gather, assimilate and relay information regarding specific and general health risks to whichever individuals, groups and communities require the information. The PHNs act as information conduits, passing on data they piece together which may then be used to mitigate risks for their community. Being connectors and bridges within their communities therefore is part of and reinforces their central role of being protectors.

The PHNs understand that communication, information delivery and retrieval during a disaster event is complex. They also understand that they need their communities to trust them, in order for the successful relay of information between other PHNs, their communities, other response agencies and health professionals. The quotes within this theme also reveal the PHNs' experiences of understanding the importance of knowing different ways of communicating information, 'to keep everyone informed'. They recognise that being connectors and bridges of knowledge requires consideration of different communication strategies and communication tools to manage the complexities presented by disasters and that they have opportunities to connect, network and communicate information and ideas across public health space. The PHNs are aware that their central position in public health means that they are in a better position, to take opportunities to observe, access and influence health system planning and policy, than nurses are in the hospital setting.

The PHNs' experiences reveal that they are comfortable in their role as communicators and know who to communicate and connect information to, and they will *make sure* that this information is communicated. Within their roles as sentinels, the PHNs' experiences involved looking out for disease risks, piecing together patterns of information and then communicating this information to individuals and groups within their community. The theme of being conduits and bridges of information is an important, intrinsic extension of their roles of *making sure* and being *sentinels*.

Theme Six: the public health nurses' experience of being adaptors – being in a changing environment

This theme reveals the PHNs' experiences of being *adaptors*: the PHNs' understanding of being able to adapt and adjust their mindset and their roles, to address the often unpredictable situations and needs created by the evolving demands of a disaster, often under great pressure. Being *adaptors* is exemplified by the PHNs' experiences of adapting their roles to address the political challenges and pressures presented by a disaster situation, and also by adapting their disaster responses to meet the evolving health needs of their communities. For the PHNs being an adaptor meant, for example, having the ability to adapt their work plans, hours and teams and to be ever vigilant to changing community health risks which may require a public health response. The PHNs describe themselves as being both generalists and specialists within the public health arena. This understanding of the broad scope of their role captures the essence of PHNs as being *adaptors.* In a disaster situation PHNs describe being able to work both 'down on the ground' or from 'up above'. The experience of being *adaptors,* within their PHN life-worlds resonates throughout all the participant narratives.

Subtheme 1 - The sense of being many things

It was established within the first theme, having a *public health mind,* that the PHNs made a transition from working within a curative nursing sector role, to the community. Therefore they have already experienced adaptation during the transition from their formative curative settings to the broader purview of public health care at the population level of health. Having a *public health mind* embodies the skills of being able to think broadly and laterally about health matters. It is this broad thinking which lends itself well to managing a PHN role in a disaster, where many 'hats' may need to be worn in an environment which invites flexible thinking and the ability to adapt quickly to different scenarios. The PHNs described that being amenable to role changes is part of their role, as Antony described:

> *As a public health nurse you often fit into sort of many different roles within those [disaster] responses…and I think…public health nurses work across, um like the… planning and operational side of disaster responses as well as working in the field and in the, you know public health unit and health department.*

Traci revealed how she understood that she had several different roles within public health:

> *But we're all nurse immunisers at the moment, and so we cross over as well, so I also cover off immunisation as well…so I fill their role…a lot of days I'll do both roles.*

Rachel summarised her thoughts regarding what her understanding PHNs can bring to a disaster: '*I think that the ability to be adaptable is what counts'.* She expanded on this statement by describing the nurses' skills of being adaptable and flexible in disasters to meet the evolving needs occurring within the disaster environment. Rachel recounted examples of her understanding of

PHNs' ability to be flexible in their disaster roles, which included being adaptable and pragmatic about political decisions which she did not necessarily agree with:

> *Well I think nurses by their very nature are flexible, so I think we can adapt to what is needed…but also be able to work within realms of our, you know, practice basically that we can do what needs to be done and be adaptable to that, but also be flexible to change for what's needed as things go on. So I think in a very front on effect, it would be things like trauma, which most nurses have had some sort of exposure to, but in a long term effect it would be things like surveillance. It'll be things like, being able to talk to communities at risk, if there's water that's been affected, or there's a concern about things like the last flooding went on in [location removed] that there were vans that were set up to give tetanus injections – which probably was I think a fairly political decision but not really something the community considered they needed – and not really something that we probably was I think needed at that point.*

The way that the PHNs think, and what this means in terms of the way that they approach their roles, appears to both drive and assist their ability to adapt to a situation by being able to consider the 'what ifs' of a situation. Having a mind which is adaptable means that it is a mind which is willing to consider events which may lie outside the usual scope of day-to- day practice. This is a useful skill in disasters, for example Matt's experiences meant that he had the ability to conceptualise and to adapt his thinking about the various scenarios which could occur in his community:

> *Yeah so I think it's a lot of it is assessing and going 'ok, ok, cyclone's going to be coming through, obviously there's a lot of wind and destruction and potentially flooding, but what are the side effects of wind going'…the wind 'hey we might lose power; we may have infrastructure damage to key critical assets; the water may cause…our drinking water be undrinkable um, and we may not be able to dialyse with it'. Or if the power goes out we might not have any water supply whatsoever, um. What are the public health aspects of that?*

The PHNs revealed their understanding of having an adaptable mindset to carry out their PHN disaster roles. Being able to adapt their thinking and being willing and able to think outside the square and having a flexible way of thinking, links to the theme having *a public health mind*. Being adaptable is also concerned with the PHNs' experiences of adapting their perspectives in order to understand which actions will offer the best outcomes for their communities. Being adaptable to the communities' needs and the decisions of the politicians is guided by the PHNs' desire to protect their communities to adapt their thinking to make sure that they are safe. This meant that Matt, for example, when considering the potential effect of a chemical spill on his communities, transferred himself –his thinking – into the perspective of the community, so that he could consider what their needs are, and what sort of information they would need to reassure them:

> *From that perspective, if I was the person on the end going, 'what's happening?'…if I'd been exposed to the chemical up in the area at the time, what would I want to happen from that perspective? What sort of information would I be after?...What sort of information would calm me down and settle me down in that regard…having a*

look at the end user in a way you get some sort of understanding of what you probably need to do.

Being *adaptors* came in many shapes and forms during disasters, for example Anna described her experience during the 2009 H1N1influenza pandemic. Anna had to teach nurses how to use multi-dose vials for the pandemic vaccination program, which went against, and 'was counter-intuitive' to her immunisation education and training:

> *You'd been teaching, 'you can't use multi-dose vials.' For years and years and years…And so the, the staff hated it because it was going against everything that we'd been taught for several years…You know, how unsafe it was and then knowing that after this emergency was over, we were going to go back to the, 'you can't use multi-dose vial' stuff, um…So it was really counter-intuitive to what we'd been taught!*

Anna then went on to describe how her public health experiences had taught her to be more flexible and that this meant recognising the necessity to adapt quickly in a disaster situation. In the quote below, Anna compared her experiences of being a PHN to that of working in a hospital theatre setting with 'no flexibility in there at all.' Her PHN experiences led her to understand that being adaptable and flexible was a skill that she could learn and that she had acquired this skill while working in public health:

> *I think it's being able to go with the flow, be flexible…Um, to adapt very quickly. And we're not all good at adapting quickly. We're not all good at adapting, let alone doing it quickly. And you know, I think that um, public health has taught me that at least, that, that you have to be flexible, um where, you know, sometimes working clinically and coming from a theatre background – um, there's no flexibility in there at all, you know, um, 'this is what you need, this is how the operation goes'…Sure if something goes wrong, then you have to adapt to that, but you've got that planned in your mind…there's not a lot of flexibility in the clinical setting where you know, sometimes here you have to be quite flexible and um, that's probably a learned skill, being flexible.*

Travis described the overwhelming workload during the 2009 influenza pandemic. What this meant for him and his team was the necessity to adapt to a constantly changing situation:

> *It was pretty stressful…very, very stressful…it was a hard situation to work in… just the overwhelming work load...the phones were just ringing off the hook 24 hours a day...and we were sort of quite short staffed and so it was always a struggle to kind of keep up with the demand…The other thing that was difficult, was…there was so many unknowns and it changed from day to day, the uncertainty and um and constant kind of change, um was, was a hard thing for the team to sort of adapt to and...to keep on top of.*

The ability to 'surge', (to rapidly increase staff capacity to deal with an escalation of work in disaster response) was described by many of the PHNs, often animatedly. The PHNs understand that this is a process which means having great adaptability, both by the staff in charge and the staff being recruited into the surge. Staffing surge for the 2009 influenza pandemic was experienced with great variability across different public health units. However the understanding

the PHNs have regarding the need to adapt quickly to the surge process itself is very evident, as is their ability to then instigate surge plans, post disaster, in preparedness for the next outbreak or epidemic. Rachel described how she experienced the pandemic on, '*the back of our biggest dengue outbreak,*' which she realised actually turned out to be a good thing since extra staff had already been recruited to assist in the dengue outbreak, whose role and skills could then be adapted for managing the pandemic response:

> *…which we actually kept on that we shifted and re-jiggled them a little bit and we trained them to ask the questions about pandemic rather than asking questions about dengue!*

The pandemic response was understood as a time when the PHNs took on increased responsibility within their roles, as well as hugely increased work hours. It also was understood as needing adaptability while carrying out the role, due to its rapidly changing nature, as Traci noted: '*like I sort of became a Pod Leader pretty quickly.'* She also mentioned the rapid changes to protocols: *'and the rules kept changing pretty quickly you know – the case definitions'.*

Jane noted with the 2009 influenza pandemic that the disaster plans for their region, which she had been involved in, did not work in the actual disaster which then became a continual process of reworking the plans and adapting and re-adapting to new situations:

> *I was involved with the um setting up or in the team who did the initial disaster plans before the pandemic, and then by the time we got to the pandemic, we realised that whole disaster plan was useless, [I said] 'let's re-look at it now that we are into the reality of it' and things are very different in reality.*

Subtheme 2 - PHNs adapt role and responsibilities to political agenda

The PHNs also describe their understanding of being adaptors with respect to the role of politics within their public health disaster agendas. In the narratives, many of the PHNs comment on their roles lying in a position between the needs of their communities and the agendas of the politicians. The PHNs understand that a requirement of their role is to adapt to the political mindset and changing agendas which arise in disasters. This political involvement is not considered by the PHNs to be very useful and not in the best interests of the community, as Joanne stated:

> *…you just need to be perceived as doing something, so sometimes I don't think you can be as effective in a disaster situation because the government have their own agenda…it [politics] unfortunately plays a huge role in public health though.*

Rachel concurred:

> *…it was very hard to do your job: because you knew what had to be done, you know the information you have to give out to communities and staff, you know health providers everywhere. But the pull back from the political gurus was that they were to be kept informed of everything all the time…There were decisions that were made that were not based on evidence but on how it was going to be perceived if they didn't do anything.*

Rachel expanded on this comment: she understood that this meant the management and implementation of pandemic plans was to the detriment of her PHN disaster role as it '*got the community totally offside':*

> *…it was very hard to sell what we wanted to do when it changed at the drop of the hat…I think we got the community totally off side, I think that was a public health, I wouldn't say disaster, but I think as far as we were looked at by the public we did not come across there very well at all. The public perceived that we oversold it and it wasn't as bad as what it was and that we were just interfering with their lives and trying to be Big Brother about it.*

Joanne also described the political situation which she understood, did not necessarily agree with, but which however was part of the disaster public health response:

> *It's all about public perception and so money gets thrown at what the public perceives to be an issue. So it's interesting, it's another side of health that you don't really think about when you are one-on-one with a patient.*

Liz's experience (below) led her to be pragmatic about the politics associated with disasters. She understood and recognised the political influences on her disaster role, and the need to strike a balance between community expectations and actual needs.

> *In the 2010-2011 floods we ran tetanus vaccination clinics in [location removed]…they are political decisions…whether that was really warranted or not, there's questions were raised about that, but the decision was made. But now if you look at that, the other part is that the community want to see action. So you know getting public health information into communities that are hit by disasters and helping communities to work out how they can, you know, stay safe and healthy. It's just as important and they did a bit of all of that in the end.*

Liz understood that there was a political agenda within disaster response. This agenda influenced the roles that PHNs carried out, since it could be perceived by the public that the government was doing something and was interested in assisting:

> *…people also love certain parts of public health, immunisation is something that politically people love as they can say they are doing it…and we are working with the community.*

The PHNs understood from their experiences that in a disaster response they may have to adapt and/or extend their roles and also that they may be carried out in a different setting or different environment. Jess, for example, understood that her day to day role remained essentially the same, however in a disaster situation it could mean that she had to amplify what she already did, but using the 'same systems' that already existed:

> *I think [we carry on doing] just the day to day role that you do. I mean basically all we did in that was amplify what we already do. So I think there's a benefit for having systems in place…so if you've got a disaster you use your same systems that you've already got in place.*

Michael agreed that disaster meant he carried on doing the things he normally did in his role:

> *I don't know whether you could generate a disaster competency for public health nurses because I think that it's about delivering and doing the things you normally do – ordinary things in an extraordinary environment I suppose...*

Antony also agreed, noting the accelerated pace of work:

> *You are still doing your normal job but it's just en masse, with lots of people, and is very busy.*

Becca understood that for her, things were the same but, were just conducted in a more stressful environment, '*under the pump'.* She recognised the potential for greater adaptability if the pandemic had continued:

> *I don't think we did anything differently, we still had to deliver vaccines and most of the vaccines were going to those already receiving vaccines…I think if it had gone a stage further and we had had to run mass clinics very quickly, that's where it would have been different. But we were already using the infra-structure we already had but it was under the pump a bit and demands were made on the people.*

Antony considered that PHNs, with their specific nursing skills, were able to adapt to disasters and were of significant value to the response effort. He also revealed that he enjoyed being an *adaptor*, since this enabled him to work at both 'ends' of the PHN scale:

> *We can make a pretty substantial response to whatever the disaster is and I think nurses are flexible enough to be able to, even though you may be a communicable disease expert, that if the issue is around something else then we are able to adapt into that situation and bring our skills into different situations…I feel like I am in a fantastic spot where we can influence national policy on things, but in addition I can be sitting the next day, or later on that day, sitting in the dirt outside somebody's' house talking about communicable disease issues with a family that is struggling with TB or meningococcal, or something or other else, that is happening.*

Subtheme 3 - The experience of adapting to the politics

In their narratives many PHNs commented on their position being one of sitting between the needs of their communities and satisfying the agendas of the politicians, who are responding to different voices in the communities. The PHNs had to adapt to the prevailing political mindset, changing agenda and role priorities which arose in disasters, which the PHNs considered at times unnecessary often because they were already carrying out these functions. This political involvement was considered by some PHNs not to be useful and also not in the best interests of the community. The PHNs felt that they then had to adapt and work to gain public trust back.

The PHNs' disaster experience revealed that political decisions were not always based on health evidence but that public health actions were instigated as they had to be seen to be '*doing something'* by the public, such as a vaccination program, which was considered to a popular public health action as it was a visible public health action undertaken within the community: *it's* all *about public perception and so money gets thrown at what the public perceives to be an issue* (Rachel). This was articulated by several PHNs, and was articulated as leading to reducing the PHN's

capacity to be as effective as they perhaps could have been. The PHNs also mentioned having to contend with frequent reporting 'up the line' to managers, fulfilling the political enquiries from the public.

Rachel expanded explained how the management and implementation of their pandemic plans was to the detriment of her PHN disaster role as it '*got the community totally offside',* the PHNs were seen as *interfering* and being all *Big Brother* (over-controlling). Other PHNs, such as Liz in the quote below, revealed being pragmatic about the politics associated with their disaster role; recognising the political influences on their disaster roles, and the need to strike a balance between community expectations and actual needs:

> *In the 2010-2011 floods we ran tetanus vaccination clinics in [location removed]… they are political decisions…whether that was really warranted or not, there's questions were raised about that, but the decision was made. But now if you look at that, the other part is that the community want to see action. So you know getting public health information into communities that are hit by disasters and helping communities to work out how they can you know stay safe and healthy. It's just as important and they did a bit of all of that in the end.*

The PHN disaster experience of their roles as being *adaptors* therefore is about being flexible, changing their roles and role expectations according to what the principal needs are for their communities during a disaster. This adaption does not occur without consideration of the bigger picture of health, since as the above examples demonstrated the PHNs understand the impact of concurrent political decisions which determine their public health response. The PHNs therefore remain mindful of the effect that political decisions exert upon their communities and what this means for the PHNs relationship with them. Lack of understanding regarding what public health is and the PHNs roles within it is shown to undermine the PHN roles, create extra work and undermine their community relationship. Some PHNs however have a better understanding of engaging with policy makers and orientating their PHN skills into the political space through public health policy. PHN Tony, for example, felt that relative to working in a hospital he had a far greater ability to adapt his role and *influence* the health system and orientate his public health role during disasters. This was partly due to the flexibility afforded by working within the smaller public health network relative to the curative health system:

> *But in nursing in a hospital I think you don't have much power and much influence, but in public health nursing I think it is different and I think we have influence and connections and see that we can make a difference on policy and resources and approach, and which is also true in the disaster setting. So I think that public health nurses, who are then working in disaster, know that it's automatic that if it's being overwhelmed we know that there is a whole system there behind it that can respond, and that we can influence that. Whereas maybe in hospital based nursing, one of my experiences there is that if stuff going wrong nobody seems to care and you sort of work by yourself to sort it out. Whereas the public health network, because it's a smaller network, we work across the network all the time.*

Theme Six Summary

This theme describes the lived experience of the PHNs pre, during and post disasters as one of being able to adapt to and adjust their thinking, and their roles, to the actual and potential needs of their communities. The PHNs' experience of being adaptable is not just a functional physical experience but is one of understanding the need to have flexibility of mind, a way of thinking that is adaptable to the changing scenarios implicit within disasters and emergency situations. This mindset aligns with the PHNs' lifeworld of being a protector. Being adaptors emanates from the PHNs' innate awareness that being flexible is central to their PHN role: it is a core nursing quality as well as being an essential skill in a disaster, when role demands are magnified. Being an adaptor manifests itself in the PHNs' day-to day-roles, due to their many different functions and the expectation that they can work in other roles within public health. The experience of being adaptable was seen as a very positive element of the PHNs' disaster roles. Being adaptors therefore constitutes a core disaster role, which further underpins their protective engagement with their communities during disasters.

Theme Seven: the public health nurses' experience of being unknown protectors

It was posited in the *Background* chapter that PHNs have a low visible presence within the Australian health landscape, relative to other nursing specialties and other health care professionals working outside the sphere of public health. From the narratives the PHNs' experiences of their disaster roles reveals a perception that others do not always know who PHNs are and / or what their roles are. This lack of understanding and knowledge regarding their (disaster) roles is revealed to include their managers, other health care professionals, politicians, GPs and their communities. The experience of being unknown is exacerbated by a lack of understanding regarding the role and functions of public health itself. The experience of being unknown means that, for some of the PHNs their understanding is that they are taking a secondary role in disasters, and also that their roles can be misinterpreted. However this perception has also increased their understanding of the importance of promulgating their disaster roles to their communities. The PHNs were concerned how the actual and potential impact of the experience of being unknown could impact on their ability to carry out their roles and functions effectively in a disaster.

The theme of being an *unknown protector* therefore describes the PHNs' experiences of being unknown within the public health landscape. It reveals a sense of the PHNs protecting their communities from the background, rather than from the foreground. The perception that the PHNs hold that others lack knowledge of their roles, may also apply to other positions held within public health, such as the roles played by environmental health officers and public health officers. However since this research focus is on PHNs, the experience of those in other roles will be acknowledged here, but are not further discussed.

Subtheme 1 - Not being seen and not being understood

The PHNs' experiences in their disaster roles led them to articulate many times that the community, other health professionals and public health itself do not understand what their roles are. Part of this may be explained by the fact that the PHNs don't promote themselves, as Rachel said:

> *I think hospital has no idea what we do…GPs have no idea what we do. We don't sell ourselves very well…to be honest I didn't know what we did until we did the job! So I can understand that, and I think it's a human nature thing that people disappear into their own little silos and believe they're the only important step in the health process really.*
>
> *…There are a lot of things that we do in the public health domain that the average GP, unless they are in that area, has no idea what to look for, or what to test. That's because they just don't see it that often.*

Jane's experiences led her to her current understanding that her managers did not know what her role was, since the role did not fit into a more well-known category of community health:

> *The CEO doesn't know who we are, neither does the director of nursing know who we are. They don't know where we fit, because we don't actually fit under any of those, sort of, community health boxes.*

Vicky understood that, due to the few public health nurses, this meant challenges for individuals taking on the role:

> *It sounds good. But it is hard and it I do wonder…because we know that there is not a lot of public health nurses, you need to have someone who knows what they are doing when they start this job. So it limits you know who you have got, as there isn't a lot of… this position is a sole practitioner, so you don't have anyone that you're working with. I mean I work erm with the public health unit are there, I don't work a whole lot with them, but they are there if I need. But they're not you know, doing what I do.*

Liz's experiences within public health nursing during disasters led her to understand that her disaster role was sometimes identical to her role in non-disaster times, however the lack of understanding by others regarding, '*what public health does',* led to the perspective that PHNs were perhaps not actually doing anything – and being in a situation whereby their role needs explaining during a disaster to the politicians:

> *What I have learnt, [is that] sometimes in disasters we're actually doing the same job, but nobody understands what public health does…so political decisions get made because they think we're not doing anything. So what I learnt out of the 2010-11 summer season is you have to have a proactive plan written fast, to actually explain what you are going to do, and how you are going to do it. So it doesn't matter if it's exactly the same as what you would do normally. The Minister doesn't know that so the trick is a short, sharp document that explains what public health does.*

For some participants, their experience of being unknown means that they have to undertake actions to reclaim/retain their space in public health. Liz understood this, explaining that for her this meant she had to proactively manage the fact that, '*not everybody knows what public health does as they don't'.* Some participants revealed their PHN disaster experiences as being one of not articulating what they do, and what they can do, within the disaster landscape to their own networks, and also to other health professionals. This means that there may be limits to the potential propagation and growth of their disaster role in addition to stunting potential networks and the creation of delays in information transmission between public health agencies.

When the PHNs were describing their disaster roles to me, most understood that their key role was infectious disease surveillance and control, and that during a pandemic they would be the front line responders. As the previous themes have described, and the narratives articulated, the PHNs have many other roles within disasters not caused by disease, such as floods, which they will be required to assist in. What the PHNs also knew however, is that other health care professionals do

not always recognise and/or understand what the PHNs roles are outside of a pandemic or an epidemic, and that PHNs themselves need to promote their public health functions and skills to others in order to publicise their role, as Liz explained:

> *I think because in disasters like a pandemic the roles have now been set and, 'this is what public health does', but in the other spaces it hasn't actually been said what we do, so if we are going to go and do things we have to say what we are doing and why.*

Brianna described that for her being in public health meant taking a secondary role in a disaster, although she understood that public health and PHNs should be involved 'with the acute things', due to their broad perspective and experiences in managing and adapting their roles and skills to different situations:

> *…public health is still taking a secondary role. It's not your first line response, from what I can see in people. It's taking a lot of work to convince people that you actually need someone with the broad skill set, um to be able to, to go in there. Sure you need some people to be…obviously [au fait] with the acute things, because there're acute things that need to be done. But if you're looking at public health you need someone who's got a broad um understanding and experience across lots of areas…*
>
> *I think it's going to be very difficult [hmm] for, for public health nurses, if they want to you know um, to go into disaster um nursing because in my experience…the disaster response for nursing is still very much on the acute.*

Brianna's concern was validated in the quote below by Darlene, whose understanding from her experience in an overseas disaster response capacity, was that public health takes second place behind emergency medical care and that public health always has to justify its existence. She understood that if you have prevented something from happening (such as a disease outbreak) then it isn't there for people to see; this is the 'catch 22' of successful prevention strategies within public health. Darlene also understood that a public health presence in disasters is essential but the skills implicit within public health disaster practice were not always recognised and therefore may not be deemed a priority:

> *I think one of the things is public health isn't always recognised as an immediate need. Like the Philippines deployment – we sent a surgical team and that was great, and it was all very fancy, see and 'look we've done this many operations today, and we did this many tomorrow, and we've seen this many outpatients', but um you're just going, 'but look at all the photos you're sending, look at all the stagnant water. Where is the public going to the toilet? What's happening – there're lots of mosquitos in the Philippines anyway, what about now?' You know.*
>
> *And I know other people were working in public health areas, but I really think that um, it's essential…it's not recognised, because it's not easy to say 'we stopped this many people dying because they didn't get dysentery', or you know, 'we stopped this many people getting malaria' and I think that's really unfortunate. But I think that is across the whole health context, like public health always seems to have to justify their existence, whereas if you're in a hospital…*

Liz revealed in her interview that she struggled, as did other PHNs, with the low level of visibility of PHNs and general understanding of public health:

> *…public health nursing is lost in public health space, and public health in general isn't very well understood in this space.*

Liz's experiences in her PHN disaster role left her frustrated by the focus on individualised care to the detriment of preventative health, which as she describes (below) results in the situation of being asked to 'fix' something in a disaster which should have been addressed way before it had got to the point where it needed fixing:

> *You know because we have a culture that is individual care based, and while you have an individual care focus…what I find is that that they [people] don't worry about preparedness until it taps you on the head…and when you get into the event, all of a sudden they want you to fix it, which you should have fixed it back here...*

The PHNs' experiences of not being understood is revealed in their frustration regarding the interference of politics within their disaster roles and that politicians appear to have their own agenda during disasters due to an apparent lack of understanding regarding what public health's role is in the disaster space. While this situation may not be unique to PHNs or nurses, it did reveal concern: Joanna cites her frustration at the government's approach to disaster response during a large flood:

> *it's highly politicised. It's very risk management driven umm. I don't think it used to be like this…the government always wants to be perceived as doing something, like actively doing something, so they will throw money at things. I remember the floods and they had people driving around trying to give out flu injections, I think it was, when really they should have been driving around giving out maybe some tetanus, you know that would have been more practical. But… they just need to be perceived as doing something, so sometimes I don't think you can be as effective in a disaster situation because the government have their own agenda* (Joanna).

Liz raised similar concerns regarding a (different) vaccination program which was carried out also following a flood event, which she considered reduced the effectiveness of her role, since her perception was that the government had a different agenda to that of public health:

> *Um in the 2010-2011 floods we ran tetanus vaccination clinics in [location removed] after the floods. They did it in [location removed] and they are political decisions umm…whether that was really warranted or not, there's questions that were raised about that, but the decision was made* (Liz).

Subtheme 2 - A lack of identity

The PHNs' experiences have led some them to consider that there is a lack of identity within their roles. The PHNs' concerns regarding their identity is relevant to the discussion of their disaster roles since if they are not recognised or are misunderstood as a profession, then they may miss out on the development of, for example: relationships, activities and education opportunities, which may assist them in a disaster by strengthening their roles. In other situations their disaster roles

may simply be undertaken by others, or their advice not sought, due a lack of awareness or misunderstanding of their skills. Matt, for example articulated this is a concern he holds and he connects this concern with the possible death of public health nursing:

> *I think maybe there's a lack of definition or a lack of um, identity for public health nursing…I think there is definitely a role for it, ah and I think it would be very sad indeed if there wasn't, ah if public health nursing was to die a slow death…*

As the PHN quotes above show, it is commonly understood by the PHNs that their PHN disaster roles are not always recognised. Brianna's understanding was that PHNs had a very low profile on the national scale, and for her this low profile was partly due to the small size of the public health workforce. This meant that in disasters, often the more visible operational component of public health had to be handed over to the acute services. Brianna felt that this delegation of core public health function thereby reinforced the confusion regarding who does, and what is, public health:

> *And it's very difficult you know for the public health nurse to, to have a say, because we're not recognised we don't hold those um, those leadership positions…*
>
> *… public health nursing is a small workforce. So we do not have the capacity to go out and be the operational um, force out there…so that has always had to be divulged out to um, the hospital and health services to provide nurses on the ground to do it. We…provide strategic advice.*

Brianna's experiences led her to voice concerns about the identity of PHNs, particularly that they are being 'boxed' in and 'siloed:'

> *It's very hard at the moment because public health nurses are pretty much um, sort of boxed into communicable disease control. There were some public health nurses who just do communicable disease control and outbreaks, and then there's another group of nurses – public health nurses – who are immunisation nurses, and they just do purely that. Some…of us have…had the experience to work across both, but it's a bit more, um, siloed.*

Liz, while discussing the PHN unit working arrangements, mentioned that it was a siloed approach and the nurses themselves caused issues regarding supporting themselves as a profession:

> *…there is immunisation nursing and communicable disease nursing and they don't click together and each unit is different and then you have a Dr at the top so you have kind of got silos within a very small group of people and very distinct pieces that they do and they work alone…with the designated positions a little bit siloed so it's challenging and nurses are nurses and we can never agree, and we can never support each other.. so we are our own worst enemy in a way as we can't pull together, we will pull apart.*

A lack of knowledge about PHNs' roles was understood as a problem for the PHNs when they needed to carry out important activities during a disaster event, such as surging their numbers to enable a rapid response to an outbreak.

Liz from her experience considered that PHNs had a large role to play in the disaster space but just did not see that role very well:

> *I think that some of the challenges to nurses in public health is actually moving into that space, as you have to think about this stuff. To me nurses…you know you can see the risk…you know measles turns up, influenza turns up, salmonella.. if you have an outbreak of salmonella or rotavirus or norovirus into an Evac [evacuation] centre that is pure food handling.*

Jess was concerned that not only did people not understand what her role was, but that assumptions would be made regarding what her role consisted of:

> *I think a lot, a lot of people aren't that aware of what we do um, or they're influenced…especially clinicians…they're influenced by how the systems work in other states, and they might…make assumptions that, you know, the public health role here is the same as in [locations removed]...we do operate a little bit differently.*

Brianna concluded from her own research, that public health meant different things to different people:

> *There is inconsistency, um across Australia, with…public health as such…when I was doing this body of work last year, [about] 'what does public health mean?' And as you do the research, as you pull off the literature, public health can mean different things to different people.*

However Brianna was quite clear, as were the other interviewed PHNs, what her role was and where her role sat in public health space. Doubts regarding the PHNs' identity and actual roles did not seem to emanate from the PHNs' narratives. They understood that the lack of awareness and misconceptions surrounding their roles and the meaning of public health was external to themselves. The PHNs agreed on the scope of their roles, for example the global approach Brianna articulated was described across all the PHNs' narratives as was also explored in Theme One, a *public health mind*:

> *… public health still to me should be that, that more global um approach. That preventative thing, to working with the community and stakeholders, to um to really look at promoting health, sustaining and maintaining the health of your population.*

However despite the degree of conformity within the PHNs, they were surrounded by a grey shadow of public health which left some of them feeling a little insecure: for example Becca considered her role tiny within the entirety of public health: '*Public health is huge and really I'm just one little cog in a big wheel I feel'.* Liz stated bleakly: '*Public health is very grey,'* meaning that it is not always obvious what is required of it by both those working within public health.

Subtheme 3 - PHNs making a difference

PHNs may have low visibility in the public health space, but this does not mean that they consider themselves powerless. In fact in the following quote, Antony's experiences revealed that he

understands quite the opposite, the small scale of the public health network means that knows that he can make a difference in the disaster setting:

> *But in nursing in a hospital I think you don't have much power and much influence, but in public health nursing I think it is different and I think we have influence and connections and see that we can make a difference on policy and resources and approach, and which is also true in the disaster setting. So I think that public health nurses, who are then working in disaster, know that it's automatic that if it's being overwhelmed we know that there is a whole system there behind it that can respond, and that we can influence that. Whereas maybe in hospital based nursing, one of my experiences there is that if stuff going wrong nobody seems to care and you sort of work by yourself to sort it out. Whereas the public health network, because it's a smaller network, we work across the network all the time.*

Liz's experiences in disaster events led her to understand that PHNs could be more proactive and have a bigger vision for future disaster events such as heatwaves:

> *It's about putting ourselves in a space that we are able to manage, cos if you have an outbreak of malaria that took off, or if you had an outbreak, then we have to try and respond to that. Now it's not classed as a disaster, but public health respond to pretty major outbreaks, which are what we do for bread and butter you know: outbreak of foodborne illnesses, um measles outbreaks in correctional facilities, they have the potential to be massive…*
>
> *And we are not proactive with heat, huge. And heat, I mean I think public health could be more involved in heat, it's about people looking after themselves in the community and how do we stay there. I mean I have a particular interest in heat because it will kill more people than anything else. We get a big enough one...I mean you guys [the researcher] come from Adelaide; you have them all the time. You have done some interesting stuff down there. Here, they are absolutely blasé about it.*

Brianna's experiences meant that she considered there were a lack of career pathways for PHNs and that there was also a lack of leadership. Brianna thought that PHNs could build their capacity so they were representative at meetings and also on the existing public health boards. PHNs would then be part of the public health decision making landscape alongside doctors:

> *I think that if we had a career structure within public health, which allows um, entry points at a fairly novice level, you know um, and we can build it up, we can actually allow public health nurses to experience the operational side, and as they build up skills and experience, then we can become…we've got a professional stream to follow, to either become clinicians… there is no stream in…[name removed] health.*
>
> *And my understanding even across, ah across Australia…where we can actually build that capacity for public health nurses, there's a, to me, there's a wonderful opportunity to expand the role of the public health nurse in Australia, where we can actually stand up and say 'yes I'm a clinician here, or I'm a, I'm actually you know a leader and a manager in public health'…our model today is still a very medical led model.*
>
> *And that's where I think that once our role…once we've built up our role and recognition at, um at national level um, you know as public health nurses, you sit on CDNA, you sit on you know the AHPC – they're all doctors, um and, and it's very*

difficult you know for the, the public health nurse to, to have a say, because we're not recognised, we don't hold those um, those leadership positions.

Theme Seven Summary

The theme of being *unknown protectors* describes the PHNs' understanding of their roles as one of being somewhat anonymous within their public health landscape. The PHNs understand that simply carrying out their roles well does not necessarily equate to their communities understanding and / or recognising what their roles are. Being unknown also extends to the professionals around the PHNs, which includes their managers, politicians and other health professionals who do not know or fully understand the PHNs' public health disaster roles.

For the PHNs the experience of being unknown therefore manifests itself as a lack of identify which contributes to limiting others understanding regarding their actual and potential disaster roles. Being unknown is exacerbated by a perceived lack of understanding of the roles and functions of public health itself. The PHNs' perceptions from their revealed experiences is that they need to network, promote and educate their communities, and their own profession, regarding their public health roles, so that in a disaster situation their presence and actions will be better recognised, understood and therefore more likely to be effective. Being unknown also extended to the PHNs consideration of projecting their skills forward to consider the impact of less traditional PHN areas such as heatwaves upon their communities.

The PHNs also recognise that in order to communicate effectively with groups and individuals within their communities, it is important to instil trust. This also applies to other health professionals, relief agencies or responding bodies with whom they are likely to interact with in a disaster. The PHNs understand that if they are a known and trusted group of health professionals then it will be easier and more effective to engage with their communities, and other responding agents, in a disaster. The theme of being unknown also describes the PHNs understanding that their position of being in a smaller professional network means that it is easier for them to make a positive difference in the disaster preparedness and response environment.

Chapter Six Summary

This chapter describes the seven themes which emerged from the participants' narratives. These themes are all informed by the fundamental characteristics of the primary theme: a *public health mind* which describes the way in which the PHNs inhabit, understand, experience and interpret their PHN lifeworlds in the context of disaster preparedness and response at the level of the population. Having a public health mind both informs and underpins the PHNs' worldview of health provision and health protection for their communities.

The themes in this chapter reveal the PHNs as having an eclectic group of skills and functions which they apply to their disaster roles to carry out holistic health care at the population level of

health. These skills are revealed within the themes of; *being sentinels,* being vigilant to disease and health threats and *making sure* that their communities were protected; *being advocates* for vulnerable communities and individuals; *being bridges and connectors*, linking communities with information and bridging/transferring gaps in knowledge; *being adaptors*, adapting and being flexible to the changing needs and expectations of their communities, other involved agencies and to the changes extended within their own PHN roles; and finally the PHNs' experience of *being unknown*, or unknown protectors, for their communities and their own profession.

The following Summary Chapter Seven brings together all the themes and findings from this research.

CHAPTER SEVEN – HORIZONS OF EXPERIENCE

Overview

This chapter brings together all the major insights which emerged from the participants' interviews. The preceding two *Findings* chapters revealed the results from the in-depth interviews undertaken with the research participants. From these interviews and my pre-understandings, I was able to provide insight into and make known what this group of Australian public health nurses understand their experiences are of being a PHN in disaster preparedness and response, and what this means to them.

This chapter considers all the information from this research and discusses it in relation to the revealed themes and the available background information and research. 'All' (consistent with the philosophy chosen for this research) includes everything which has informed this project: the background review and the interviews, as well as that which I brought with me, my pre-conceptions and understandings, from which I both initiated and interpreted the research. This chapter discusses the findings: the themes revealed by the PHNs' experiences of being in a disaster. The themes are then summarised and discussed in relation to existing literature.

Introduction

This study has been dedicated to exploring and understanding the lived experience of Australian public health nurses' roles in disasters. The research drivers and rationale in brief were: the literary gap in this area; the call for nurses to be disaster prepared; the lack of disaster training and education for nurses; the increasing impact of disaster events past and future and the low visibility of Australian public health nurses within the health landscape. Additionally there are future uncertainties posed by for example: an ageing population; population growth; migration to risk areas and climate change. The psychological and socio-economic impact of disasters creates an increasing awareness that health responders and disaster agencies need to be prepared for unknown and unpredictable future adverse events.

The interpretive framework for the research method drew upon both Heideggerian and Gadamerian hermeneutic phenomenology. Integration of these philosophies enabled me to reveal the essence of what it means to *'be'* a public health nurse in a disaster, and also to achieve *understanding* of being a public health nurse from interpretation of the lived experience. As I engaged in the research I was cognisant of the fact that phenomenology, as van Manen cautions:

> *is primarily a philosophic method for questioning, not a method for answering or discovery or drawing determinate conclusions. And that it is never just an engine that will unerringly produce insightful outcomes* (van Manen 2014, p. 29).

My expectations of the research outcomes were aligned within the context and the reality of this knowledge. My role as researcher therefore was to gain understanding of the phenomena of being a public health nurse in a disaster and to describe this understanding, and what it means, through a phenomenological lens. The phenomenological engagement provided insight into the PHNs' roles. Understanding the PHNs' disaster experience within their communities, and how they themselves understood and interpreted their disaster roles in preparedness and response, became part of the main findings of this research. This understanding is important: any individual can be given a role in a disaster, but understanding how they would interpret and carry out this role could provide insight for managers, planners, educators and nurses into the particular way PHNs understand, practice and deliver their care.

The findings resulted from in-depth interviews with 18 public health nurses dispersed across Australia. The chosen methodology achieved rich, detailed and in-depth accounts of these nurses lived experiences. As Gadamer (1975/2004, p. 303) said, '*the task of hermeneutics is to clarify this miracle of understanding, which is not a mysterious communion of souls, but sharing in a common meaning*'. My task therefore within this research was to present the common meanings, the themes evinced from the PHNs' narratives. These findings resulted from my engagement in a hermeneutic dialogue with the information from the PHNs' interviews, which was presented in the form of seven themes.

The themes were drawn from the PHNs understanding of what being a public health nurse meant to them; what their understanding was of a disaster, and what their understanding and experience was of their roles in disasters. One is dependent upon and informs the other. While core nursing skills do not change in a disaster, the skills and scope of skills may be extended or adapted since they lie outside the usual range, but it is the environment and resources which change and also the individuals with whom they interact (Gebbie, Hutton & Plummer 2012; Gebbie & Qureshi 2002). With this knowledge in mind it was important to first understand what the PHNs understood disasters were, since it is disasters which create the altered environment the PHNs work within, which inform their experiences.

A public health mind

It was apparent that the PHNs' lived experience of their disaster roles, remains innately connected to and informed by their culture of nursing. The PHNs' experiences of their public health life-world revealed that they carrying out their public health roles while embracing the multivarious challenges of a community role. These roles are informed by: their nursing background; nursing values and allied precepts of illness prevention, health protection and caring for all individuals, as identified by the following ICN nursing definition:

> *Nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups and communities, sick or well and in all settings. Nursing includes*

> *the promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are also key nursing roles* (ICN 2015).

The principal theme, having a *public health mind,* reveals the experience of having a specific way of thinking which both informs and describes how the PHNs experience their disaster and preparedness roles, their worldview. Having a *public health mind* evolves from the PHNs' backgrounds and training in curative, individualised-based nursing and the reorientation of their thinking to address the challenges associated with providing health care at the population level of the community. The nurses' experiences reveal they apply the same protective, nurturing, holistic set of nursing principles which they apply in the curative sector, but at the level of the population. Having a *public health mind* evolves from, and incorporates, the eclectic skills of: broad, big-picture thinking, '*thinking outside the square'* (Traci) or just being able to '*think differently'* (Vicki). The PHNs' understanding of their roles is one of being able to think laterally about issues, mobilising their intrinsic protective abilities to risk assess situations and to consider the 'what if' situations presented by disasters. These skills are also a necessary pragmatic adjustment to their lived space, illustrating the PHNs' adaption to caring for and protecting individuals across the multiple layers of complexity and dimensions which comprise their communities. Essentially these findings represent the PHNs' worldview of their experience and understanding of their disaster roles.

An understanding of how the PHNs' background experiences inform their present mindset (their horizons), can be understood by looking at Gadamerian hermeneutic philosophy. Gadamer (1975/2004, p. 317) stated, 'the horizon of the present cannot be informed without the past.' The PHNs have transposed their thinking from their nursing experiences into their present roles in the community, their public health mind is therefore still being informed by their nursing 'historicity,' their pre-conceptions from their previous training and work in curative health and elsewhere. Therefore the PHNs' new horizon at the population level of health is an expression of their:

> *superior breadth of vision…To acquire a horizon means that one learns to look beyond what is close at hand - not in order to look away from it but to see it better, within a larger whole and in truer proportion* (Gadamer 1975/2004, p. 316).

Traci described her understanding of how she translated her nursing background into her PHN thinking; she understood how the roots of her nursing practice led to her current capabilities in public health:

> *'cause you think past what you're actually doing, we're nurses, you know. We have to look after the whole patients. So you sort of think outside that actual one, sort of, feature…and so, you know, coming from clinical background over to here I think had that same level of thinking. So you bring that with you. So when you're in a public health situation…you can think of a few scenarios, as opposed to just focus on like my one role. I can sort of be thinking like 'OK, this has to happen, and this has to happen, and this has to happen'…I think that you recognise problems…more than*

one problem, and you sort of can think 'this might be a situation, how…?' you know, before it starts.

Although the PHNs spoke of their roles moving from the acute care sector to public health as being an '*expanded universe'*, *a 'paradigm shift'* and not an '*easy transition',* they did not negate their clinical nursing roles, since they understand that their backgrounds are highly valuable in their current PHN roles and contribute to their disasters skills. Matt, for example, said although he did not need to be a nurse for his current role, he '*thought like a nurse'* and had brought his skills with him into the role. Jess found it beneficial having a nursing background, since it provided her with the capacity to manage multiple scenarios, rather than focusing on one role. Liz's understanding was that although you don't need to be a nurse per se to respond in a disaster, she considered that nurses' skills and knowledge enabled the kind of critical thinking and decision making - for example around issues of prioritisation - which made them very useful in a disaster. Darlene noted the holistic insight that nurses provide when looking at an issue, for example following a traumatic event, where a nurse may think to activate a mental health plan, in addition to dealing with the immediate physical health needs.

The examples the PHNs provided to me regarding where their nursing experience and skills came into their roles were not to provide evidence of the relative usefulness of employing a nurse in a disaster relative to a non-nurse. These were the PHNs' reflections regarding their disaster roles as they emerged during the conversation, regarding how they carried out their disaster role. However these skills that PHNs bring to public health disasters are important to recognise so that they can be valued and nurtured. Non-nursing managers may not understand, have time, or be interested in the subtleties of these skills and the relative transference of skills and knowledge; hence it is important to articulate these skills to create awareness of what this group of nurses can do for informing future policy and education for nursing practice. An epidemiologist, for example, when collecting and analysing disease data in a disaster may have a quite different perception regarding the end use of the data and the way it is used to a nurse. This, in turn, may influence the way it is collected. An understanding of how individual disaster responders consider their disaster roles makes for greater efficiency. Furthermore, understanding the PHNs' thinking which informs their disaster roles may prevent replication of efforts by others of work the PHNs may already be undertaking, for example 'risk assessment', whereby the PHNs, by not using this term to describe their actions, risk the value of their efforts being overlooked.

Participant Joanne commented that she did not think that all nurses could carry out the role of being a PHN, '*it's not natural in every nurse'.* She stated that you '*need to have a public health mind'.* This perhaps indicates that some nurses are not suited to, could not adapt to, or would not understand this quite different '*unique*' type of nursing. Given the small cohort of PHNs within Australia, knowing which nurses would have aptitude for this type of community role and would volunteer, rather than being volunteered, would be beneficial for planning for surge capacity, for

example during a pandemic. Although surge roles are temporary, nurses who understand the concept of population health, and who can adapt quickly to a population level of thinking and have a broad vision, are more likely to carry out their roles effectively. An understanding of this way of thinking, may assist the education of health professionals and nursing students who do not understand the difference between how public health nursing operates within the community, relative to individual level nursing in the acute care sector.

As described in the previous *Findings* chapter, for the PHNs having a *public health mind* relates to the Heideggerian concept of '*dasein*' It represents the centrality of PHNs' thinking and their 'obligation' to care for their communities. The PHNs were revealed to be in a situation of protective engagement with their communities. Therefore the 'bigger-picture' of health, in which PHNs operated, was recognised as being a default position. To an extent, they are involved whether or not they wish (due to their culture of nursing and the caring protective nature of the PHN roles) as Lynne acknowledged:

> *So I think that's the interesting thing with public health [nursing]. Whether you want to get involved, in the bigger picture, or not, you automatically are, because it's the nature of public health. Um, yeah – nothing is as simple as, you know, 'all this is mine, and they live here', and you know…'they're never going to come in contact with anyone else in the world', because that's just not what happens.*

The theme of a *public health mind* describes the *dasein* of the PHNs' lived world, it is the locus from which the other themes are underpinned and inextricably entwined. The remaining six themes: being *sentinels*, *advocates*, *adaptors*, *bridges* and *connectors, making sure* and being *unknown protectors* are all related to this central theme of the *public health mind.* These themes represent the drivers for and also describe the ways in which the PHNs manage and carry out their caring protective nursing roles in the community. Together the themes all inform the PHNs' understandings, drive their experiences and are their raison d'être for their delivery of their disaster roles at the population level of health in the out-of-hospital setting.

Being sentinels

The PHNs' sentinel roles reveal them as being protectors, guarding their communities by being vigilant for actual and potential health threats. The PHNs were unified in their understanding that they have a key role in disease surveillance for communicable diseases. They understand their sentinel role has a dual function which is to protect individuals in the community during a disaster and also to keep individuals out of hospital.

> *The whole purpose of disasters with public health [plans] is to reduce the impact on health services and to try and keep the people, the community as healthy as possible so they can recover* (Liz)*.*

The PHNs therefore are being sentinels not just for the individuals in a disaster but they also extend their protective gaze to the whole community. Being sentinels reveals the PHNs as being

resourceful, thinking eclectically, using their *public health mind* thinking to find solutions for problems and looking ahead to check for risks within and across the large geographical and societal spaces they are charged with protecting. The PHNs' roles of being sentinels means looking for patterns in disease or illness: they spoke about being '*disease detectives*', '*joining the dots*' and being '*hoarders*' and *'gatherers*' of information. The PHNs described heading into the community to '*actively seek'* information during flood events, to establish a clear picture of what is happening on the ground, for example during dengue and gastroenteritis actual and potential outbreaks.

The PHNs' lived world of being sentinels is one of protective vigilance, being in a continuous dynamic relationship, watching their communities across time and space to consider potential risks to minimise health threats. The PHNs' surveillance roles are not static but dynamic and interactive, they engage with their communities to identify health threats to their communities, from which they can take action. Within this lived world vulnerable populations and individuals are identified. The PHNs' surveillance activities lead them in a to-ing and fro-ing of questioning, gathering information, interpreting patterns of disease and scenarios of disease emergence; simultaneously looking at strategies to reduce their spread and impact within communities. In their roles as sentinels, the PHNs transpose themselves into the perspectives of the public and the health care providers with whom they interact to reveal their understanding of disaster issues and diseases.

Being vigilant for disasters is part of the PHNs' protective role, this is revealed in their lived experiences of being sentinels for their community by: being concerned about risks and making sure that all is well by communicating relevant health information, by advocating for those potentially vulnerable to an outbreak and by adapting to the demands created by an outbreak response. Being a sentinel incorporates the quality of being vigilant as its core function and activity.

Research into 'vigilance' may inform thinking about 'being sentinel.' The experience of nurses' vigilance was researched by Kooken and Haase (2014) who were interested in understanding its role in reduction of error rates for nursing practice. They defined vigilance in health care as being *'the degree to which a knowledgeable watchfulness occurs between persons in response to a threat*" (Kooken & Haase 2014, p. E16) which draws parallels to PHNs' sentinel activities in their communities. Kooken and Haase (2014) recognised the central role of vigilance in nurses' daily practice to protect their patients, observing that it is a complex phenomenon which is not well understood and the experience of which has been little researched. The authors also found that vigilance can become so 'ingrained' into the nurses' day to day roles that they are not always cognisant to the fact that they are actually being vigilant; in effect they carry out the role automatically. This finding lends weight to this research since it provides greater insight into the PHNs' lived experience, and the complexity of describing their public health disaster roles to those outside of public health practice, when a key function they undertake, such as being sentinels, is

something that is ‘just done’. This is nevertheless an important skill to identify so that in education programs its significance is recognised and can be nurtured within nursing practice. The PHN’s vigilance may also be part of their PHN experience of being *dasein,* their default position of care whereby their vigilance is innate, being part of their protective mandate.

Kooken and Haase (2014) understood that nurse training and practice are integral to gathering and seeking the information nurses need to respond to threats (akin to the hoarding and gathering of information described by the PHNs). The authors described in their study how nurses tried to recognise threats or potential threats early to avoid bigger threats and problems which may occur later which concurs with the experiences of the PHNs in this study. Kooken and Haase further noted that the nurses managed their level of vigilance, adapting it to the nature of the threat. The greater the threat the more vigilant the nurses became and, importantly for this research, the authors stated, ‘*in complex systems, which are ever-changing and unpredictable, nursing vigilance is crucial because it is adaptable*’ (Kooken & Haase 2014, p. E23). The ability for vigilance to be a flexible skill correlates with the PHNs’ lived experiences of being adaptors. The PHNs revealed being flexible and able to adapt their roles, including their sentinel activities, to meet the needs of their communities. More research into the area of sentinel activity, with its similar qualities to vigilance, would perhaps enable greater insight and greater understanding regarding what factors impede or enhance this central activity and qualities of the PHNs’ disaster roles.

The theme of the PHNs being *sentinels* is also of interest for other professionals and agencies working in the area of disaster relief, given that the central role of disease surveillance within public health protection is a priority for communicable disease control. The challenge to the PHNs is to ensure that their sentinel activities are better recognised and understood in order to reduce the PHNs’ current understanding of their roles being unknown and potentially misunderstood by other agencies, as Rachel articulated, ‘*people don’t understand what we do and they have no idea about what we do or how we do it.*’ Such perceptions could serve to reduce the effectiveness and efficiency of the PHNs’ disaster roles.

Making sure

This theme describes the PHNs *making sure* that their communities were protected from the actual and potential health consequences of disasters. This involves *making sure* that actions are taken to protect their communities from adverse health events. Gadamer’s concept of horizons is particularly useful to provide insight into the PHNs’ thinking around this theme. Disasters can be considered as an event, or an encounter, that the PHNs need to understand in order to be effective in their preparedness and response roles. Public health nurses can only see into, or understand, a disaster as far as their knowledge permits. Therefore once they have been educated about, or experienced a disaster, their horizons are expanded and it is possible at this point for them to engage in preparedness and response activities. The experiences that the PHNs revealed to me

about their disaster roles were that they strive to 'stretch' their horizons in order to deal with the potential risks and disaster scenarios occurring in their communities. This 'stretching' is exemplified by their outside-the-square thinking that enables the PHNs to extend their thinking forward in time to continually engage in a consideration of what the actual and potential impact of events may be and which may lead to disasters. For example when Tony considered the implications of the home quarantine policies within his indigenous communities, '*well what does it mean, home isolation in an aboriginal household?*'

As Gadamer wrote:

> *the concept of horizon suggests itself because it expresses the superior breadth of vision that the person who is trying to understand must have. To acquire a horizon means that one learns to look beyond what is close at hand - not in order to look away but to see it better.*

The theme of *making sure* evinces the very human and caring part of the PHNs' experience of their disaster roles. For example, participant Rachel describes going into a flood affected suburb. One of the reasons for this visit was so that she could *make sure* that the community knew that they (the PHNs) were still looking out for them, that they cared. The PHNs wanted to *make sure* that their health concerns were still important within the bigger disaster picture around them; they had not been forgotten. As Rachel said:

> *It was a case of touching base with the community and making sure that they knew that we were still interested and that we cared what happened to them, that this was a significant illness on top of everything else that was going on.*

This theme sat within a framework of the PHNs' understanding their communities and being able to engage with them to address identified disaster risks. *Making sure* represents the continual investment of energy by the PHNs into ascertaining the health status of their community; their PHNs' engagement is to ascertain what actions they may need to take to 'pre-empt' or prevent adverse health issues. For the PHNs *making sure* is a core experience of their disaster roles, for example, making sure that evacuation centres are resourced and that vulnerable individuals are being informed about disease threats and that their communities are aware of actual and potential health risks.

This theme again reinforces the protective, nurturing quality that the PHNs apply to their disaster roles. *Making sure* describes the PHNs' practice of continual risk assessment for their communities and their actions stem more from their background training in nursing, than from a risk management driven approach. The use of 'lay' language, rather than the use of disaster and risk management language, indicates that *making sure* is an intrinsic part of the PHNs' day-to-day role, a verbal projection of their protective roles. Or perhaps the PHNs' lack of enthusiasm for what Jess termed *'that disaster management speak.'* Further noting that *'it was all a bit abstract I could not relate it to our own framework.'*

Understanding the language used by the PHNs may serve to reduce confusion or overlap of roles with existing disaster responders if, for example, PHNs are using different names for their actions and undertaking their roles perhaps similarly but using different terminology. Better clarification of the disaster PHN role could reduce confusion and replication of work, as well as serving to enhance understanding between responding agencies and PHNs themselves. This is discussed further in the *Recommendations* section.

The issue of needing to build a rapport with their community is revealed by the PHNs as being important to make sure there is trust between themselves and their communities to create understanding about the role of public health during disaster events. The PHNs realise that public health is something that needs to be explained and that the process of community engagement is for the benefit of everybody:

> *…we've invested, cause we know that…it will be to our benefit...whenever it's needed…we can't operate in a goldfish bowl, and we can't get this ivory tower syndrome, where people are coming and saying… "Oh, you need to do this". "Well why?" "Public health said so." "Tell them to get lost. Who are they anyway? We've got no idea who they are"* (Sophia).

The theme *of making sure* is therefore a two way risk assessment and community education process. *Making sure* means taking action to ensure the community understands what public health is and what the PHNs' role is in relation to their disaster needs. Sophia described that her role in disasters included investing knowledge and understanding about public health, public health nurse roles and other health care professionals into her community. She described how her experience in public health was one of building relationships in her local area. Sophia conducted presentations on public health, for example to staff in hospitals and GP practices, '*so there is a face to public health.*' Sophia articulated that this investment benefited both the PHNs and the community and was about '*the dynamic of working with people rather than doing unto people*.' She had no illusions that in a disaster PHNs would struggle to be listened to, unless she and her PHN colleagues worked with the community beforehand.

It is important that communities have trust in the public health system and the information it provides so that consumers can make informed and prospicient decisions regarding their health. Research has shown that when advice provided by health care professionals is trusted it is more likely to be accepted, acted upon, and result in positive experiences related to clinical outcomes (Meyer et al. 2008; Ward et al. 2015). Distrust can result in huge and costly consequences for society. People who distrust public health are less likely to engage in preventative services and comply with health information and advice given during a disaster (such as quarantine measures and vaccinations) or receive general health advice post disaster. This will result in an increased burden on already overloaded acute care services. The PHNs' understanding of trust and their recognition of its importance for successful outcomes following communication is revealed in their

narratives of their disaster roles. Rachel for example talked about building trust in communities, she talked about trying to achieve a balance between understanding community expectations and what was considered acceptable and also maintaining trust. Rachel described having to '*bend on different skills'* which required being resourceful and using the public health mind thinking strategies, such as outside the square thinking, to achieve these goals: she said *'you have to get them to buy in'* or you run the risk of losing their trust. Some of the PHNs showed strategic insight when describing their community interactions, recognising that it was important to develop a relationship with their communities so that when a disaster occurred, they would know who public health are.

Liz had experienced many disasters: she had instigated post disaster surveillance strategies which informed her disaster knowledge regarding risks for her community in subsequent disasters. She was able to inform the affected populations, and other assisting agencies and health professionals, regarding possible risks they may encounter, thereby making sure they could be protected. Liz was one of the most senior and experienced PHNs interviewed; her perspective on disasters always led back to the community, and understanding the way communities worked. Liz's understanding of her disaster role in the area of *making sure* was to '*have a community organised and ready to go into a disaster.'* Resilient communities was not a strong theme identified within the PHNs' narratives, however this did not mean that the PHNs did not consider its value. Resilience was not a focus of the research questions and it may just not have been expressed in the interviews at that point in time. However Liz revealed in her narratives that she considered this was the way forward, for public health nurses to invest in resilience strategies within disaster preparedness and response.

Being advocates

Being an advocate is a core nursing role and this does not change in a disaster. The participants' narratives evince this theme; as Antony stated when talking about looking out for vulnerable populations '*that's sort of our day-to-day work for public health nurses…so we take our knowledge and understanding, and take it into other settings and into the disaster setting.* There was awareness of a greater focus in contemporary disaster response management in advocating for vulnerable populations as Antony said:

> *In the past disasters were more focused on doing the best for the most, and bugger the rest. It's now more changing into a vulnerable populations approach and nurses and health care workers have been a part of that.*

The PHNs drew on their experience and knowledge from their nursing backgrounds in order to recognise who the vulnerable populations and individuals were in their communities and extrapolated this into the bigger, health risk assessment picture. Tony spoke about isolated

communities, aboriginal families, lower socio-economic groups and individuals who were living in higher risk areas:

> *the poorest people always live in the most dangerous areas, and they are down by the river and their houses get flooded, poor people, not the rich people living on the hill.*

Other PHNs described being aware that the individuals with low literacy were more likely to be adversely impacted in disasters. The PHNs also revealed their awareness of how individuals under duress struggle to absorb information so that during a disaster event the PHNs carefully constructed health messages being cognisant of these issues. The PHNs spoke about the strategies they implemented recognising individuals or communities at risk therefore *making sure* that these vulnerable groups were known about and looked after. The PHN roles as being advocates in a disaster was one of creating awareness of the existence of vulnerable groups and directing action towards protecting them as Vicky describes below:

> *look people living down that end of town, you need to be aware if their houses flood this can be the risk. You need to talk to the council to make sure they have got their pumps ready. People need to be aware they may need to move out. You need to start, if it does occur, here's the surveillance sheet, so, if we start seeing gastro we know about it early and we can do something about it early*

The PHNs reveal their understanding that they may need to be advocates for responding agencies who were involved in disasters. For example Rachel describes assisting with a gastroenteritis outbreak which occurred in a repair crew who were assisting in the recovery effort. Therefore the populations whom the PHNs are protecting in their disaster roles can be extended to anyone who is involved in the disaster response, as to well as those individuals and groups who are already working, living in, or are deployed to the disaster area.

The PHNs' experience of being advocates revealed their desire to have a physical presence in their disaster struck community. The PHNs wanted to be 'inside' their community, where they could carry out face-to-face, situational assessments. The ability to be contact with their communities during a disaster was something the PHNs identified as being important to them. This was both from a practical perspective of being able to conduct real time assessment, as Rachel said above, '*it was great as it was very hands on…it gives you a physical view,'* rather than being on the phone in their office, one step removed. Being close to the community they advocate for was considered desirable by the PHNs, since it brought, as Matt stated, '*the humanistic side, I kind of feel I bring to the area,'* into their PHN experiences. The PHNs also understood that their community recognised that they were advocates for them and were willing to liaise with the PHNs post disaster, as Rachel observed the community were:

> *…more than happy and willing to let nurses into their zones.. to hear what they say and get advice and you know heed advice and turn up to get their bloods done…as they see you advocating for them basically.*

The PHNs revealed their experiences of looking after their communities during the immediate post disaster phase for those individuals who were trying to rebuild their lives amongst damaged infrastructure. The PHNs understood that many individuals post disaster are in need of attention and advocacy due to the revealed phenomenon of post disaster neglect. The PHNs understood that post disaster neglect created vulnerabilities within their communities which meant using their skills of surveillance and engaging in health promotion activities to avoid an increase in hospital presentations from preventable illness and injuries. The mud army is an example of a group of individuals who were recipients of the PHN advocacy skills, post disaster. The roles of the PHNs in this situation were to prevent a disaster within disasters, as well as to reduce any extra stressors on an already overloaded hospital system. Several PHNs described their sentinel activity and experiences of protecting these post-disaster, potential disaster groups and their specific vulnerabilities. They acknowledged the potential extra hospital burden created by for example admissions for dengue fever, eye infections and chainsaw injuries which they saw part of their roles as preventing.

Being an advocate was described in the phenomenological research paper '*Revealing the Voices of Public Health Nurses by Exploring Their Lived Experience'* (Joyce et al. 2014). Joyce et al's. study established a theme of 'advocacy,' which described the PHNs speaking up for those individuals in their community who struggled to be heard, as well as speaking for themselves. Joyce's research therefore concurs with some of the results from this study and lends weight to the potential for other research to investigate public health nurses experiences of their day-to-day roles and functions and the transfer of these practices to disaster events.

There were many different examples within the participant narratives where the PHNs understood that their experiences of their disaster roles included being advocates. For example mass gathering events where the PHNs recognised the need to mitigate risks by establishing preparedness and response plans. The PHNs also understood the need to monitor the actual and potential health issues which arose while working at these type of events.

The role of all the PHNs relates to being an *advocate* for their communities within disasters. It is inherent in their nurse psyche, their *public health mindedness* and part of their lived experience of being a public health nurse. The PHNs' background training in nursing predisposes them to this role…as Antony articulated, *'that's sort of the day to day work for public health nurses';* and as Matt stated PHNs ensure that for vulnerable groups, *'there's a voice out there for them.'*

Being connectors and bridges

The PHN's understood that good communication is vital in a disaster and that this function is often carried out very poorly by disaster responders. As articulated by one PHN, their role was *very much a communication job*. The PHNs are considered experts in communication, their roles

involve constant communication to carry out their protective roles across their lived spaces of their communities. The PHNs revealed they *have the capacity to communicate with everybody* (Traci). Matt agreed, considering that PHNs have the ability to talk to everyone across the public health network, there are no boundaries to who they can, or need to talk, to in a disaster:

> *nurses [have]…the ability to talk to the cleaner…the patient, the doctors, the team, the relatives, all those sorts of people. I think we're similarly setup in public health to be able to talk to patients, to, to stakeholders, to um you know to a vast array of people.*

The PHNs' disaster experiences revealed that they communicated with a wide range of health professionals such as GPs, practice nurses, pathology laboratories, hospitals as well as sick and well individuals within the general public. PHNs possess the knowledge and skills to potentially link to many people across society. In a disaster this skill is both significant and advantageous. The PHNs understood they are professionals who work well in disaster situations, since they are used to working under pressure. As Antony said, *nurses I find are…work good under pressure. We have had that experience elsewhere in our training or previous lives and disaster times are pressure times.* Nurses also were understood by Antony to have good phone and computer skills, were familiar with collating data, interviewing individuals and providing information in different forms, to both the public and other health professionals. Although they are not epidemiologists, half of the PHNs interviewed had undertaken a Master of Public health, of which a core subject is epidemiology. Therefore many of the PHNs had advanced insight into and knowledge of the disease patterns and ill health which they would be communicating to other agencies in a disaster situation.

The PHNs' role as communicators and as bridges of information across and within in their communities has two functions: one is being able to detect and define patterns of disease and ill health and the other is being able to communicate these patterns, and what they mean, to those who need to know. In a disaster the central position of the PHNs as community 'insiders' means that they can bridge gaps in information between non-health sector responding agencies, non-community based health sector responding agencies and the communities who have been affected. The PHNs act as bridges in these disaster situations, linking and transferring information between agencies and communities.

It was articulated and recognised that within a community, the creation of communication networks and relationships took time and work to build and maintain. The PHNs revealed the importance of networking to establish connections to find out who needed disaster information and what they needed it for. Jazzy, for example, noted that PHNs dealing with multiple agencies in disaster situations needed to be able to network and link with all of the agencies involved, but the agencies may be working in different settings to their usual environment. For example, in one recent cyclone a PHN noted that the GPs were working out of the hospitals, rather than their practices. The PHNs

revealed that having established networks and lines of communication, which are planned and documented, was therefore vital in disaster response. Lynne, when speaking about her pandemic experience, recognised that it is too busy once a pandemic strikes to be able to make the connections you need. She used the phrase '*I can't stress it enough'* when talking about the importance of having processes in place prior to the event, and having good communication skills in a disaster situation due to the rapidity of changes in information being released. The qualitative study by Rebmann, Carrico and English (2008) into lessons learnt by public health professionals who had to responded disasters, concurred with these findings, for example, the difficulty of providing consistent information during emergencies when recommendations change. The authors noted that their study participants recognised: the need for the provision of consistent messaging to the public; that it was 'critical' for PHNs to provide disaster education to their communities and that communication is a vital part of disaster response since it maintains public trust.

Cox (1997) looked at the long time bushfire recovery of an Australian community and ascertained that the local community nurses were paramount in the community healing process following a disaster due to their 'insider' status. In Cox's view this did not just relate to local nurses but it also related to nurses from outside (with the exception of mental health nurses). 'Outsiders' (relief agencies, social workers and so on) who came into the area post disaster needed to link to the 'insiders' in order to gain access to those who required help. *Outsider health and welfare organizations make their plans in isolation, while the insider plans lies with individuals, usually managers, there is no community involvement, and in the meantime the region is as vulnerable as it was in 1983* (Cox 1997, p. 223). Being bridges of information was revealed in this research as being a key PHN disaster role; which resonates with the research above by Cox, in that the PHNs are the 'insiders' sharing information with the 'outsiders,' (relief agencies and other responders). The PHNs were not asked during their interview with the researcher about their role in disaster recovery however, given their potential insider position in the community and their understanding of instigating and maintaining community trust, this is an area of research which could be further explored, for example, by looking at the insider-outsider phenomenon when establishing disaster mitigation/preparedness strategies.

It was established that the PHNs understood they had a central role to play regarding the communication of health information during disasters. In disasters it is important to be able to think broadly about actual and potential health risks. The PHNs understood that they had the capacity and capabilities to connect what was happening in the disaster space, with whom and what could be of assistance to their communities. They could bridge the information gap which divides the community with the acute care services and other responding agencies. The PHNs revealed that they had expertise in understanding information regarding health threats to their communities. They also understood patterns of disease and what these patterns mean to a community's' health and they are experienced in getting detailed and accurate health information from A to B. This

function was aided by their established backgrounds in nursing, since nurses understand the medical and psycho-social issues surrounding who is vulnerable and what health risks to be vigilant for. The PHNs were also aware of what information to pass on and to whom, and in line with the previous theme, to 'make sure' that this happened. All these disaster roles were revealed as being established upon a foundation of the PHNs being good connectors, networkers, bridges and conduits of knowledge and information.

Not all the PHNs assumed that they had good communication skills as Liz was pragmatic and considered that communication was just something that PHNs do a lot, but are not trained in, so they may, or may not, be good at it:

> *I think just because we do it all the time does not mean we are experts. It just means that we do it a lot. It's something we have always done and not something we have been trained in it is something we've done so you may always have done it badly but you do it.*

The PHN disaster experience revealed that they had to work hard to achieve trust to eliminate the confusion which arises with disasters, either due to poor or inadequate communication, or because their communities may not wish to communicate. The PHNs also understood that their roles were key to the provision of health information in a disaster. However they also understood that since communication in a disaster is complex, other tools are also important to consider, such as social media, and that more work should be undertaken to consider these options in the future.

Being adaptors

The PHNs revealed from their experiences that they were needed to be adaptable in their roles and functions and they needed an adaptable mindset to carry out their PHN disaster roles. *I think that the ability to be adaptable is what counts* (Rachel). Being able to adapt their thinking, being willing and able to think outside the square, and having flexible thinking linked to the PHNs' experience of having *a public health mind*. Antony considered that PHNs, with their specific nursing skills, were able to adapt to disasters and significantly add to the response. He also revealed that he enjoyed being an *adaptor*, since this enabled him to work at both 'ends' of the PHN scale:

> *We can make a pretty substantial response to whatever the disaster is and I think nurses are flexible enough to be able to, even though you may be a communicable disease expert, that if the issue is around something else then we are able to adapt into that situation and bring our skills into different situations.*

Being adaptable to the communities' needs during disasters and the decisions of the politicians was guided by the PHNs' desire to protect their communities. This protection required the PHNs to adapt their thinking and their skills to apply strategies to make sure their communities were informed about the disaster and to ensure their safety was possible. Being an adaptor therefore described the PHNs' experience of adapting their perspective to understand which actions will offer the best outcomes for their communities.

The PHNs recognised the increasing tendency toward specialisation of health practice and the concomitant 'siloing' which can occur. This practice could reduce the ability of the PHNs to wear so many 'hats' and to be so versatile across and within their public health space. As Liz acknowledged, there are difficulties and challenges implicit within the PHNs own ranks, such as nurses not supporting each other, and the existence of silos:

> *…there is immunisation nursing and communicable disease nursing and they don't click together and each unit is different…so you have kind of got silos within a very small group of people and very distinct pieces that they do, and they work alone…with the designated positions a little bit siloed so it's challenging and nurses are nurses and we can never agree, and we can never support each other…so we are our own worst enemy in a way as we can't pull together, we will pull apart.*

Being adaptors will require the PHNs to look inwards, to ensure there is agreement regarding their roles within their own units and amongst their colleagues, to resolve these differences in order to move their practices forward.

The experience of being an adaptor in the PHN disaster roles required lateral thinking where many 'hats' needed to be worn, since the PHNs understood they need to be amenable to role changes, to meet the evolving needs created by the changes around them. The PHNs, for example, cited actions they had undertaken within their disaster roles which were driven by political decisions, which they did not necessarily agree with, but nonetheless had to be carried out at the time. For example, teaching obsolete practices such as the use of multi-dose vials in immunisation programs. The PHNs not only had to adapt to temporarily accepting these practices, but to teach them to other nurses and health providers.

The 2009 influenza pandemic response required the PHNs to take on increased responsibility (as well as hugely increased work hours) in a short space of time. The PHNs also had to manage the surge process within their units which required great adaptability. Staffing surge for the pandemic was managed with great variability across different public health units. However the ability of the interviewed PHNs to adapt to the surge process itself was very evident, as was their ability to then instigate better surge plans post disaster in preparedness for the next outbreak or epidemic. Rachel described how she experienced the pandemic on, '*the back of our biggest dengue outbreak*' which actually turned out to be a good thing as extra staff had been recruited to assist in dengue whose roles could be 'adapted' into one of managing pandemics:

> *…which we actually kept on that we shifted and re-jiggled them a little bit and we trained them to ask the questions about pandemic rather than asking questions about dengue!*

The PHN lived experience of being *adaptors* was also described in the study of U.S. public health nurses (Joyce et al. 2014) that identified a similar theme labelled 'versatility' in the roles of the nurses they interviewed. The theme of 'versatility' revealed similar characteristics to this research,

regarding the PHNs' ability to undertake many different skills, be adaptable to change and be prepared for unexpected events. But perhaps this skill was not always seen in other nurse roles. Anna, for example, did not consider that she had been very flexible in her previous role as a theatre nurse, noting:

> *I think it's being able to go with the flow, be flexible…to adapt very quickly. I think that um, public health has taught me that at least…you have to be flexible…there's not a lot of flexibility in the clinical setting where you know, sometimes here you have to be quite flexible and um, that's probably a learned skill, being flexible.*

The role of PHNs being adaptable in their disaster roles has not been described before for nurses responding within Australia. Being able to be adaptable in a disaster however was demonstrated by the PHNs through their revealed disaster role experiences, both for themselves and for their community.

Being unknown protectors

It was established in the *Background* chapter that PHNs have a low visible presence within the Australian health landscape, possibly due to the complex, preventative nature of their role and their small workforce numbers. The participants are aware there is a lack of understanding regarding their disaster roles both within and outside of their community. This perception is exacerbated by a lack of understanding regarding the role and functions of public health itself. The experience of being unknown and their low visibility within the heath sector carries implications for the PHNs' disaster roles and their own professional identity which will be discussed in this section.

The following quotes point to a general lack of understanding about the PHNs' identity and their place in the public health landscape. This lack of role recognition could result in a reduced capacity for the PHNs to be effective in their disasters since their roles are misunderstood, unknown, or unclear to decision makers or other responders. Not knowing what public health is, and public health nurse roles may result in inefficiencies of time and resources.

> *I think hospital has no idea what we do…GPs have no idea what we do. We don't sell ourselves very well…to be honest I didn't know what we did until I did the job* (Rachel)!

> *The CEO doesn't know who we are; neither does the director of nursing know who we are. They don't know where we fit, because we don't actually fit under any of those sort of community health boxes* (Jane).

> *I think a lot, a lot of people aren't that aware of what we do um…especially clinicians* (Jess).

The understanding that some PHNs drew from their disaster experiences were that some people did not recognise and/or understand what their PHN roles were outside of a disaster such as a pandemic or an epidemic, as Liz stated:

> *I think because in disasters like a pandemic the roles have now been set and, 'this is what public health does', but in the other spaces it hasn't actually been said what we do, so if we are going to go and do things we have to say what we are doing and why.*

Liz's experience regarding her disaster role led her to understand that sometimes it was identical to her role in non-disaster times, however the lack of understanding regarding, '*what public health does,'* led to the perspective by politicians that PHNs were perhaps not actually doing anything. Liz realised that the governments had a limited knowledge of what PHNs' roles are. Her adaption to this situation during a disaster was to rapidly write a plan to give to politicians and other agencies to explain what she was doing.

The PHNs were revealed as being very dedicated to their role in outbreak containment and disaster mitigation. The PHNs' fear of 'potential' disasters was driven by their desire, their *dasein* of being protectors, to ensure that their communities were safe. The PHNs' experience and propensity for not asking for help when they were dealing with large outbreaks further reduced their receipt of external attention and thus visibility. Lack of visibility, and /or being unknown could lead to the PHNs feeling devalued in their roles. Nurses' invisibility and their perspective of being undervalued in society was mentioned in the research by Cox (1997) who looked into the experiences of the long-term healing of a community post the 1983 Ash Wednesday bush-fires. The study described the insider-outsider phenomenon of nurses assisting from within the disaster affected community and those nurses from responding agencies. One perspective which emerged from the research literature was that it is the actual nature of nurses being 'insiders' within their communities which may further explain their lack of visibility. Cox speculated that this phenomena occurs due to the sense of confidentiality and respect for the containment of sensitive, deeply personal information from the communities:

> *…the sense of invisibility that nurses sometimes express in respect to their value in society, may at least at the community level be partly attributed to this existential insideness. It is not that their work is undervalued, their very location as existential insiders indicates their value, but it simultaneously renders them silent. They belong to the private sphere* (Cox 1997, p. 223).

It was noted earlier in this chapter that some of the *sentinel* and *making sure* functions of the PHNs were functions that were 'just done' which serves to position the PHNs into a similar private or 'silent' sphere, to that described by Cox, which further renders the PHN roles and functions less visible to, and less understood, by others.

Jane's perception of her PHN visibility was that PHNs don't sell themselves very well. This insight was shared by others PHNs but in slightly different ways. For example, some PHNs revealed they realised they needed to promote themselves and their role to the community. This promotion was a strategic move to increase trust, so that in outbreak or disaster situation their community engagement and response would be more effective. Other PHNs spoke about needing to be more

proactive regarding reclaiming/stating their position in public health space. Liz, when describing the fact that she considered PHNs don't promote themselves well as a professional body, understood that she needed to proactively manage the fact that '*not everybody knows what public health does as they don't [know what it does]'.*

This information resonates with some of the findings in the research by Joyce et al (2014) into the lived experience of public health nurses within Colorado, USA. They too felt the need for PHNs to promote their role to stakeholders and to other PHNs to increase the visibility of their profession within health.

This discussion highlights a paradox in nursing, that it can be difficult to describe and is poorly understood and the more skilful a nurse is, the less likely an observer is to see what has been done (Royal College of Nursing 2014). This experience was understood by Liz who, in the quote below, observed that her PHN peers did not ask for assistance during a disease outbreak and they 'burnt out'. Liz pondered that perhaps the nurses were 'too good' in the sense that they contained the outbreak, but became burnt out as they did not ask for assistance which resulted in a lack of recognition, therefore they were unlikely to receive assistance in the future. While this is part of the PHN role to prevent ill health, by not seeking recognition, being awarded recognition, or promoting their successes through literature, the voice of the PHN, may not be heard:

> *I was listening to a presentation…they'd a measles outbreak and they'd worked all weekend and had about 400 contacts but at no point they had asked for assistance or you know really thought about it. And nobody knows what they are doing because there're no cries for help. "We can do this, we're able to do this and we will do this." Now they are exhausted then end of this and a tad burnt out and they are a little bit cranky and then they get upset as people don't see and like but you're not actually putting your hand up and letting us see you. And also I do wonder if some of them are just too good at what they do so they prevent stuff…you don't see it…they've stopped it and then don't say 'hey look at me'.*

This situation however is probably not limited to PHNs but also extends to other public health professionals, for example environmental health officers, infection control nurses and public health doctors, working within health protection and who also may find that their disaster roles and skills are not well known or understood. However if PHNs are to engage in future disaster events they may well need to find a way to put up their hands and say 'we did this' and 'we need help'.

Understanding that PHNs felt obligated to protect their communities does mean that PHNs and their managers need to be vigilant for burn-out, during disease outbreaks and even more so during disaster times. The role for PHNs and other public health professionals in the community is large, only so much can be achieved by the few PHNs in the Australian community. As Liz articulated, PHNs may have to decide if they are to be the operational arm of disaster response or inform the planning. They may not be able to do both. Several of the PHNs in their narratives described ongoing large outbreaks which they had been managing. These PHNs were very concerned that at

super-endemic levels of disease in their communities they might not be able to contain the outbreaks, or manage their workload associated with this:

> *You know, ongoing things aren't a disaster, but really if you look at whooping cough in communities, and it's endemic in our community… actually that are super endemic level. That's not a disaster which you think is contained by timeframe of any sort, it's ongoing. But that um is certainly a large-scale infectious disease consideration that needs action and activity and a lot more research* (Jane).

> *And you know like I was always the laying off buckets of overtime. And you'd be saying: it's, "it's not sustainable, it's not sustainable"…people don't see. Like you know, what's a pandemic? Well to everybody else that's, "we're, we're running at the highest"…and they're saying, "we've got the highest – we've got an outbreak". So to me it was a [expletive] disaster...Like, 'this is my pandemic"* (Traci).

While managers may be aware of increased workloads during disasters, they may not recognise the concurrent pressures described above which staff exert upon themselves. The PHN narratives contain examples of nurses who have expressed concern regarding their ability to maintain management of existing high endemic levels of infectious disease within their community. Ultimately this could result in poor response capabilities, decreased effectiveness of the PHNs and could potentially result in early staff burn out. Given the increasing impact of disasters upon communities, the ability of PHNs to be able to articulate what their roles are and what a 'manageable' work load is to their managers and colleagues, is important so that their roles, when extended during a disaster, are more likely to be met with support and success.

Chapter Seven Summary: understanding horizons – being a public health nurse in a disaster

This *Summary* chapter brought together the information from this research and discussed it through a phenomenological lens in relation to the revealed common themes and the available background information and research. From my engagement with the participants' interviews and my pre-understandings I have provided insight into what this group of Australian PHNs understand their experiences are of their disaster roles. This experience can provide insight for managers, disaster planners, managers, educators, other health professionals and the PHNs themselves into the particular way that the PHNs understand, practice and deliver their care, which may in turn assist in informing public health practice.

The PHNs recognise that their roles do not change in a disaster and therefore the concept and understanding of being a public health nurse per se, can be extrapolated to being a public health nurse in a disaster situation. All the PHNs had experience of working within a disaster, albeit in different geographical locations and in varying types of disaster events. The themes revealed commonalities in the PHNs' understandings of their disaster roles, as well as showing what being in a disaster actually meant to them. The central theme of the *public health mind* revealed the PHNs existing in a protective, caring engagement with individuals and groups at the population level of health. Protection of their community's health was the driver for the way the PHNs understood and carried out their public health disaster roles through their public health mind thinking. The PHNs' protection of their communitys' health extended to the acute care setting, through their practices which aimed to prevent hospital admissions during disasters. The PHNs' public health mind thinking was informed by their background nursing experiences, which they extrapolated to consideration of the health needs of their communities at the population level of care. Having a *public health mind* described the public health nurses lived world from which the other themes were underpinned and strongly entwined. The six themes of being: *sentinels*, *advocates*, *adaptors*, *bridges* and *connectors, making sure* and being *unknown protectors* were all related to the central theme of having a *public health mind,* since it is this way of thinking which informs their understanding, drives their experiences and ultimately informs the meaning of their disaster roles. The themes described represent the PHNs' worldview, they also represent the ways in which the PHNs' experience carrying out their disaster roles.

Several of the themes found in this research have also been described in other studies but not within Australian research, or research about disasters and public health nurses. There is thus scope for further research into all the themes found within this research, regarding their application and meaning within (Australian) disaster nursing at the population level of health.

The PHNs understood they held an actual (and potential) central position as communicators of health information in disasters and that they needed to connect, not only to other health

professionals and relief agencies in disasters, but also to their communities. The PHNs' roles were understood to be one of seeking out and identifying vulnerable populations, to make sure that they were protected. The PHNs also understood the need to instil trust within their communities for effective and efficient engagement during disasters, which would enable them to adopt the position of being 'trusted insiders'. This engagement also has the effect of serving to promote their own roles, since the PHNs understood there was a lack of knowledge and understanding regarding their roles, and also that of the broader tenets of public health itself.

A key driver for being involved in a disaster was articulated by several PHNs to be a moral and organisational imperative, rather than, for example, receiving additional experience and training *'you might not think you can help but I think you should if you are under public health*' (Becca). The sense of being obligated to work in a disaster relates to the PHNs' perception of their central place in their communities as carers, protectors and their position of being involved in disasters response as part of this default condition of care, their *dasein*. Being protectors also revealed the PHNs' constant vigilance for disasters and a need to be prepared as this preparedness is part of their PHN lived world of protection for their communities. Therefore the concept of what a disaster was to the PHNs always raised the concept of a potential disaster and therefore the necessity to be prepared for one.

Overall the worldview of the PHNs was perceived by the nurses themselves to be a very positive worldview which was underpinned by their distinctive desire to protect their communities pre, during and post disaster events.

CHAPTER EIGHT – LIMITATIONS, RECOMMENDATIONS AND FINAL SUMMARY

There are several limitations to this study which are described below.

Limitations of the study

The extrapolation of the information found in this study to other PHNs and nurses who work in disaster response is limited given the uniqueness of each nurse's lived experience. The PHNs were mainly from public health units and their salient roles all lay in communicable disease control activities, therefore they were a similar group of nurses with similar roles working within different Australian States. Given that the PHNs' experience was an illumination of their own lived world, the subjective experiences of this small group of nurses may not necessarily reflect a collective or a shared real world experience within larger groups of PHNs.

This study looked at the nurses who worked within the area of public health and not those nurses who work in other health settings, but who may undertake public health functions as part of their role. The findings may not represent the views of other nurses who work within public health roles such as: school nurses; occupational health nurses and child and youth health nurses. The views and experiences of other non-nursing practitioners and professionals working within public health, such as environmental health officers, public health officers, public health doctors, with whom the PHNs may regularly interact, are not considered in this research. It may be that these other professionals who work within the area of public health, or undertake public health functions, share some of the same experiences as the PHNs. The experiences of these other nurses and health professionals' public health roles and functions during a disaster therefore remain unexplored in this study and may be a subject for further future research.

Geographical considerations

More PHNs responded to participate in the research from those regions which had recently suffered a disaster. This seems to verify the proposition that PHNs with disaster experience were more likely to volunteer as study participants. Therefore perhaps those PHNs who work in areas which may not have suffered from disasters, or PHNs who did not consider that that they had sufficient disaster experience, may not have volunteered. However the Australian regions that the majority of the participants came from are also the most populous, and therefore employ the most PHNs. Some of the PHNs who participated from these more populous regions had greater potential for connecting with other PHNs due to the existence of multiple public health units; therefore they had more opportunity for prior communication, interaction and insight into their disaster roles. This may have led to these PHNs having a lived experience which has been

influenced by having greater access to knowledge and information, relative to those PHNs from the less populous, more remote areas of Australia.

The lived experience of the PHNs' disaster roles within areas of Australia that are regularly exposed to extreme natural events (for example tropical cyclones and heatwaves) may vary relative to those PHNs who have less exposure to extreme weather events. This limitation may arise due to differences between the PHNs' physical and psychological preparedness for these more routine extreme events (for example differences in disaster training and their relative engagement with response agencies and communities) which may impact on their relative perspectives of their roles in an actual disaster event. These differences, if there were any, could not be ascertained from this study.

Limitations associated with the researcher

My own professional background may have constituted a limitation to this research. My familiarity with the research area, having previously worked as a PHN within one public health unit may have led to over eagerness to elicit the PHNs' disaster roles. It could also have led to bias in the way I phrased, considered and / or asked the questions or followed up on some answers and not on others. My personal concerns stemming from my observations within my own public health unit, regarding the attrition of nurses relative to public health officers and a focus upon disease surveillance, may have contributed to a concern with the survival of the PHN role rather than the focus on the experience of their roles. However, the philosophy I followed required me to be cognisant of my preconceptions, to remain vigilant and mindful of the way I interpreted the PHNs' narratives thereby staying true to the PHNs' meanings during the hermeneutic engagement. I had previous experience of the practice of being mindful from the Buddhist practice of Vipassana; this practice assisted my understanding of being mindful and an ability to maintain 'mindfulness' during my engagement with the research participants. It is also recognised that given that a substantial literature review was undertaken prior to the collection and analysis of data, this may have impacted on my thinking and consideration of the analytical process that I followed. However I was cognisant of the fact that the literature I reviewed provided a backdrop to inform the research question and was not to drive the research process. Regular review and discussion of the research with my supervisors throughout the lifetime of the project assisted in the maintenance of a balanced perspective. However I do recognise that my preconceptions, being unable to be 'wiped' from my memory, may have led to a focus on some aspects of the data and lack of attention to other areas of the participant information.

Recommendations

A phenomenological approach provides greater potential for more informed disaster planning, education and policy making for this group of nurses. As Cornell (2015 p. 245) noted in her research regarding the lived experience of preparedness of elderly individuals for emergency events, it is not enough just to engage with peak bodies and service providers when developing policy regarding a group of people. It is also important to engage with those individuals who are actually doing the experiencing to find out what meanings they draw from it and then from this work out what may, or may not, be helpful to improve and assist their preparedness practices. The relevance of this, for this research, is that while nurses are considered by the public, the literature and other response agencies to be 'front line' workers in disasters, minimal research has been undertaken within Australia regarding public health nurses' disaster roles in the out-of-hospital setting. What a disaster means to this group of nurses and their views and perspectives on their actual disaster experience, is largely unknown. As a result it is expedient to inform this knowledge gap in the area of disaster nursing for prospicient disaster nursing planning.

The following sections contain recommendations for research, practice, policy, planning and education for the PHNs themselves, peak nursing bodies and agencies involved in the provision of emergency preparedness response and recovery. The recommendations, while directed at the nursing profession and those individuals working within public health, may also have relevance for other health-related occupations. The recommendations are based upon the main research findings: the PHNs' worldview, their public health mind thinking and their roles of being sentinels, adaptors, advocates, connectors and bridges, making sure and being unknown protectors.

Implications for further research

This research was based on the narratives and interviews from 18 public health nurses to establish their lived experience of their disaster roles. The main finding from the PHNs' narratives, having a public health mind, is a worldview that I found common to this group of nurses who work within Australian public health practice in the out-of-hospital setting. Further studies could investigate whether this worldview is one which actual nursing practices are based on. For example this study found that the PHNs' worldview is informed by their public health mind thinking, which in turn informs their practice of being advocates, sentinels, connectors, adaptors, making sure and being unknown protectors. This worldview is supported by their strong desire to protect their communities. Following this line of research could also result in a study which would ascertain whether this worldview, as I found within this group of intensively interviewed nurses, is also held by other groups of nurses. This may serve to further inform disaster-nursing practice through facilitation of an enhanced understanding of how these nurses understand, and therefore conduct, their disaster roles and practice within their communities.

Each of the main findings from this study: the public health mind thinking, being advocates, sentinels, connectors, adaptors, making sure and being unknown protectors, could be researched individually, or as a group. This research may serve to establish greater understanding and insight regarding how they serve to inform the PHN functions and roles at the community level and their contribution to disaster planning, response and recovery. Further research, for example into the concept of having *a public health mind,* may assist public health professionals, policy makers and planners to consider and understand how nurses and other public health professionals adapt to roles where they need to care for multiple populations simultaneously; move from one thinking paradigm to another and apply this broad way of thinking about health care in a strategic and practical manner. Research into understanding the experience of being *sentinels,* for example, may serve to inform other nurses how the PHNs' roles enable them to identify health threats to their communities, for which they work to establish counter strategies. As mentioned in the *Discussion* chapter, the theme of being a sentinel was described in the PHN research by Joyce et al (2014) who used the term 'vigilance'. Within the literature the dominant research focus within nursing for 'vigilance' has been directed at the individual level of nursing care, not at the population level. The experience of being a *sentinel* in this research was revealed as being a core, protective skill which stimulated risk assessment type nursing activities by the PHNs, as did the theme 'making sure'. Further research into these core skills, which the nurses attuned towards protecting their community, may provide insight into which skills may already be known to the nurses (but not necessarily recognised by those practicing outside the PHN role) in addition to providing more information regarding factors which may impede or enhance the central activities of a PHNs' disaster role. Understanding how the PHNs understand their roles, and the specific way they are carried out, may assist with recruitment of staff during surge times or assist with surge planning. This is because nurses may be better able to establish whether or not they are suited to the role and if they have a good understanding of the thinking behind the practice.

The PHNs' experiences led to their understanding of the importance of building an 'insider' status for disaster preparedness which contributed to maintaining the trust of their community. Having 'insider' status is advantageous in a disaster (Cox 1997), given the drive for disaster resilient communities (Council of Australian Governments 2011). Research could be undertaken to look at PHNs' actual and potential roles in community resilience in order to understand more deeply how their nurse-community-trust relationship operates. Having a greater awareness of 'insider' access into communities, who are preparing for and responding to a disaster, may inform how nurses can better engage in community resilience planning and preparedness activities. Having an 'insider' status within the Emergency Management sub-community would be of similar value, by bringing the benefits of their PHN understanding to Emergency Management coordinators.

The finding of being an *unknown protector* was interesting and could be further investigated to ascertain the reality and extent of PHNs' experience of their roles not being understood by other

professionals as well as their own communities. The experience of not being understood was increased by the PHNs' perception that public health itself was not well understood. A contributing factor was the experience of the PHNs not being proactive in the public space regarding their roles and not 'selling' themselves very well. The reality of this situation could be clarified by investigation into the factors which impede or progress understanding, promulgation and acceptance of their role to those groups and individual whom they interact with. The first step would be for the PHNs to collaborate with other PHNs to establish consensus of their role, this would strengthen the platform from which to disseminate their role to others. The next step would be to undertake research into understanding what other health professionals, policy makers, emergency services and peak bodies believe public health nurses' roles are in disasters and / or what the PHN role is per se. Understanding what others believe PHNs do, or don't do, may point to directions that the PHNs may themselves need to undertake, to enhance awareness and understanding of their roles in public health and in disaster preparedness and response.

If there are to be more disasters in the future, hospitals and health departments may need to continually adjust their roles and functions to facilitate preparedness for potentially increasingly complex and / or changing disaster health needs. Hospitals may accept more public health roles, such as running influenza clinics and providing ongoing heat wave advice. Health departments may have to extend their roles to routinely include surveillance for heat related illness and individuals with chronic illnesses. PHNs may direct their roles increasingly into community resilience strategies and disaster mitigation activities. Within this future landscape research could be undertaken to establish what PHNs consider their roles will be, for example, will they remain in the community as an operational component? Are they going to be the administrators of public health expert information within the curative sector disaster space? Or both? Essentially research needs to be undertaken to inform who is going to be responsible for what, within this future disaster landscape.

Practice

Since this research is based on the experiences of PHNs it has implications for use within contemporary disaster nursing practice to further assist the PHNs themselves, and also other health workers, in disaster preparedness and response. The following section therefore considers the implications of this research for disaster nursing practice.

- Establish consensus regarding the PHNs' role and improve the ability of PHNs to articulate this role.

Given the concern amongst the PHNs that their role is unknown or misunderstood, the first step is for the PHNs to address this issue by establishing consensus regarding their disaster role (and their understanding of it) within and across their PHN networks. This would serve to verify (or not)

the PHNs worldview of their disaster role as found in this research.

- Disseminate and promote the PHN disaster role across and within public health networks, other disaster response agencies and health professionals.

The next step is for the PHNs to consider how they can disseminate their disaster role to the groups and individuals with whom they interact. The PHNs, using their skills of 'outside the square thinking,' can seek to establish who, and what, may best assist them to promote and propagate their disaster roles within their public health networks and also to their communities. The PHNs may need to engage the support of others, for example colleagues, managers and professional nursing bodies, to plan and facilitate this process. The PHNs could engage in promotion of their roles for example at conferences, workshops, work seminars and within their own (employing body) computer websites. The PHNs should consider promotion of their roles in the academic, professional and grey literature.

Communication of the PHNs' particular worldview and associated disaster skills should be extended to other disaster agencies with whom they network. Networking with volunteer based agencies who respond in disaster events, such as the Australian Red Cross and St John Ambulance, would also serve to assist promotion of the PHNs' role in the out-of-hospital setting. The PHNs' experiences revealed their understanding of having skills which they adapt and direct towards the protection of their communities. These skills for example include: being advocates for vulnerable populations both pre and post disaster; being adaptable to taking on different roles during disasters as needs dictate; having the awareness of who and what to communicate during disasters and having the ability to continually engage in risk assessment for their communities so they can ensure they are in a position to protect them. The transference of this base knowledge of their skills will create enhanced understanding regarding PHNs' roles and functions and how they fit with the roles of other responding agencies within the public health disaster space.

- Engage with the emergency management community and implement PHNs' orientation to emergency management using the PHNs' worldview of their disaster roles.

This study found that this group of Australian PHNs has a particular worldview regarding how they practice their disaster roles. This worldview can be used as a platform upon which to establish a broad orientation for public health nurses to emergency management. The orientation would take into consideration the main findings within this research, having a public health mind and the related concepts of: being sentinels, being adaptors, making sure, being connectors and bridges, being advocates and being unknown protectors. The exposure of PHNs to emergency management principles which take into consideration the PHNs' lifeworld will provide insight into emergency management which is grounded in the particular way that PHNs interpret, practice and

deliver care during disasters. This will assist PHNs' understanding and clarification of their roles in the emergency management landscape.

Planning and policy

This section considers the value of this research for planning and policy. It is acknowledged that the following recommendations may require the PHNs to seek assistance with their implementation from other professionals who understand / are supportive of their worldview (such as their professional body).

- PHN involvement in initial disaster planning.

The PHNs' experiences revealed their understanding that they did not have a large presence and profile within disaster planning and policy within their existing networks, this was recognised as a limitation for increasing their scope of engagement in planning around disaster preparedness and response activities. The PHNs also revealed that they felt they had much to contribute to the area of disaster planning which would assist in mitigation of the disaster impact. For example their roles in transferring and collecting information, in addition to their adaptability to situations and consideration of potential hazards. The PHNs need to be involved in initial disaster planning phases through to response and recovery alongside all other involved disaster agencies. Involvement in disaster planning would, for example, assist insight into the experiences the PHNs described related to staffing, workflow and surge capacity during disasters and outbreaks of disease.

- Promote and clarify PHNs' 'worldview' to disaster policy makers.

The PHNs' worldview is the gateway to understanding why they manage their roles in the particular way that they do in disaster preparedness, response and recovery. This worldview serves to privilege the needs of the community and therefore is significant for policy makers to be aware of. This is because the PHNs will prioritise looking after their communities and concern themselves with challenges presented by the actual and potential delivery of healthcare to an entire population within a disaster, rather than to individuals. Since the PHNs' worldview provides insight into how the PHNs actually understand and experience their roles within disasters, this worldview denotes therefore not just a perspective regarding their disaster roles but also the PHNs' commitment to this worldview, underlying which is the protection of their communities. This is useful information for policy makers to understand.

- Promotion of PHNs' disaster roles to planners and policy makers.

PHNs need to promote and clarify their roles of being sentinels, making sure, being connectors and bridges, being advocates, adaptors and unknown protectors. This clarification of PHNs'

disaster roles would assist the understanding and recognition of what PHNs already do in disasters and reinforce for disaster planners and policy makers where PHNs can further contribute. Greater understanding of the PHNs' disaster roles would assist planning and policy makers, since the PHNs may be carrying out disaster functions and actions but using a different understanding of emergency disaster language, for example using different names and therefore are undertaking and interpreting their roles differently to other disaster responders. The clarification of disaster roles would reduce confusion and enhance disaster planning and policy.

Education

The following section considers the value of this research for education.

- Establish a forum for PHN networking and education

The PHNs in Australia are few in number and geographically dispersed. They have also been exposed to different types and numbers of disasters. The establishment of a networking medium, such as an internet based forum, would promote the exchange of information between PHNs. Such a forum could also be used to ascertain consensus regarding the PHNs' (disaster) roles, present and future. A PHN education and knowledge 'hub' would enable the PHNs to articulate, share and develop their views and ideas. This hub could generate connectivity between the currently geographically scattered PHNs (and perhaps other public health professionals and emergency response agencies). It is acknowledged that such a network would require funding and a dedicated individual or group of individuals to plan, establish and 'drive' such a medium. Involvement of the PHNs' professional nursing body and other health bodies, such as the Public Health Association of Australia (PHAA) could be engaged to assist this process.

- Inform educators of the PHNs' worldview and the PHNs' disaster roles of being sentinels, adaptors, connectors and bridges, advocates and invisible protectors.

If the worldview held by the PHNs in this research is agreed upon by most other Australian PHNs, as discussed above, it can be articulated to those individuals who are involved in the education of community based nurses preparing for public health practice or practice within the acute health sector. These individuals can then emphasise this way of thinking, thereby facilitating a strengthening of this worldview. The PHNs' roles of being: sentinels, adaptors, connectors and bridges, advocates and invisible protectors should also be included within education programs to show and create understanding of the roles and functions the PHNs carry out in disasters. Understanding how the PHNs' view their disaster roles will also assist the education of health professionals and nursing students who do not understand the difference between how public health nursing operates within the community relative to undertaking public health actions within the acute health sector.

PHNs should be encouraged to promote education about their disaster roles across and within their individual units and across and within their networks. The findings from this study regarding the PHNs' understanding of their roles in disasters, their particular worldview, could be extrapolated to promoting this understanding within their individual public health units and work spaces through developing an education program which would reflect this understanding of their disaster roles. The development of an education program to understand their roles could be an extension of the knowledge that they currently extend to their communities. This sharing of their understanding of their roles could also be extended to create a reciprocal understanding of roles amongst their colleagues and other health professionals. Research into this may assist in understanding how better alignment may be achieved between disaster education programs and nurses and health professionals receiving the education.

- Engage with communities to educate them regarding PHNs' roles.

PHNs should be encouraged and supported to engage in an educational capacity with their communities to strengthen their community networks and their PHN profile. This would serve to increase the understanding within their community of who PHNs are and what PHNs do, so that in the event of an emergency or a disaster the PHNs can engage effectively and efficiently as the 'inside' trusted professionals within the communities they strive to protect. Being connected with other health professionals and relief agencies and the dissemination of the PHNs role (as described above) would assist in the transmission of the PHNs' worldview and their skills, functions and capabilities in a disaster preparedness and response.

Final Summary

This study has provided insight into the lived experience of public health nurses in disasters and their perspectives and understanding regarding their disaster roles. This ontological perspective was able to draw out information relating to how the PHNs' experience their roles and what this experience meant to them in relation to carrying out disaster preparedness and response practices within their communities.

As described in the Background Chapter, the 2015 Sendai Framework for Disaster Risk Reduction has placed health at the centre of global disaster preparedness. The Sendai Framework also recognises the importance of disaster players at all levels of the State being responsible for and being involved in disaster preparedness, response, planning and decision making (UNISDR 2015). Research of nurses responding to and preparing for disasters has brought recognition of the need for further research to clarify nurses' knowledge, roles, experiences, educational and training requirements for disasters.

Given that the global disaster literature and peak public health and disaster bodies acknowledge the central role of public health in disasters, and that nurses are considered to be frontline responders in disasters, this research is timely to better understand what this group of nurses understand their roles are in disasters. Answers to this question may assist in informing nursing practice and disaster nursing education. It may also enable PHNs to be better informed regarding their roles for unknown and unpredictable adverse future events which may occur within their communities.

The foundations of this research were built on the philosophical thinking surrounding Gadamerian and Heideggerian hermeneutic phenomenology. The ontological nature of the research, the importance of 'being' rather than 'knowing' and the importance of 'understanding,' were highlighted as key concepts to understand the lived experience of PHNs and their disaster roles.

By using hermeneutic phenomenology as the enquiry method, it was revealed that the phenomenon of protection is central to being a PHN in a disaster. Protection is their *dasein,* their desire and sense of obligation to guard their communities to prevent illness and injury. This protection extends to prevent excess burden on the acute health system during or following a disaster. It also extends to a continual protective vigilance for potential disasters or emergency events and what actions can be taken to ameliorate the risk of these events occurring.

Although the PHNs had varying levels of disasters experience and had experienced different types of disasters, essentially the themes revealed that the PHNs' experiences reflected similar thinking, similar skills and similar disasters roles, which comprised their worldview. The PHN disaster roles were revealed to be altruistic and carried out within the domains of the protective cornerstones of being a PHN by being sentinels, making sure, being advocates, connectors/bridges, adaptors and

being unknown protectors. Public health nurses experienced their roles in disasters through a nurturing protective lens, vigilant for vulnerable populations, making sure that communities were safe by communicating information to carry out their disaster roles. These attributes were informed and guided by their *public health mind* thinking which informed the PHNs generally positive worldview of their disaster roles at the population level of health.

Having a public health mind enabled the PHNs to think broadly about disaster issues facing their community; this enhanced their intrinsic abilities to risk assess situations and to consider the 'what if' situations presented by disasters or disaster preparedness. These skills were also a necessary pragmatic adjustment to their lived space: adapting to, caring for and protecting individuals across the multiple layers of complexity and dimensions which comprises their communities. The PHNs' new horizon at the population level of health expressed the '*superior breadth of vision'* that the PHNs acquired: they learnt *'to look beyond what is close at hand - not in order to look away from it but to see it better, within a larger whole and in truer proportion'* (Gadamer 1975/2004, p. 316).

Despite the PHNs' understanding of their broad skills, their central 'insider' position within the community, their bridging roles as conduits of information between responding agencies and communities, their ability to risk assess both upstream and downstream, the PHNs recognised that (relative to those in the curative sector) their disaster role lacked identity. The PHNs understood that the nature of the broad parameters of community preventative health functions often served to obscure their roles and that this lack of identity had the ability to impact negatively upon their disaster roles.

The PHNs' understanding of their low visibility – of being unknown – within the disaster space reflected a larger picture of a lack of understanding regarding what public health is and what public health's role is in disasters. This is underpinned by the small public health workforce and the dominance of the larger curative sector. The lack of understanding is particularly evident in disasters caused by extreme weather events where 'health' is not the lead disaster response agency and where the public health role is seen by some PHNs as being subsumed relative to the main response, rather than being involved as a partnership. This perception of being involved from behind, rather than as part of the initial response, further served to diminish PHNs' perceptions of their disaster role. Although some PHNs understood that they experienced great autonomy in their disaster role, many PHNs also understood that their roles were obscured within the bigger picture of health and were overshadowed by a focus on the curative sector. A lack of understanding by communities regarding what the PHNs' roles were, was recognised by the PHNs as contributing to reduced trust in their disaster role objectives and also to inappropriate, poorly timed disaster responses by policy makers and emergency management personnel, who were also uninformed regarding PHNs' public health disaster roles functions and capabilities. This perspective also informed the PHNs' understanding of a need to promote their roles to their communities to

establish trust and relationships for effective and efficient communication during disaster preparedness and response.

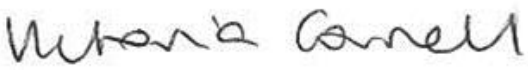
Overall however the PHNs held a very positive worldview of their disaster roles. Understanding this worldview - how the PHNs' understand and experience their disaster roles in their communities - will better inform planners and policy makers as to how this group of nurses will function in disaster preparedness and response in the out-of-hospital setting. This may better inform disaster planning, education, practice and policy for PHNs as well as those health professionals and disaster agencies who may work with PHNs in disaster events.

APPENDIX ONE – LITERATURE REVIEW PAPER

AND PERMISSION STATEMENT FOR INCLUSION FROM CO-AUTHORS

I give my permission for Philippa Rokkas to include in her thesis entitled The Lived Experience of Australian Public Health Nurses' Roles in Disasters, the review article: *Disaster preparedness and response: Challenges for Australian public health nurses – a literature review,* which I contributed to as a co-author.

Signed



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Review Article

Disaster preparedness and response: Challenges for Australian public health nurses – A literature review

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Abstract To date, Australia has not had to respond to a nationwide catastrophic event. However, over the past decade, heat waves, bushfires, cyclones, and floods have significantly challenged Australia's disaster preparedness and the surge capacity of local and regional health systems. Given that disaster events are predicted to increase in impact and frequency, the health workforce needs to be prepared for and able to respond effectively to a disaster. To be effective, nurses must be clear regarding their role in a disaster and be able to articulate the value and relevance of this role to communities and the professionals they work with. Since almost all disasters will exert some impact on public health, it is expedient to prepare the public health nursing workforce within Australia. This paper highlights issues currently facing disaster nursing and focuses on the challenges for Australian public health nurses responding to and preparing for disasters within Australia. The paper specifically addresses public health nurses' awareness regarding their roles in disaster preparation and response, given their unique skills and central position in public health.

Key words Australia, disaster, literature review, nurses, preparedness and response, public health.

INTRODUCTION

Disasters are complex physical, social, economic, and political events (World Health Organization, 2007) that often do not conform to patterns or recognize boundaries. Disasters also have the capacity to consume human and physical resources and require effective preparedness and response strategies. Challenges such as climate change, increasing urbanization, and poverty are factors serving to increase the frequency, complexity, and severity of disasters (Australian Emergency Management Institute, 2011; Blashki *et al*., 2011; Barna *et al*., 2012). Furthermore, the impact of disasters is most often felt by those least able to withstand it (Burkholder-Allen, 2010; Kelly, 2010). Although Australia has to date been spared a nationwide disaster, its disaster preparedness and the surge capacity of local and national health systems have been significantly challenged over the past decade by heat waves, bushfires, cyclones, floods, and infectious disease (Nicopolous & Hansen, 2009; Shaban, 2009; Hammad *et al*., 2011).

Almost all disasters will exert some impact on public health (Australian Emergency Management Institute, 2011) and it is recognized that the health workforce needs to be both robust and flexible, so that it is prepared and able to respond effectively to a disaster (International Council of Nurses, 2006; FitzGerald *et al*., 2010; Blashki *et al*., 2011). It is thus expedient to prepare the public health nursing workforce within Australia. To be effective, nurses themselves must be clear regarding their role in a disaster (Gebbie & Qureshi, 2002) and be able to articulate the value and relevance of this role to communities and the professionals they work with (Mayner & Arbon, 2010).

Aim

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. The paper specifically aims to raise public health nurses' awareness regarding their perceived actual and potential roles in disaster preparation and response, given their unique skills and central position in the public health setting.

METHOD

A key word search was undertaken using the following terms to inform the research aims: disaster, disaster nursing, public health nurse, community health nurse, nurse, public health, knowledge, disaster planning, emergency, Australia, role,

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education, climate change, resilience, public health unit, communicable disease, surveillance, and history. Literature searches have been undertaken within the databases CINAHL, PubMed, MEDLINE, Informit, Factiva, and Google Scholar. The literature is drawn chiefly from the medical, social, and earth sciences. No date limits were set on the databases, as it was found that the combined searches for disasters and public health nurse and Australia did not generate prolific literature. This approach revealed a noticeable increase in the volume of literature related to disasters over the past decade. Citations used in the articles accessed were also explored. Research articles spontaneously generated by the database search engines during literature searches that contained similar content to those being accessed by the reviewer were also examined.

In addition to the indexed peer-reviewed literature, books, including historical document links and recently published disaster nursing and public health nursing books were appraised. Local, State, and Commonwealth government websites were reviewed for relevant legislative planning and policy documents, for example, the Attorney-General's Department "Emergency Management Australia" website and that of the Communicable Diseases Network Australia. Nursing websites such as the Australian Nursing and Midwifery Registration Authority (AHPRA), the Australian Nursing and Midwifery Council (ANMC), and the International Council of Nurses (ICN) were accessed for relevant documentation. Non-governmental organization websites, including World Health Organization (WHO) and humanitarian organizations such as the International Committee of the Red Cross (ICRC) and health blog sites were also included.

The literature was reviewed to elicit information about the role of Australian public health nurses in disasters and about how they perceive their actual and potential roles and functions in disaster preparedness and response. The focus of the review was to establish the disaster knowledge and roles of those nurses working *within the field of public health* rather than public health nursing roles in disasters: this distinction is important since the latter role can be adopted by any nurse. This review specifically looked at nurses whose existing role and function lies within public health. The subject matter of this paper therefore straddles three large, diverse, and complex areas: "disasters," "public health," and "nursing." These three areas are linked, due to the relationship between disasters, the environment, and the adverse impact that disasters exert on health. Given the complexities that disasters present, and the parallel complexity of health and health systems, a broad spectrum of information was reviewed to reflect the subject matter.

RESULTS

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.

Nurses and disasters

Nurses are traditionally considered "front line workers" in disasters (Australian Nursing and Midwifery Council, 2008) having responded to public health needs and disasters since Florence Nightingale defined the role in the 18th century (Jakeway *et al.*, 2008). Nurses are health professionals who are familiar with vulnerable individuals in society. They are therefore a group that both governments and communities will turn to for protection, advice, and assistance in disasters. Research has shown that nurses are a trusted group of professionals and have "insider" status when dealing with communities that have been affected by disaster (Cox, 1997). The disaster literature points to all nurses taking a significant role in future disaster events, as (Usher, 2010: 10) notes,

> the need to be adequately prepared to face the challenges of disasters and emergencies has never been greater . . . especially for nurses.

It is acknowledged that when nurses have fundamental disaster competencies or abilities they are more likely to be successful in accomplishing a rapid and effective healthcare delivery response when disruptive events occur (International Council of Nurses, 2009).

Despite consensus about nurses' central role in disaster preparedness and response there is a lack of clarity in the disaster literature regarding nurses' perspectives, needs, capabilities, and understanding of their role in disasters (Gebbie & Qureshi, 2002; Chapman & Arbon, 2008; Hammad *et al.*, 2011; Ranse & Lenson, 2012). There are also inconsistencies within the provision of disaster nursing education: the WHO and the International Council of Nurses in the *ICN Framework of Disaster Nursing Competencies* (2009: 5) states that, "*disaster education for all nurses is vital*," however, they also note (p. 28) that the,

> sporadic nature of disaster nursing education has resulted in a workforce with limited capability to respond in the event of a disaster, develop policy, educate or accept leadership roles. . .the risk is further increased by hesitancy to respond as a result of a lack of knowledge.

In Australia, although Canyon (2009) observed that the public health system plays an integral and critical role in responding to threats to public wellbeing, specific disaster competencies for nurses globally remain elusive (Gebbie *et al.*, 2012). While the ANMC acknowledges that it is essential for nurses and midwives to be prepared and be able to respond to a national emergency, to date it has not yet adopted any disaster or emergency competencies for nurses and midwives (Australian Nursing and Midwifery Council, 2008). A joint guideline, however, was published by the Australian Nursing Federation and the then Royal College of Nursing to advise nurses and midwives of their role in an influenza pandemic (Australian Nursing Federation & Royal College of Nursing, 2009).

Community nurses and disasters

Within this article "community nursing" refers to nursing that is practiced outside the acute hospital setting. "Public health nursing" is a separate role within community nursing which provides services at the population level of health and is described in further detail in the sections below.

Although studies are emerging, there is minimal literature that discusses the actual or potential disaster roles and functions of Australian nurses responding outside of the acute hospital setting. There is even less written about community nursing or the public health nurse role during a disaster event; or their education, competencies, and perceptions of needs relating to a disaster. This may be due to the fact that although there have been major disasters over the years, they have not overwhelmed the entire Australian health system and thus training and the provision of disaster skills has been deemed unnecessary in the out-of-hospital setting (Ranse & Lenson, 2012). It is also reflective of the historical dominance of the acute hospital nursing sector within Australia relative to nursing within the community (Keleher, 2003) and the persistent confusion regarding roles and nomenclature surrounding community and public health nursing (Edgecombe, 2001; Condon *et al.*, 2008). Of the research that has been undertaken, most has an acute sector focus, for example, emergency department surge capacity, emergency retrieval, the willingness of nurses working in emergency departments to respond to disasters, and emergency department nurses' disaster knowledge (Arbon *et al.*, 2011; Hammad *et al.*, 2011; Ranse & Lenson, 2012).

It remains unclear, therefore, whether Australian nurses working within the community perceive they have a role to play in disasters; and if they do see a role for themselves, what they consider that role to be. Ranse and Lenson (2012) suggest that nurses perhaps perceive their role in a disaster to be one of critical or acute clinical care, a perception that has been reinforced by heavily publicized media images from post-impact disaster zones. Ranse and Lenson (2012) further consider that the understanding of the role of nurses within disaster environments in Australia is anecdotal and based on descriptive accounts of nurses responding to disasters. This lack of knowledge and understanding is further amplified by disaster education for nurses being ad hoc and fragmented and occupying minimal presence within the Australian curricula (Cusack *et al.*, 2010; FitzGerald GJ *et al.*, 2010; Usher & Mayner, 2011). However, despite the prevailing acute sector disaster focus Arbon (2009: 334) observes that, "*surgical and emergency care response to disasters have only a limited impact on the health and recovery of affected communities*," and contends that the real work to prepare for and recover from disasters needs to be undertaken by community members and health practitioners working in communities. To add to this argument Ranse and Lenson's (2012) investigation into nurse responders in the 2009 Victorian "Black Saturday" bushfires determined that clinical skills were not needed as much as their skills of problem solving, psychosocial support, and co-ordinating care and resources. Yang *et al.* (2010) also found from their study of nurse responders to the 2008 Wenchuan earthquake that preparing community care nurses for disasters augments the resilience of a community in a disaster situation.

Public health nurses and disasters

Their whole of population health focus and understanding of disease prevention, health education, infection control, environmental hazards, and safety have led to recognition of public health nurses as having a key role in disasters in many countries (Chiu & Polivka, 2012). They have also been responding to disasters for over a century (Harkness & Spellman, 2012). Public health nurses' roles in disasters are further emphasized by the knowledge that disasters often have the greatest impact on those most vulnerable in society. As Keleher (2000: 258) notes

> public and community nurses are integrated into health systems all over the world to work closely with people on their primary health needs and particularly with vulnerable populations.

Although this article is concerned with the role of Australian public health nurses, it is useful for context and comparison to briefly mention public health nurses within other countries responding to disasters, since the current lack of public health nursing literature and research in Australia is less evident elsewhere in the world. Within some countries, for example, the United States, public health nurses are integral to the health workforce response to disasters, and have contributed much to the provision of disaster nursing literature. Most literature regarding the contemporary public health nurse emanates from the United States with the *Public Health Nursing* journal providing a medium for research exchange and ideas. Australia does not have such a specialized public health or community health nursing journal to meet their academic needs (Keleher, 2000) or coordinate their national voice. The United States is currently a prolific producer of disaster literature, and recent disasters there have served as "focusing events." Public health nurses and emergency managers have therefore been propelled to rapidly review their resources, roles, and response capabilities (Chiu & Polivka, 2012). Public health nurses in the United States have become the natural choice for community disaster response due to their ubiquity and well understood role lending itself well to the disaster preparedness and response (Fisher *et al.*, 2010; Spencer & Spellman, 2013). Public health nurses have also been very active in publishing disaster literature. The American Association of State and Territorial Directors of Nursing (ASTDN) has acknowledged that the large body of public health nurses in the United States has specific skills to contribute to disasters and are an obvious choice for disaster response and preparedness (Jakeway *et al.*, 2008). Chiu and Polivka (2012 p. 136) summarize the increasing importance of the public health nurse within the disaster landscape:

> Nurses with a 'population-focused practice' grow increasingly important in the current global environment that includes escalating threats of terrorism and expanding interest in disaster preparedness. Public Health Nurses

(PHN) are a critical response group that historically has been and continues to be relied on during public health emergencies and disasters based on working with the community as a whole. Their skill at assessing the health of larger populations, and experience collaborating with multidisciplinary teams and the community to provide disaster response and appropriate education, are critical during incident and recovery efforts.

Australian public health nurses

There also is much debate, both within Australia and internationally, concerning the term "public health nurse" and their role, scope of practice, values and beliefs (Grumbach *et al.*, 2004; Keller *et al.*, 2011), specialty divisions, education (Abrams, 2010), and research capability (Issel *et al.*, 2012). This debate and the dominance of the acute hospital sector relative to the community nursing sector, has diminished the public health nurses' position within the Australian nursing community to the point where their own professional registration body, AHPRA does not recognize them – there is no category for "public health nurses/nursing" within its registration process.

Australian public health nurses work within what Keleher (2000) terms the "public health paradigm" and their focus is illness prevention and health promotion; compared to nurses in the acute care setting who work within an "illness paradigm," whose core work is to diagnose and treat illness and disease. This distinction denotes that public health nurses' focus is not typically acute clinical care. They direct their health practices at the population level using preventative and health promotion strategies to bring awareness to individuals within the community of disease and illness risks. Their location is outside of the acute hospital setting based within the community. As Keleher (2000) noted, the role of public health nurses in Australia includes:

> Maternal and child health, women's health, community health, occupational health, schools, public health units and health departments. Their practice includes primary health-care, community development, health promotion and surveillance, which are all strategies to reduce the amount of disease illness and premature death. (Keleher, 2000: 259).

Public health nurses operate within a public health system that has a central role in responding to threats to public well-being (Canyon, 2009). Public health professionals are therefore expected to be well prepared for emergencies and ready to respond to natural and human-made disasters. "Integral" public health roles, for example, lay within communicable disease control units where nurses have expertise in disease identification prevention, immunization, and infection control. Novel diseases and disease outbreaks such as pandemics are public health "specialities" (Hope *et al.*, 2011; Gebbie *et al.*, 2012), with public health personnel, including nurses, trained to undertake vital roles such as surveillance, education, infection control, quarantine monitoring, border surveillance duties, epidemiological studies, and immunization (Eastwood *et al.*, 2006).

Australian public health nurses have assisted in disaster events such as the 2010–2011 Queensland floods and during the 2009 A (H1N1) influenza pandemic. Their experiences, however, have either not been captured within publicly available literature, or have they been embedded into other generic health themes and roles, rendering both public health nursing roles, and the nurses themselves, invisible. This invisibility has other potential consequences. For example, anecdotally, non-nurse qualified professionals are replacing clinical nurses within the field of public health. This is a concern for disaster and emergency situations where surge capacity is required. A non-clinical professional cannot, for example, run influenza clinics, administer antiviral medication, vaccinate individuals, or offer disease advice with the same knowledge, expertise, and legal fulfilments as a registered nurse.

The public health nurse workforce within Australia is small. This is evident from a series of surveys carried out in 2003, 2005, and 2008 when the then Department of Health and Aging (DoHA) commissioned the Australian Health Protection Committee to carry out a National Health Disaster Management Capability Audit in order to assess the national public health disaster response assets. The audit enabled a "snapshot" of resources across four settings: pre-hospital, public hospital, public health departments, and mortuaries. The 2005 audit acknowledged that disasters, including pandemics and terrorism, were threats to Australia.

The total numbers of public health nurses working in public health departments across these years are listed in Table 1. Although, as noted above, public health nurses are not numerous, their role in disasters is noted. Hassmiller & Stanley, 2012: 513 point out,

> the number of public health nurses available to get the job done is small compared with those with generic or other specialty nurse preparation. Also, disaster produces conditions that demand an aggregate care approach, increasing the need for public health nursing involvement in community service during disaster and catastrophe.

Given the deficit of Australian disaster nursing literature, and hence knowledge regarding the roles of nurses working outside the hospital setting during disasters, it is imperative that public health nurses understand their roles in disaster preparedness and response. A website and database search for Australian literature specifically relating to public health units/public health nurses and disasters resulted in just four articles: two articles related to pandemic planning (Eastwood *et al.*, 2006; Hope *et al.*, 2011), one concerning bioterrorism competencies (Canyon, 2009), and one reporting retrospectively on the public health response to a natural disaster (Lee & Collings, 2000). Public health nurses' visibility within this literature is minimal, with their role obscured by the use of generic terminologies such as "public health medical staff," "public health unit," and "public health communicable disease staff." While this compound use of roles for public health staff makes for efficient reporting, it unfortunately serves to nullify the contributions of individual groups within the public health setting, such as the nurses. Roles for public

Table 1. Number of public health nurses (PHN); public health doctors (PH Drs) and epidemiologists (Epi); environmental health officers (EHO) and food safety officers (FSO) across Australian public health departments in 2003, 2005 and 2008

	2003			2005			2008		
Jurisdiction	PHN	PH Drs/Epi	EHO/FSO	PHN	PH Drs/Epi	EHO/FSO	PHN	PH Drs/Epi	EHO/FSO
ACT	12	5	20	4	4	22	2	5	20
NSW	100	30	100	55	36	38	62	61	186
NT	11	5	14	30	23	24	41	19	32
QLD	20	12	78	23	27	85	26	23	139
SA	3	5	20	15	8	12	No data	15	10
TAS	1	3	10	2	5	7	3	5	69
VIC	12	23	16	15	10	21	14	23	38
WA	22	10	27	20	12	35	78	13	56
Australia	182	93	285	164	124	244	226	163	487

Data collated from AHPC National Health Disaster Management Capability Audits 2003, 2005 and 2008. Numbers have been rounded to the nearest whole number.

health units, however, were noted by Eastwood *et al.* (2006) as "vital" in a pandemic and include (p. 117),

> surveillance, education, communication, case ascertainment, case management (but not clinical management), infection control, contact tracing, monitoring contacts in home quarantine, surveillance at the borders, epidemiological studies and immunisation.

These are fundamental roles in which public health nurses have expertise and this expertise can be extrapolated into the disaster setting to assist the preparedness and response of the communities within which public health nurses work.

The flexibility of public health unit staff was noted in the paper by Lee & Collings (2000), who described the public health unit staff's visit to a recovery centre following a severe hailstorm, their subsequent visits to individuals' homes to advise on public health risks, and the creation of fact sheets and information which was distributed to the public. Again within this paper it was not clarified who did what, and it is assumed that the nurses, if they were involved, were grouped under the "medical" team.

Considering the literature which has emerged from disaster-struck countries over the past decade, the need for public health nursing and nurses has never been more important, due to issues such as global environmental changes, antimicrobial resistance, changing disease patterns, and the health costs of the acute care hospital system. As the impact of global disasters escalates, the need for nurses (and the agencies they work for) to understand disasters and to articulate their disaster role (if indeed they perceive they have one) is becoming increasingly vital. What, however, does this mean to Australian nurses working within public health? Does the current disaster literature's "call to arms," resonate within the public health nursing community or with public health nurses? Do they consider that they have a role to play in disaster preparedness and response? What is their knowledge of disasters and of community resilience? Do they feel integral to disaster preparedness and response or do they consider that disasters are the domain of emergency response teams and emergency department nurses? These questions are rhetorical since to date they, and associated answers, have not been articulated within Australian research. These questions are the subject of further research being undertaken by the first author and need to be asked if nurses working within public health are to engage in the Australian disaster landscape. It is impractical to wait for the next disaster to learn how to respond and provide appropriate care.

Given the current hospital-centric dominance within Australian nursing, nurses working within the community have little voice within the disaster sphere. Disasters are complex to plan for and it is a significant challenge to identify which skills and competencies nurses will need in disaster planning and response (Slepski, 2007). It is also difficult given the diversity of roles that nurses engage in throughout a society. Since disasters usually require a multi-agency response, it is important that the communities and professionals are familiar with each other's roles and functions in order to maximize the efficiency of response and recovery post-disaster. Given the scant literature regarding community disaster nursing roles within Australia it is likely that the traditional responders (the emergency services, non-government organizations and emergency department professionals), are unaware of the skills that public health nurses can bring to the disaster setting.

Public health nurses and disaster directions

It is important for public health nurses, within their potentially influential level at the helm of the population, to start thinking and communicating about the role they may have in disaster events. What skills and resources do they have within their community that they can extend and/or adapt? What do their state disaster plans say? What plans have already been made by their employing agency and what is their role within this? Who are the response agencies in their area and where do public health nurses sit within their plans? What health promotion issues and prevention strategies will be useful/necessary for existing vulnerable groups and which other

groups are potentially vulnerable during or following a disaster? Can existing surveillance systems and health promotion activities be adapted and or extended to include data collection on those individuals who are affected, or at risk of being affected adversely?

Summary

There exists both a need and an opportunity to review what the nurses who work within the field of public health perceive their roles and functions to be in disaster preparedness and response; and what their knowledge and understanding of disasters is. Australia has a hospital-centric nursing workforce and thus the main thrust of resources and research has centred within the acute-care domain. Public health nursing, working at the population level of the community, has historically been less visible than its acute sector counterparts, but it plays no less significant a role and function, and is cost-effective relative to acute-care nursing. Disaster education within nursing, however, is ad hoc in Australia, with a lack of consistent and accessible programs and no disaster education in the undergraduate nursing curriculum. With a lack of research in disaster nursing, it is difficult to make recommendations regarding specific competencies, roles, and functions. Additionally, there is no voice from public health nurses themselves to say what they perceive their needs are as based on their experience in disaster situations. Given the lack of literature regarding the role that public health nurses play in actual disaster preparedness and response and the increasing background of natural disaster threats, it is timely that more information becomes available about what public health nursing can contribute. It is also relevant to establish what the public health nursing functions are in a disaster so that competencies and education can be addressed. This is also important in order that other responding players in disasters understand where public health nurses fit within the disaster preparedness and response landscape. Thus the path forward is for public health nurses to be cognizant to disaster threats and to engage in planning processes so that they are prepared to respond effectively.

CONCLUSIONS

Further research is required to review the knowledge, functions, and roles of Australian community and public health nurses regarding disaster preparedness and response. This information would add to the scope of and expectations for them within a disaster environment. In addition to providing a stronger, better informed nursing response capability, this research may also assist community resilience strategies and enhance links between health agencies during a disaster situation. The knowledge gained from this research can inform recommendations for disaster education and preparedness and skill planning for future events. It will add to the small, but increasing body of disaster nursing literature within Australia and start to address the research gap within the area of public health nursing and disaster preparedness and response.

REFERENCES

Abrams SE. Hints for the aspiring public health nurse. *Public Health Nurs.* 2010; **27**: 196–199.

Arbon P. Guest Editorial: understanding and preparing for disasters and catastrophic emergencies. *Nurs. Health Sci.* 2009; **11**: 334–335.

Arbon P, Cusack L, Ranse J *et al.* 2011 *Understanding the Willingness of Australian Emergency Nurses to Respond to a Disaster (Final Report)*. [Cited 21 Nov 2013.] Available from URL: http://www.flinders.edu.au/fms/disaster-resilience/documents/WillingnessReport.pdf.

Australian Emergency Management Institute. Disaster health handbook 1. In: Attorney-General (ed.). *Australian Emergency Management Handbook Series Building a Resilient Australia.* Canberra: Australian Government, 2011; 1.

Australian Nursing and Midwifery Council. 2008 *The Responsibilities of Nurses and Midwives in the Event of a Declared National Emergency*. [Cited 13 Feb 2013.] Available from URL: http://www.anmac.org.au/userfiles/file/guidelines_and_position_statements/The%20Responsibilities%20of%20Nurses%20and%20Midwives%20in%20the%20Evenet%20of%20a%20Declared%20National.pdf.

Australian Nursing Federation, Royal College of Nursing. 2009 *Joint Guideline Influenza Pandemic*. [Cited 29 Nov 2013]. Available from URL: http://anmf.org.au/documents/policies/RCNA_ANF_Influenza_Pandemic.pdf.

Barna S, Goodman B, Mortimer F. The health effects of climate change: what does a nurse need to know? *Nurse Educ. Today* 2012; **32**: 765–771.

Blashki G, Armstrong G, Berry HL *et al.* Preparing health services for climate change in Australia. *Asia Pac. J. Public Health* 2011; **23**: 133S–143S.

Burkholder-Allen K. Populations with vulnerabilities and special needs. In: Powers R, Daily E (eds). *International Disaster Nursing.* New York: Cambridge University Press, 2010; 289–304.

Canyon D. An Assessment of bioterrorism competencies among health practitioners in Australia. *Emerg. Health Threats J.* 2009; **2**: 1–6.

Chapman K, Arbon P. Are nurses ready? Disaster preparedness in the acute setting. *Australas. Emerg. Nurs. J.* 2008; **11**: 135–144.

Chiu M, Polivka BJR. Evaluation of a disaster-surge training for public health nurses. *Public Health Nurs.* 2012; **29**: 136–142.

Condon C, Nesbitt P, Salzman S. The role and scope of practice of the Community Health Nurses in Victoria. Community Health Nurses Special Interest Group, the Australian Nursing Foundation Victoria, 2008.

Cox H. Disaster relief work: nurses and others in bushfire territory. *Int. J. Nurs. Pract.* 1997; **3**: 218–223.

Cusack L, Arbon P, Ranse J. What is the role of nursing students and schools of nursing during disaster? A discussion paper. *Collegian: J. R. Coll. Nurs, Aust.* 2010; **17**: 193–197.

Eastwood K, Massey P, Durrheim D. Pandemic planning at the coal face: responsibilities of the public health unit. *NSW Public Health Bull.* 2006; **17**: 117–120.

Edgecombe G. *Public Health Nursing: Past and Future, A Review of the Literature. World Health Organisation Regional Office for Europe Nursing and Midwifery Program.* Copenhagen: World Health Organization Regional Office for Europe, 2001.

Fisher ML, Daksha B, Robert P, Elaine D. Health issues in humanitarian emergencies. In: Powers R (ed.). *International Disaster Nursing.* New York: Cambridge University Press, 2010; 427448.

FitzGerald GJ, Peter A, Paul A *et al.* A national framework for disaster health education in Australia. *Prehospital Disaster Med.* 2010; **25**: 4–11.

Gebbie KM, Hutton A, Plummer V. Update on competencies and education. *Annu. Rev. Nurs. Res.* 2012; **30**: 169–192.

Gebbie KM, Qureshi K. Emergency and disaster preparedness: core competencies for nurses: what every nurse should but may not know. *Am. J. Nurs.* 2002; **102**: 46–51.

Grumbach K, Miller J, Mertz E, Finocchio L. How much public health in public health nursing practice? *Public Health Nurs.* 2004; **21**: 266–276.

Hammad KS, Arbon P, Gebbie KM. Emergency nurses and disaster response: an exploration of South Australian emergency nurses' knowledge and perceptions of their roles in disaster response. *Australas. Emerg. Nurs. J.* 2011; **14**: 87–94.

Harkness G, Spellman J. Community preparedness: disaster and terrorism. In: Harkness Gail A, DeMarco RF (eds). *Community and Public Health Nursing: Evidence for Practice*. Philadelphia, PA: Wolters Kluwer: Lippincott WIlliams & Williams, 2012; 379–407.

Hassmiller SB, Stanley SAR. Public health nursing and the disaster management cycle. In: Stanhope M, Lancaster J (eds). *Public Health Nursing*. Missouri, MO: Mosby, 2012; 507–531.

Hope K, Massey P, Osbourn M, Durrheim D, Kewley C, Turner C. Senior clinical nurses effectively contribute to the pandemic public health response. *Aust. J. Adv. Nurs.* 2011; **28**: 47–53.

International Council of Nurses. 2006 *Position Statement: Nurses and Disaster Preparedess*. [Cited 7 Dec 2012.] Available from URL: http://www.icn.ch/publications/position-statements/.

International Council of Nurses. 2009 *ICN Framework of Disaster Nursing Competencies*. [Cited 12 Nov 2013.] Available from URL: http://www.icn.ch/images/stories/documents/networks/DisasterPreparednessNetwork/Disaster_Nursing_Competencies_lite.pdf.

Issel LM, Bekemeier B, Kneipp S. A public health nursing research agenda. *Public Health Nurs.* 2012; **29**: 330–342.

Jakeway C, LaRosa G, Cary A, Schoenfisch S. The Role of Public Health Nurses in Emergency Preparedness and Response: A Position Paper of the Association of State and Territorial Directors of Nursing. *Public Health Nursing.* 2008; **25**: 353–361.

Keleher H. Repeating history? Public and community health nursing in Australia. *Nurs. Inq.* 2000; **7**: 258–265.

Keleher H. Public health nursing in Australia – historically invisible. *Int. Hist. Nurs. J.* 2003; **7**: 50–50.

Keller LO, Strohschein S, Schaffer MA. Cornerstones of public health nursing. *Public Health Nurs.* 2011; **28**: 249–260.

Kelly F. Keeping PEDIATRICS in pediatric management: before, during, and in the aftermath of complex emergencies. *Crit. Care Nurs. Clin. North Am.* 2010; **22**: 465–480.

Lee L, Collings A. Sydney hailstorms: the health role in the recovery process. *Med. J. Aust.* 2000; **173**: 579–582.

Mayner L, Arbon P. Climate change, health and the need to increase resilience and capacity. *Collegian: J. R. Coll. Nurs. Aust.* 2010; **17**: 151–152.

Nicopolous N, Hansen E. How well prepared are Australian communities for natural disasters and fire emergencies? *Aust. J. Emerg. Manag.* 2009; **24**: 60–66.

Ranse J, Lenson S. Beyond a clinical role: nurses were psychosocial supporters, coordinators and problem solvers in the Black Saturday and Victorian bushfires in 2009. *Australas. Emerg. Nurs. J.* 2012; **15**: 156–163.

Shaban R. Australia's natural disasters: the 2009 fires and floods. *Australas. Emerg. Nurs. J.* 2009; **12** (2): 29.

Slepski LA. Emergency preparedness and professional competency among health care providers during hurricanes Katrina and Rita: pilot study results. *Disaster Manag. Response* 2007; **5**: 99–110.

Spencer L, Spellman J. The role of preparation of the public health nurse for disaster response. In: Goodwin Veenema T (ed.). *Disaster Nursing and Emergency Preparedness for Chemical, Biological and Radiological Terrorism and Other Hazards*. New York: Springer Publishing Company, 2013; 687–698.

Usher K. Editorial: are we ready? Preparing nurses to respond to disasters and emerging infectious diseases. *J. Clin. Nurs.* 2010; **19**: 1483–1484.

Usher K, Mayner L. Disaster nursing: a descriptive survey of Australian undergraduate nursing curricula. *Aust. Emerg. Nurs. J.* 2011; **14**: 75–80.

World Health Organization. Risk reduction and emergency preparedness. *WHO Six-Year Strategy for the Health Sector and Community Capacity Development*. Geneva: WHO, 2007.

Yang Y-N, Xiao LD, Cheng H-Y, Zhu J-C. Chinese nurses' experience in the Wenchuan earthquake relief. *Int. Nurs. Rev.* 2010; **57**: 217–223.

APPENDIX TWO – ETHICS APPROVAL

From: Human Research Ethics

Sent: Thursday, 6 June 2013 12:35 PM

To: Philippa Rokkas; Paul Arbon; Kristine Gebbie

Subject: 6094 SBREC - Final approval (6 June 2013)

Importance: High

Dear Philippa,

The Chair of the Social and Behavioural Research Ethics Committee (SBREC) at Flinders University considered your response to conditional approval out of session and your project has now been granted final ethics approval. Your ethics final approval notice can be found below.

FINAL APPROVAL NOTICE

Project No.:	**6094**
Project Title:	Australian public health nursing and disaster preparedness and response
Principal Researcher:	Mrs. Philippa Rokkas
Email:	rokk0002@flinders.edu.au
Address:	Flinders University Disaster Research Centre School of Nursing and Midwifery
Approval Date:	2 June 2013
Ethics Approval Expiry Date:	**31 October 2015**

The above proposed project has been **approved** on the basis of the information contained in the application, its attachments and the information subsequently provided with the addition of the following comment:

Additional information required following commencement of research:

1. Please ensure that copies of the correspondence requesting and granting permission to conduct the research from the Heads / Managers of all Public Health Units are submitted to the Committee *on receipt.* Please ensure that the SBREC project number is included in the subject line of any permission emails forwarded to the Committee. Please note that data collection should not commence until the researcher has received the relevant permissions (item D8 and Conditional approval response – number 3).

RESPONSIBILITIES OF RESEARCHERS AND SUPERVISORS

1. Participant Documentation

Please note that it is the responsibility of researchers and supervisors, in the case of student projects, to ensure that:

- all participant documents are checked for spelling, grammatical, numbering and formatting errors. The Committee does not accept any responsibility for the above mentioned errors.
- the Flinders University logo is included on all participant documentation (e.g., letters of Introduction, information Sheets, consent forms, debriefing information and questionnaires – with the exception of purchased research tools) and the current Flinders University letterhead is included in the header of all letters of introduction. The Flinders University international logo/letterhead should be used and documentation should contain international dialling codes for all telephone and fax numbers listed for all research to be conducted overseas.
- the SBREC contact details, listed below, are included in the footer of all letters of introduction and information sheets.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 'INSERT PROJECT No. here following approval'). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au.

2. Annual Progress / Final Reports

In order to comply with the monitoring requirements of the *National Statement on Ethical Conduct in Human Research (March 2007)* an annual progress report must be submitted each year on the **2 June** (approval anniversary date) for the duration of the ethics approval using the annual progress / final report pro forma. *Please retain this notice for reference when completing annual progress or final reports.*

If the project is completed *before* ethics approval has expired please ensure a final report is submitted immediately. If ethics approval for your project expires please submit either (1) a final report; or (2) an extension of time request and an annual report.

Your first report is due on **2 June 2014** or on completion of the project, whichever is the earliest.

3. Modifications to Project

Modifications to the project must not proceed until approval has been obtained from the Ethics Committee. Such matters include:

- proposed changes to the research protocol;
- proposed changes to participant recruitment methods;
- amendments to participant documentation and/or research tools;

- change of project title;
- extension of ethics approval expiry date; and
- changes to the research team (addition, removals, supervisor changes).

To notify the Committee of any proposed modifications to the project please submit a Modification Request Form to the Executive Officer. Download the form from the website every time a new modification request is submitted to ensure that the most recent form is used. Please note that extension of time requests should be submitted prior to the Ethics Approval Expiry Date listed on this notice.

Change of Contact Details

Please ensure that you notify the Committee if either your mailing or email address changes to ensure that correspondence relating to this project can be sent to you. A modification request is not required to change your contact details.

4. Adverse Events and/or Complaints

Researchers should advise the Executive Officer of the Ethics Committee on 08 8201-3116 or human.researchethics@flinders.edu.au immediately if:

- any complaints regarding the research are received;
- a serious or unexpected adverse event occurs that effects participants;
- an unforeseen event occurs that may affect the ethical acceptability of the project.

Andrea Fiegert
Executive Officer
Social and Behavioural Research Ethics Committee

cc Prof Paul Arbon
Prof Kristine Gebbie

Andrea Fiegert
Executive Officer, Social and Behavioural Research Ethics Committee
Research Services Office |Union Building Basement
Flinders University

Sturt Road, Bedford Park | South Australia | 5042

GPO Box 2100 | Adelaide SA 5001

P: +61 8 8201-3116 | F: +61 8 8201-2035 |Web: Social and Behavioural Research Ethics Committee

APPENDIX THREE – PARTICIPANT LETTER AND PROJECT INFORMATION

Mrs Pip Rokkas
School of Nursing and Midwifery
Faculty of Health Sciences

Sturt Campus, Level 3 North Wing Flinders Drive, Bedford Park SA 5042

GPO Box 2100
Adelaide SA 5001

Tel: +61 8 [redacted]
Fax: +61 8 8276 1602
[redacted]

Web www.flinders.edu.au

CRICOS Provider No. 00114A

PARTICIPANT PROJECT INFORMATION SHEET

Public Health Nursing and Disaster Preparedness and Response

Investigator
Mrs. Pip Rokkas
Disaster Research Centre, Nursing and Midwifery Department
Flinders University
Phone: [redacted], Mobile: [redacted]

This study is part of the research project entitled, *'Within the field of Australian public health nursing, what are the perceived roles and functions related to disaster preparedness and response?'*

This project explores the experiences of nurses working within the area of public health in disaster preparedness and response and is a part of my PhD studies within the Disaster Research Centre, Flinders University Nursing and Midwifery Department.

Purpose of the study:
This project will be collecting information on what nurses working within the area of public health nursing perceive their actual and potential roles and functions are in disaster preparedness and response. It will:

- Provide new knowledge, by creating insight into what nurses working in public health consider their roles and functions are disasters. This is important, given the increasing frequency and impact that disasters are having on Australian communities.
- Contribute information which may be used for future disaster education, and competency planning for nurses working within public health.
- Provide increased visibility and understanding regarding the roles of nurses who work within the field of public health within the Australian health profession.

Eligible participants
Participants required for this research are: any registered nurse, who has worked for a minimum of one year in a public health unit/department, and who is NOT employed in research.

What will I be asked to do?

What will I be asked to do?

You are invited to participate in an individual interview with the investigator, who is a public health nurse. The researcher will ask you a few questions about your knowledge and experience of being a nurse within public health nursing and your knowledge and perceptions about disaster/ emergency preparedness as relates to your role. The interview will take about an hour. The interview will be recorded using a digital voice recorder to help with looking at the results. Once recorded, the interview will be transcribed and stored as a computer file and then destroyed once the results have been finalised.

What benefit will I gain from being involved in this study?
The sharing of your experience will assist in increasing the overall knowledge base of what nurses working in your area of public health can do to assist in disaster and emergency events in Australia. The study information could be used to inform future planning and educational resources for nurses who work in the area of public health across Australia

Will I be identifiable by being involved in this study?
Once the interview has been typed-up and saved as a file, the voice file will then be destroyed. Any identifying information will be removed and the typed-up file stored on a password protected computer that only the chief researcher Mrs Pip Rokkas will have access to. Your comments will not be linked directly to you.

Are there any risks or discomforts if I am involved?
The researcher anticipates few risks from your involvement in this study. If you have any concerns regarding anticipated or actual risks or discomforts, please raise them with the researcher.

How do I agree to participate?
Participation is voluntary. You may answer 'no comment' or refuse to answer any questions and you are free to withdraw from the focus group at any time without effect or consequences. If you wish to participate in the study, contact the researcher using the email, or phone or fax information below. The researcher will discuss the project with you and send you a consent form to sign, should you agree to participate.

Philippa.rokkas@flinders.edu.au
Phone, +61 [redacted]
Mobile: [redacted]; Fax: + 61 8 8276 1602

Address:
Disaster Research Centre, School of Nursing and Midwifery
Sturt Campus. North Wing.
GPO Box 2100, Adelaide, SA. 5001

How will I receive feedback?
At the conclusion of the project a summary of the research findings will be emailed to participants on request.

Thank you for taking the time to read this information sheet and I hope that you will accept my invitation to be involved.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (project number 6094). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au

APPENDIX FOUR – ETHICS MODIFICATION APPROVALS

From: Human Research Ethics

Sent: Wednesday, 4 September 2013 12:22 PM

To: Philippa Rokkas; Paul Arbon; Kristine Gebbie

Subject: 6094 Modification Approval no.1 (4 September 2013)

Hi Pip,

The Chairperson of the Social and Behavioural Research Ethics Committee (SBREC) at Flinders University has reviewed and approved the modification request that was submitted for project 6094. A modification ethics approval notice can be found below.

MODIFICATION (No.1) APPROVAL NOTICE

Project No.:	**6094**
Project Title:	Australian public health nursing and disaster preparedness and response
Principal Researcher:	Mrs. Philippa Rokkas
Email:	rokk0002@flinders.edu.au
Address:	Flinders University Disaster Research Centre School of Nursing and Midwifery

Modification Approval Date:	29 August 2013	Ethics Approval Expiry Date:	**31 October 2015**

I refer to your modification request for the project above that has been approved previously. I am pleased to inform you that the Chairperson has approved your request to modify the project as outlined below:

✓	Approved Modification(s)	Details of approved modification(s)	
	Documentation Amendments and/or Additions	Amended Documents	1. Participant information sheet 2. Text relating to feedback 3. Participant project information sheet text
		New Documents	1.

RESPONSIBILITIES OF RESEARCHERS AND SUPERVISORS

5. Participant Documentation

Please note that it is the responsibility of researchers and supervisors, in the case of student projects, to ensure that:

- all participant documents are checked for spelling, grammatical, numbering and formatting errors. The Committee does not accept any responsibility for the above mentioned errors.
- the Flinders University logo is included on all participant documentation (e.g., letters of Introduction, information Sheets, consent forms, debriefing information and questionnaires – with the exception of purchased research tools) and the current Flinders University letterhead is included in the header of all letters of introduction. The Flinders University international logo/letterhead should be used and documentation should contain international dialling codes for all telephone and fax numbers listed for all research to be conducted overseas.
- the SBREC contact details, listed below, are included in the footer of all letters of introduction and information sheets.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 'INSERT PROJECT No. here following approval'). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au.

6. Annual Progress / Final Reports

Please be reminded that in order to comply with the monitoring requirements of the *National Statement on Ethical Conduct in Human Research (March 2007)* an annual progress report must be submitted each year on **2 June** (approval anniversary date) for the duration of the ethics approval.

If the project is completed *before* ethics approval has expired please ensure a final report is submitted immediately. If ethics approval for your project expires please submit either (1) a final report; or (2) an extension of time request and an annual report.

Student Projects

The SBREC recommends that current ethics approval is maintained until a student's thesis has been submitted, reviewed and approved. This is to protect the student in the event that reviewers recommend some changes that may include the collection of additional participant data.

Your next report is due on **2 June 2014** or on completion of the project, whichever is the earliest. A copy of the Report Pro Forma is available for download from the Annual / Final

Reports SBREC web page. *Please retain a copy of this notice for reference when completing annual progress or final reports.*

7. Modifications to Project

Modifications to the project must not proceed until approval has been obtained from the Ethics Committee. Such matters include:

- proposed changes to the research protocol;
- proposed changes to participant recruitment methods;
- amendments to participant documentation and/or research tools;
- change in project title;
- extension of ethics approval expiry date; and
- changes to the research team (addition, removals, supervisor changes).

To notify the Committee of any proposed modifications to the project please submit a Modification Request Form to the Executive Officer. Download the form from the website every time a new modification request is submitted to ensure that the most recent form is used. Please note that extension of time requests should be submitted prior to the Ethics Approval Expiry Date listed on this notice.

Change of Contact Details

Please ensure that you notify the Executive Officer if either your mailing or email address changes to ensure that correspondence relating to this project can be sent to you. A modification request is not required to change your contact details.

8. Adverse Events and/or Complaints

Researchers should advise the Executive Officer of the Ethics Committee on 08 8201-3116 or human.researchethics@flinders.edu.au immediately if:

- any complaints regarding the research are received;
- a serious or unexpected adverse event occurs that effects participants;
- an unforeseen event occurs that may affect the ethical acceptability of the project.

Mikaila Crotty
Ethics Officer and Joint Executive Officer
Social and Behavioural Research Ethics Committee

Mrs Andrea Fiegert and **Ms Mikaila Crotty**
Ethics Officers and Joint Executive Officers, Social and Behavioural Research Ethics Committee
Telephone: +61 8 8201-3116 | Andrea Fiegert (Monday – Wednesday)
Telephone: +61 8 8201-7938 | Mikaila Crotty (Wednesday – Friday)
Web: Social and Behavioural Research Ethics Committee

REFERENCES

Abrams, SE 2010, 'Hints for the Aspiring Public Health Nurse', *Public Health Nursing*, vol. 27, no. 2, pp. 196-9.

Adelman, D & Gray, W 2009, 'The Nature of Disasters', in Adelman Deborah (ed.), *Disaster Nursing*, Jones and Bartlett, Boston, pp. 1-8.

Akins, RB, Williams, JR, Silenas, R & Edwards, JC 2005, 'The Role of Public Health Nurses in Bioterrorism Preparedness', *Disaster Management & Response*, vol. 3, no. 4, pp. 98-105.

Alexandra, K, Taylor-Clark, KV & Blendon, RJ 2010, 'Communication inequalities during Public Health disasters: Katrina's wake.', *Health Commun*, vol. 25, no. 3, pp. 221-9.

Annells, M 1996, 'Hermeneutic phenomenology: philosophical perspectives and current use in nursing research', *Journal of Advanced Nursing*, vol. 23, no. 4, pp. 705-13.

Arbon, P 2009, 'Guest Editorial: Understanding and preparing for disasters and catastrophic emergencies', *Nursing and Health Sciences*, vol. 11, no. Dec 4, pp. 334-5.

Arbon, P, Cusack, L, Ranse, J, Shaban, R, Considine, J, Mitchell, B, Hammad, KS, Bahnisch, L, Kako, M & Woodman, R 2011, *Understanding the Willingness of Australian Emergency Nurses to Respond to a Disaster (Final Report)*, Flinders University, viewed November 21 2013, <http://www.flinders.edu.au/fms/disaster-resilience/documents/WillingnessReport.pdf>.

Association of Public Health Nurses 2014, *The Role of the Public Health Nurse in Disaster Preparedness and Response - A position paper*, Assocation of Public Health Nurses Public Health Preparedness Committee viewed 17 March 2015, <http://www.achne.org/files/public/APHN_RoleOfPHNinDisasterPRR_FINALJan14.pdf>.

Association of State and Territorial Directors of Nursing 2007, *The Role of Public Health Nurses In Emergency Preparedness and Response,*, viewed November 29 2013, <http://www.astdn.org/downloadablefiles/ASTDN%20EP%20Paper%20final%2010%2029%2007.pdf>.

Austgard, K 2012, 'Doing it the Gadamerian way – using philosophical hermeneutics as a methodological approach in nursing science', *Scandinavian Journal of Caring Sciences*, vol. 26, no. 4, pp. 829-34.

Australian Bureau of Statistics 2015, *3218.0 Regional Population Growth, Australia, 2013-14* ABS, Canberra.

Attorney-General 2011, *Disaster Health Handbook 1* by Australian Emergency Management Institute, Australian Government.

Attorney-General 2014, *Australian Emergency Management Arrangements Handbook 9*, by Australian Emergency Management Institute, 2nd edn, Australian Government.

Australian Government 2015, *Natural Disasters in Australia*, viewed 10 December 2015, <http://www.australia.gov.au/about-australia/australian-story/natural-disasters>.

Australian Government 2016, *Natural disasters in Australia*, Australian Government, viewed 2 March 2016, <http://www.australia.gov.au/about-australia/australian-story/natural-disasters>.

Australian Institute of Health and Welfare 2012, *Nursing and Midwifery Workforce 2011*, Canberra.

Australian Institute of Health and Welfare 2014a, *Australia's health 2014.*, AIHW, Canberra, ACT.

Australian Institute of Health and Welfare 2014b, *Australias Health 2014*, by Australian Institute of Health and Welfare, Australian Government.

Australian Institute of Health and Welfare 2015, *Nursing and Midwifery Workforce 2014*, Australian Government <http://www.aihw.gov.au/workforce/nursing-and-midwifery/how-many/>.

Australian Nursing and Midwifery Council 2008, *The Responsibilities of Nurses and Midwives in the Event of a Declared National Emergency*, viewed 13 February 2015, <http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=6A6FDB9D8ACE146D329CF41EB3F3CB8B?doi=10.1.1.244.9145&rep=rep1&type=pdf>.

Australian Nursing Federation 2011, *ANF position statement Climate Change*, Australian Nursing Federation,, <http://anf.org.au/documents/policies/PS_Climate_Change.pdf>.

Barna, S, Goodman, B & Mortimer, F 2012, 'The health effects of climate change: What does a nurse need to know?', *Nurse Education Today*, vol. 32, no. 7, pp. 765-71.

Baum, F 2008, *The New Public Health*, 3rd edn, Oxford University Press, Victoria, Australia.

Baum, F & Keleher, H 2002, 'Public Health', *Medical Journal Of Australia*, vol. 176, no. 1, pp. 36-7.

Beck, CT 1994, 'Phenomenology: Its use in nursing research', *International Journal of Nursing Studies*, vol. 31, no. 6, pp. 499-510.

Bergin, A & Khosa, R 2007, *Are we ready? Healthcare preparedness for catastrophic terrorism*, Australian Strategic Policy Institute, Canberra, Australia.

Binding, LL & Tapp, DM 2008, 'Human understanding in dialogue: Gadamer's recovery of the genuine', *Nursing Philosophy*, vol. 9, no. 2, pp. 121-30.

Bird, DK, Chagué-Goff, C & Gero, A 2011, 'Human response to extreme events : a review of three post-tsunami disaster case studies', *Australian geographer*, vol. 42, no. 3, pp. 225-39.

Brookes, K, Hancock, K, Davidson, P & Daly, J 2004, 'Community health nursing in Australia: A critical literature review and implications for professional development', *Contemporary Nurse*, vol. 16, no. 3, pp. 195-207.

Bushnell, S & Cottrell, A 2007, 'Increasing community resilience to bushfire — implications from a north Queensland community case study ', *Australian Journal of Emergency Management*, vol. 22, no. 2, pp. 3-9.

Canyon, D 2009, 'An Assessment of bioterrorism competencies among health practitioners in Australia', *Emerging Health Threats Journal*, vol. 2, no. e7, pp. 1-6.

Chapman, K & Arbon, P 2008, 'Are nurses ready? Disaster preparedness in the acute setting', *Australasian Emergency Nursing Journal*, vol. 11, no. 3, pp. 135-44.

Chiu, M & Polivka, BJR 2012, 'Evaluation of a Disaster-Surge Training for Public Health Nurses', *Public Health Nursing*, vol. 29, no. 2, pp. 136-42.

Cieslak, JT, Lillibridge, S, Sharp, T, Christopher, G & Eitzen, E 2007, 'Categorical Public Health Sciences: Disaster Preparedness and Response', in R Wallace (ed.), *Public Health and Preventative Medicine*, fifteenth edn, Maxcy-Rosenau-Last, New York, pp. 1285-93.

Clark, J 2008, 'Philosophy, understanding and the consultation: a fusion of horizons', *British Journal of General Practice*, vol. 58, no. 546, pp. 58-60.

Climate and Health Alliance 2013, *Submission to Senate Standing Commitee on Environment and Communications Inquiry Into Recent Trends In And Preparedess for Extreme Weather Events* viewed 13 August 2015, <http://caha.org.au/wp-content/uploads/2012/03/CAHA-Submission-Extreme-Weather-2013_final1.pdf>.

Condon, C, Nesbitt, P & Salzman, S 2008, *The role and scope of practice of the Community Health Nurses in Victoria*, Community Health Nurses Special Interest Group, the Australian Nursing Foundation Victoria.

Cornell, V 2014, 'How does the lived experience of older people influence their preparedness for emergency events?', PhD Thesis thesis, Flinders University.

National Emergency Management Committee (NEMC) 2011, *National Strategy for Disaster Resilence: Building our nation's resilience to disasters*, by Council of Australian Governments.

Coverdale, C 2010, 'Ready, willing and able? Specialist community public health nurses' views of their public health role, ' *Journal of Research in Nursing*, vol. 17, no. 1, pp. 47-63.

Cox, H 1997, 'Disaster relief work: Nurses and others in bushfire territory', *International Journal of Nursing Practice*, vol. 3, no. 4, pp. 218-23.

CRED 2015a, *EM-DAT The International Disaster Database* Centre for Research on the Epidemiology of Disasters, 18 November, <http://www.emdat.be/>.

CRED 2015b, *The Human Cost of Natural Disasters*, Research Institute Health & Society (IRSS), Université catholique de Louvain, Brussels,Belgium

Cusack, L, Arbon, P & Ranse, J 2010, 'What is the role of nursing students and schools of nursing during disaster? A discussion paper', *Collegian: Journal of the Royal College of Nursing Australia*, vol. 17, no. 4, pp. 193-7.

Davis, JR, Wilson, S, Brock-Martin, A, Glover, S & Svendsen, ER 2010, 'The Impact of Disasters on Populations With Health and Health Care Disparities', *Disaster Med Public Health Prep.*, vol. 4, no. 1, pp. 30-8.

Deeny, P & Davies, K 2013, 'Disaster Relief Nursing in the 21st Century', in V Tener Goodwin (ed.), *Disaster Nursing and Emergency Preparedness for Chemical, Biological and Radiological Terrorism and other Hazards* 3rd edn, Springer, New York, pp. 345-61.

Deloitte Access Economics 2015, *The economic cost of the social impact of natural disasters*, 4th report, Australian Business Roundtable for Disaster Resilience & Safer Communities, Australia.

Department of Health 2014, *A National Framework For Communicable Disease Control*, by Department of Health, Commonwealth of Australia.

Dowling, M 2004, 'Hermeneutics: an exploration', *Nurse Researcher*, vol. 11, no. 4, pp. 30-9.

Dowling, M 2007, 'From Husserl to van Manen. A review of different phenomenological approaches', *International Journal of Nursing Studies*, vol. 44, no. 1, pp. 131-42.

Drehobl, P, Stover, BH & Koo, D 2014, 'On the Road to a Stronger Public Health Workforce: Visual Tools to Address Complex Challenges', *American Journal of Preventive Medicine*, vol. 47, no. 5, Supplement 3, pp. S280-S5.

Duong, K 2009, 'Disaster educuation and training of emergency nurses in South Australia', *Ausralian Emergency Nursing Journal*, vol. 12, no. 3, pp. 86-92.

Eastwood, K, Massey, P & Durrheim, D 2006, 'Pandemic planning at the coal face: responsibilities of the public health unit', *NSW Public Health Bulletin*, vol. 17, no. 7-8, pp. 117-20.

Edgecombe, G 2001, *Public Health Nursing: Past and Future, A Review of the Literature* World Health Organisation Regional Office for Europe, Copenhagen, EUR/01/5019258.

Edwards, N, Caldicott, D, Eliseo, T & Pearce, A 2006, ' Truth hurts — hard lessons learned from Australia's largest mass casualty exercise with contaminated patients', *Emerg Med Aust*, vol. 18, pp. 185-95.

Emergency Management Australia n.d., *The Australian Emergency Management Manual Series* Attorney-General's Department Australian Government,, viewed 20 August 2015, <http://www.ag.gov.au/EmergencyManagement/Tools-and-resources/Publications/Pages/Manual-series.aspx>.

Everingham, K, Fawcett, T & Walsh, T 2014, ''Targeting' sedation: the lived experience of the intensive care nurse', *Journal of Clinical Nursing*, vol. 23, no. 5-6, pp. 694-703.

Fisher, ML, Daksha, B, Robert, P & Elaine, D 2010, 'Health Issues In Humanitarian Emergencies', in R Powers (ed.), *International Disaster Nursing*, Cambridge University Press, New York, p. 427448.

FitzGerald, G, Peter, A, Paul, A, Frank, A, David, C, Peter, L, Colin, M, Andrew, R, Michael, T & R, DE 2010, 'A National Framework for Disaster Health Education in Australia', *Prehospital and Disaster Medicine*, vol. 25, no. 01, pp. 4-11.

Fleming, V, Gaidys, U & Robb, Y 2003, 'Hermeneutic research in nursing: developing a Gadamerian-based research method', *Nursing Inquiry*, vol. 10, no. 2, pp. 113-20.

Gadamer, HG 1975/2004, *Truth and Method*, Revised second 2004 edn, Bloomsbury, London, New York.

Gadamer, HG 1976, *Philosophical Hermeneutics* University of California

Gadamer, HG 1989, *Truth And Method*, Cross Road Publishing, New York.

Geale, SK & Duffield, C 2015, 'Nurses - are we disaster ready?', *Australian Nursing and Midwifery Journal*, vol. 23, no. 1, p. 23.

Gebbie, K 2007, 'Public Health Workforce', in R Wallace (ed.), *Public Health and Preventative Medicine*, fifteenth edn, Maxcy- Rosenau- Last, New York, pp. 1300-3.

Gebbie, K 2010a, 'The current status of nurses' emergency preparedness: A commentary on the development of emergency preparedness and response competency', *Collegian*, vol. 17, no. 4, pp. 209-11.

Gebbie, K 2010b, 'Review: Ready, willing and able? Specialist community public health nurses' views of their public health role', *Journal of Research in Nursing*, vol. 17, no. 1, pp. 64-5.

Gebbie, K, Hutton, A & Plummer, V 2012, 'Update on Competencies and Education', *Annual Review of Nursing Research*, vol. 30, pp. 169-92.

Gebbie, K, McGean Weist, E, McElligott, JE, Biesiadecki, LA, Gotsch, AR, William Keck, C & Ablah, E 2012, 'Implications of preparedness and response core competencies for public health', *Journal of Public Health Management and Practice*.

Gebbie, K & Qureshi, K 2002, 'Emergency and Disaster Preparedness: Core Competencies for Nurses: what every nurse should but may not know', *American Journal of Nursing*, vol. 102, no. 1, pp. 46-51.

Gill, MJ 2014, 'The Possibilities of Phenomenology for Organizational Research', *Organizational Research Methods*, vol. 17, no. 2, pp. 118-37.

Goodwin Veenema, T (ed.) 2007, *Disaster Nursing and Emergency Preparedness for Chemical, Biological. and Radiological Terrorism and Other Hazzards*, Second edn, Springer Publishing, New York.

Grondin, J 2003, *Hans-Georg Gadamer A Biography*, Yale University, New Haven, London.

Grumbach, K, Miller, J, Mertz, E & Finocchio, L 2004, 'How Much Public Health in Public Health Nursing Practice?', *Public Health Nursing*, vol. 21, no. 3, pp. 266-76.

Guest, G, Bunce, A & Johnson, L 2006, 'How Many Interviews Are Enough? An Experiment with Data Saturation and Variability', *Field Methods*, vol. 18, no. 59.

Guha-Sapir, D, Vos, F, Below, R & Sylvain, P 2011, *Annual Disaster Statistical Review 2011 The numbers and trends (CRED)*, Brussels.

Gursky, E & Gregory, B 2012, 'Assessing a Decade of Public Heath Preparedness: Progress On The Precipice', *Biosecurity and Bioterrorsim: Biodefence Strategy, Practice, and Science*, vol. 10, no. 1, pp. 55-65.

Hammad, K, Arbon, P & Gebbie, K 2011, 'Emergency nurses and disaster response: An exploration of South Australian emergency nurses' knowledge and perceptions of their roles in disaster response', *Australasian Emergency Nursing Journal*, vol. 14, no. 2, pp. 87-94.

Harkness, G & Spellman, J 2012, 'Community Preparedness: Disaster and Terrorism', in Harkness Gail A & DeMarco Rosanna F (eds), *Community and Public Health Nursing: Evidence for Practice*, 5 edn, Wolters Kluwer: Lippincott WIlliams & Williams, Philadelphia, pp. pp. 379-407.

Harkness, GA & DeMarco, R 2012, *Community and Public Health Nursing: Evidence for Practice*, Wolters Kluwer Health/Lippincott Williams & Wilkins.

Hassmiller, B 2014, 'Leveraging Public Health Nursing to Build a Culture of Health', *American Journal of Preventive Medicine*, vol. 47, no. 5, Supplement 3, pp. S391-S2.

Hassmiller, B & Stanley, S 2012, 'Public Health Nursing and the Disaster Management Cycle', in M Stanhope & J Lancaster (eds), *Public Health Nursing*, 8th edn, Missouri, USA.

Heidegger, M 1962, *Being And Time*, 7th edn, HarperCollins, New York.

Hemingway, A, Aarts, C, Koskinen, L, Campbell, B & Chassé, F 2012, 'A European Union and Canadian Review of Public Health Nursing Preparation and Practice', *Public Health Nursing*, pp. n/a-n/a.

Hockey, J & Cormann, M 2014, *Final Budget Outcome 2013-14*, Minister For Finance of the Commonweatlh of Australia, viewed December 2014, <http://budget.gov.au/2013-14/content/fbo/download/Consolidated.pdf>.

Holloway, I & Wheeler, S 2010, *Qualitative Research in Nursing and Health Care*, 3rd edn, Wiley-Blackwell, Oxford.

Hope, K, Massey, P, Osbourn, M, Durrheim, D, Kewley, C & Turner, C 2011, 'Senior clinical nurses effectively contribute to the pandemic public health response', *Australian Journal of Advanced Nursing*, vol. 28, no. 3, pp. 47-53.

Climate Change and Energy Efficiency 2011, *The Critical Decade: Climate Change and Health*, by Hughes, L & McMichael, T, Climate Commission Secretariat, Commonwealth Government Australia.

Hutton, A & Tilden, H 2010, 'Hurricane Katrina: Health Aspects', in R Powers & E Daily (eds), *International Disaster Nursing*, First edn, Cambridge University Press, Melbourne, pp. 529-48.

ICN 2009, *ICN Framework of Disaster Nursing Competencies*, viewed 12 November 2013, <http://www.icn.ch/images/stories/documents/networks/DisasterPreparednessNetwork/Disaster_Nursing_Competencies_lite.pdf>.

ICN 2015, *Definition of Nursing*, International Council of Nurses, viewed 8 September 2015, <http://www.icn.ch/who-we-are/icn-definition-of-nursing/>.

ICRC 2012, *Types of disasters: Definition of hazard*, International Federation of Red Cross and Red Crescent Societies, viewed 9 November 2012, <http://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/definition-of-hazard/>.

International Council of Nurses 2006, *2006 Position Statement: Nurses and Disaster Preparedess*, International Council of Nurses, <http://www.icn.ch/publications/position-statements/>.

Ireland, M, Ea, E, Kontzamanis, E & Michel, C 2006, 'Integrating Disaster Preparedness Into a Community Health Nursing Course: One School's Experience', *Disaster Management & Response*, vol. 4, no. 3, pp. 72-6.

Issel, LM, Bekemeier, B & Kneipp, S 2012, 'A Public Health Nursing Research Agenda', *Public Health Nursing*, vol. 29, no. 4, pp. 330-42.

Jamieson, L 2011, 'The floods we won't forget', *The Queensland Nurse*, vol. 30, no. 1, pp. 14-25.

Jefferies, H & Clifford, C 2012, 'All change: the lived experience of younger women with cancer of the vulva', *Journal of Clinical Nursing*, vol. 21, no. 15-16, pp. 2327-35.

Joyce, BL, O'Brien, K, Belew-LaDue, B, Dorjee, TK & Smith, CM 2014, 'Revealing the Voices of Public Health Nurses by Exploring Their Lived Experience', *Public Health Nursing*, pp. n/a-n/a.

Kako, M, Mitani, S & Arbon, P 2012, 'Literature Review of Disaster Health Research in Japan: Focusing on Disaster Nursing Education', *Prehospital and Disaster Medicine*, vol. 27, no. 02, pp. 178-83.

Kasper, CE 2012, 'Preface', *Annual Review of Nursing Research*, vol. 30, pp. 2-XI,XII.

Keim, M 2008, 'Building Human Resilience: The Role of Public Health Preparedness and Response As an Adaptation to Climate Change', *American Journal of Preventative Medicine*, vol. 35, no. 5, pp. 58-516.

Keleher, H 2000, 'Repeating history? Public and community health nursing in Australia', *Nursing Inquiry*, vol. 7, no. 4, pp. 258-65.

Keleher, H 2003, 'Public health nursing in Australia-historically invisible', *International History of Nursing Journal*, vol. 7, no. 3, pp. 50-.

Keller, LO, Strohschein, S & Schaffer, MA 2011, 'Cornerstones of Public Health Nursing', *Public Health Nursing*, vol. 28, no. 3, pp. 249-60.

Kelly, F 2010, 'Keeping PEDIATRICS in Pediatric Management: Before, During, and in the Aftermath of Complex Emergencies, ' *Critical Care Nursing Clinics of North America*, vol. 22, no. 4, pp. 465-80.

Kingma, M 2010, 'Foreword in International Disaster Nursing', in R Powers & E Daily (eds), *International Disaster Nursing*, Cambridge Univeristy Press, Melbourne, pp. vii-viii.

Kooken, WC & Haase, J 2014, 'A Big Word for Something We Do All the Time: Oncology Nurses Lived Experience of Vigilance', *Cancer Nursing.*, vol. 37, no. 6, pp. 15-24.

Kralik, D & van Loon, A (eds) 2011, *Community Nursing in Australia*, Second Edition edn, John Wiley & Sons Australia, Ltd.

Langan, JC & Palmer, JL 2012, 'Listening to and Learning from Older Adult Hurricane Katrina Survivors', *Public Health Nursing*, vol. 29, no. 2, pp. 126-35.

Lavin, RP, Schemmel-Rettenmeier, L & Frommelt-Kuhle, M 2012, 'Conducting Research During Disasters', *Annual Review of Nursing Research*, vol. 30, pp. 1-19.

Lay, T, Kanamori, H, Ward, SN, Aster R.C, Beck S.L, Bilek S.L, Brudzinski M.R, Butler, R, Deshon H.R, Eksrom G, Satake K & Sipkin S 2005, 'The great Sumatra_Andamain earthquake of 26 December 2004', *Science*, vol. 308, no. 20 May, p. 1127.

Lee, L & Collings, A 2000, 'Sydney hailstorms: the health role in the recovery process ', *Medical Journal Of Australia*, vol. 173, no. 3, pp. 579-82.

Lindell, J 2011, 'Disaster Studies', *Sociopedia.isa*, pp. 1-18.

Locsin, RC & Matua, AG 2002, 'The lived experience of waiting-to-know: Ebola at Mbarara, Uganda – hoping for life, anticipating death', *Journal of Advanced Nursing*, vol. 37, no. 2, pp. 173-81.

Mackey, S 2005, 'Phenomenological nursing research: methodological insights derived from Heidegger's interpretive phenomenology', *International Journal of Nursing Studies*, vol. 42, no. 2, pp. 179-86.

MacMaster, J 1999, 'The Public Health Nurse in Tornado Relief', *Public Health Nursing*, vol. 16, no. 1, pp. 72-5.

Macmillan Publishers Group 2015, *Macquarie Dictionary*, Macmillan Publishers Group viewed 5 July 2015, <https://www.macquariedictionary.com.au/features/word/search/?word=sentinel&search_word_type=Dictionary>.

Maher, HKPRNC-SCCMF 2006, 'Posttraumatic Stress Disorder After the Hurricanes', *AAOHN Journal*, vol. 54, no. 11, p. 508.

Maibach, E, Nisbet, M & Weathers, M 2011, *Conveying the Human Implications of Climate Change A Climate Change Communication Primer for Public Health Professionals*, Fairfax, VA: George Mason University Center for Climate Change Communication.

Maulidar, Urai, H & Chaowalit, A 2010, 'Knowledge, Self-preparedness and Perceived Skills Regarding Tsunami Disaster Nursing Among Public Health Nurses Working in Tsunami Affected Area of Aceh Province, Indonesia', paper presented to 5th Annual Workshop & Expo on Sumatra Tsunami Disaster & Recovery 2010, Banda Aceh, Indonesia, 10 November 2012, <http://atdr.tdmrc.org:8084/jspui/bitstream/123456789/5307/1/30%20Knowledge,%20Self%20preparedness.pdf>.

Mayner, L & Arbon, P 2010, 'Climate change, health and the need to increase resilience and capacity', *Collegian: Journal of the Royal College of Nursing Australia*, vol. 17, no. 4, pp. 151-2.

Mayner, L & Arbon, P 2015, 'Defining disaster: The need for harmonisation of terminology', *Australasian Journal of Disaster and Trauma Studies*, vol. 19, pp. 21-5.

McCloud, C, Harrington, A & King, L 2012, 'Understanding people's experience of vitreo-retinal day surgery: a Gadamerian-guided study', *Journal of Advanced Nursing*, vol. 68, no. 1, pp. 94-103.

McInnes, JA & Ibrahim, JE 2013, 'Preparation of residential aged care services for extreme hot weather in Victoria, Australia', *Australian Health Review*, vol. 37, no. 4, pp. 442-8.

McManus Holroyd A, E 2007, 'Interpretive Hermeneutic Phenomenology: Clarifying Understanding', *Indo-Pacific Journal of Phenomenology*, vol. 7, no. 2, pp. 1-12.

Meagher-Stewart, D, Underwood, J, MacDonald, M, Schoenfeld, B, Blythe, J, Knibbs, K, Munroe, V, Lavoie-Tremblay, M, Ehrlich, A, Ganann, R & Crea, M 2010, 'Special Features: Health Policy: Organizational Attributes That Assure Optimal Utilization of Public Health Nurses', *Public Health Nursing*, vol. 27, no. 5, pp. 433-41.

Mendez, T 2010, 'Disaster Planning for Vulnerable Populations: Mental Health', *Crit Care Nurs Clin N Am*, vol. 22, pp. 493-500.

Meyer, S, Ward, P, Coveney, J & Rogers, W 2008, 'Trust in the health system: An analysis and extension of the social theories of Giddens and Luhmann', *Health Sociology Review*, vol. 17, no. 2, pp. 177-86.

Mootz III, FJ & Taylor, GH (eds) 2011, *Gadamer and Ricoeur Critical Horizons for Contemporary Hermeneutics*, Continuum International Publishing Group, London.

Mueller, K, Estrada, C & Lucard, M 2014, 'The face of humanity', *RCRC Red Cross Red Crescent*, no. 3, pp. 4-9.

Munhall, PL 2012, 'A Phenomenological Method', in PL Munhall (ed.), *Nursing Research A Qualitative Perspective*, fifth edn, Jones and Bartlett Learning, Sudbury, MA, USA, pp. 113-75.

New South Wales Health 2014, *Public Health Workforce Surge Guidelines*, Minstiry of Health, NSW, viewed 18 August 2015, <http://www0.health.nsw.gov.au/policies/gl/2014/pdf/GL2014_003.pdf>.

Nicopolous, N & Hansen, E 2009, 'How well prepared are Australian communities for natural disasters and fire emergencies?', *The Australian Journal of Emergency Management*, vol. 24, no. 1, pp. 60-6.

Noji, E 2007, 'Foreword: Disaster Nursing and Emergency Preparedness for Chemical, Biological, and Radiological Terrorsm and Other Hazards
', in TG Veenema (ed.), *Disaster Nursing and Emergency Preparedness for Chemical, Biological, and Radiological Terrorsm and Other Hazards*, Second edn, Springer Publishing Company, New York, p. v.

Noji, EK 2000, 'The Public Health Consequences of Disasters', *Prehospital and Disaster Medicine*, vol. 15, no. 04, pp. 21-31.

Norris, FH, Friedman, MJ, Watson, PJ, Byrne, CM, Diaz, E & Kaniasty, K 2002, '60,000 Disaster Victims Speak: Part I. An Empirical Review of the Empirical Literature, 1981—2001', *Psychiatry*, vol. 65, no. 3, pp. 207-39.

Nursing and Midwifery Board of Australia 2014, *Position statement on the role of nurses and midwives in a national emergency*, Nursing and Midwifery Board of Australia, viewed 20 August 2015 2015, <http://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Position-Statements/role-of-nurses.aspx>.

Office of Health Protection 2009a, *2003 National Health Disaster Management Capability Audit*, Department of Health and Aging, Canberra, ACT

Office of Health Protection 2009b, *2005 National Health Disaster Mangement Capability Audit*, Department of Health and Aging, Canberra, ACT

Office of Health Protection 2009c, *2008 National Health Disaster Management Capability Audit*, Health and Aging, Canberra, ACT.

Pascoe, E 1996, 'The value to nursing research of Gadamer's hermeneutic philosophy', *Journal of Advanced Nursing*, vol. 24, no. 6, pp. 1309-14.

Pereira, HRRNMP 2012, 'Rigour in phenomenological research: reflections of a novice nurse researcher', *Nurse Researcher*, vol. 19, no. 3, pp. 16-9.

Philibin, CAN, Griffiths, C, Byrne, G, Horan, P, Brady, A-M & Begley, C 2010, 'The role of the public health nurse in a changing society', *Journal of Advanced Nursing*, vol. 66, no. 4, pp. 743-52.

Phillips, B 2007, 'Nursing care and understanding the experiences of others: a Gadamerian perspective', *Nursing Inquiry*, vol. 14, no. 1, pp. 89-94.

Polit, DF & Beck, CT 2012, 'Qualitative Data Analysis', in *Nursing Research: Generating and Assessing Evidence For Nursing Practice*, Ninth edn, Wolters Kluwer, Philadelphia, pp. 556-81.

Department of Climate Change and Energy Efficiency 2011, *Protecting health and Safety during severe and extreme heat events A national framework* by PwC, PA, Commonwealth Government.

Attorney General's Department 2012, *Queensland Floods Commission of Inquiry Final Report*, by Queensland Commission of Enquiry, Australian Government.

Queensland Government Disaster Management 2015, *get ready Queensland*, Queensland Government, viewed 21 August 2015, <http://www.disaster.qld.gov.au/Disaster-Resources/default.html>.

Queensland Health 2014, *Queensland Health Pandemic Plan,* , viewed 21 August 2015, <http://www.health.qld.gov.au/pandemicinfluenza>.

Ranse, J, Hammad, K & Ranse, K 2013, 'Future considerations for Australian nurses and their disaster educational preparedness: A discussion', *Australian Journal of Emergency Management, The*, vol. 28, no. 4, pp. 49-53.

Ranse, J, Hutton, A, Jeeawody, B & Wilson, R 2014, 'What are the Research Needs for the Field of Disaster Nursing? An international Delphi Study', *Prehospital and Disaster Medicine*, vol. 29, no. 5, pp. 1-7.

Ranse, J & Lenson, S 2012, 'Beyond a clinical role: Nurses were psychosocial supporters, coordinators and problem solvers in the Black Saturday and Victorian bushfires in 2009', *Australasian Emergency Nursing Journal*, vol. 15, no. 3, pp. 156-63.

Rebmann, T, Carrico, R & English, JF 2008, 'Lessons Public Health Professionals Learned From Past Disasters', *Public Health Nursing*, vol. 25, no. 4, pp. 344-52.

Reed, J, Goodwin Veenema, T & Rains, A 2013, 'Restoring Public Health Under Disaster Conditions: Basic Sanitation, Water And Food Supply, And Shelter ', in V Tener Goodwin (ed.), *Disaster Nursing and Emergency Preparedness For Chemical, Biological and Radiological Terrorism and Other Hazards*, 3rd edn, Springer, New York, pp. 288-304.

Richard, Z 2010, 'Vulnerable populations: Hurricane Katrina as a case study ', *Prehospital and Disaster Medicine*, vol. 25, no. 1, pp. 74-8.

Robertson-Malt, S 1999, 'Listening to them and reading me: a hermeneutic approach to understanding the experience of illness', *Journal of Advanced Nursing*, vol. 29, no. 2, pp. 290-7.

Robinson, KS 2009, 'Emergency Preparedness', in EN Association (ed.), *Sheehy's Emergency Nursing: Principals and Practice*
Sixth Edition edn, Mosby, Elsevier, Missouri, pp. 188-97.

Rokkas, P, Cornell, V & Steenkamp, M 2014, 'Disaster preparedness and response: Challenges for Australian public health nurses – A literature review', *Nursing & Health Sciences*, vol. 16, no. 1, pp. 60-6.

Royal College of Nursing 2014, *Defining Nursing*, Royal College of Nursing, viewed 15 March 2016 2014, <https://www.rcn.org.uk/professional-development/publications/pub-004768>.

SA Health 2013, *Extreme Heat Operational Plan*, by SA Health, SA Health.

Sandelowski, M 1995, 'Aesthetics of qualitative research', *Image: Journal of Nursing Scholarship*, vol. 27, pp. 205-9.

Sanders, C 2003, 'Application of Colaizzi's method: interpretation of an auditable decision trail by a novice researcher', *Contemporary Nurse*, vol. 14.

Sato, M, Atogami, F, Nakamura, Y, Kusaka, Y & Yoshizawa, T 2014, 'Remote community-based public health nursing during a disaster: An ethnographic case study in Japan', *Australasian Emergency Nursing Journal*, no. 0.

Shaban, R 2009, 'Australia's natural disasters: The 2009 Fires and Floods', *Australasian Emergency Nursing Journal*, vol. 12, no. 2, p. 29.

Sistrom, MG & Hale, PJ 2006, 'Outbreak Investigations: Community Participation and Role of Community and Public Health Nurses', *Public Health Nursing*, vol. 23, no. 3, pp. 256-63.

Slepski, LA 2007, 'Emergency Preparedness and Professional Competency Among Health Care Providers During Hurricanes Katrina and Rita: Pilot Study Results', *Disaster Management & Response*, vol. 5, no. 4, pp. 99-110.

Smith, BA 1998, 'The problem drinker's lived experience of suffering: an exploration using hermeneutic phenomenology', *Journal of Advanced Nursing*, vol. 27, no. 1, pp. 213-22.

South Australian Government, PCC Council & NR Committee 2010, *Prospering in a Changing Climate- A Draft Climate Change Adaptation Framework for South Australia*, by South Australian Government, Government of South Australia.

Spain, KM, Clements, PT, DeRanieri, JT & Holt, K 2012, 'When Disaster Happens: Emergency Preparedness for Nurse Practitioners ', *The Journal for Nurse Practitioners*, vol. 8, no. 1, pp. 38-43.

Spellman 2007, 'The Role of Preparation of the Public Health Nurse for Disaster Response', in T Goodwin Veenema (ed.), *Disaster Nursing and Emergency Preparedness for Chemical, Biological and Radiological Terrorism and Other Hazards* Second Edition edn, Springer Publishing Company, New York, pp. 589-99.

Spencer, L & Spellman, J 2013, 'The Role of the Public Health Nurse in Disaster Response', in V Tener Goodwin (ed.), *Disaster Nursing and Emergency Preparedness For Chemical, Biological and Radiological Terrorism and other Hazards*, Springer Publishing Company, New York, pp. 687-98.

Stanhope, M & Lancaster, J 2012, *Public Health Nursing: Population-Centered Health Care in the Community*, 8th Edition edn, Elsevier, Missouri, U.S.A.

Stanley, SAR, Bulecza, S & Gopalani, SV 2012, 'Psychological Impact of Disasters on Communities', *Annual Review of Nursing Research*, vol. 30, pp. 89-123.

Streubert Helen, J & Rinaldi Carpenter, D 2011, *Qualitative Research in Nursing Adancing the Humanistic Imperative*, 5th edn, Wolters Kleuer, Lippencott Williams and WIlkins, Philadelphia.

Streubert, HJ & Rinaldi Carpenter, D 2007, *Qualitative Research in Nursing: Advancing the Humanistic Imperative*, 5th edn, Wolters Kluwer Philadelphia.

Streubert, HJ & Rinaldi Carpenter, D 2011, 'Phenomenology as Method', in *Qualitative Research in Nursing Adancing the Humanistic Imperative*, 5th edn, Wolters Kleuer, Lippencott Williams and WIlkins, Philadelphia, pp. 72-96.

Swider, SM, Levin, PF & Kulbok, PA 2015, 'Creating the Future of Public Health Nursing: A Call to Action', *Public Health Nursing*, vol. 32, no. 2, pp. 91-3.

Sydnor, E & Perl, T 2011 'Hospital Epidemiology and Infection Control in Acute-Care Settings', *Clin Microbiol Review*, vol. 24, no. 1, pp. 141-73.

Templeman, D & Bergin, A 2008, *Taking a Punch: Building a more resilient Australia*, Australian Strategic Policy Institute (ASPI),.

Tener Goodwin, V 2006, 'EXPANDING EDUCATIONAL OPPORTUNITIES in Disaster Response and Emergency Preparedness for Nurses', *Nursing Education Perspectives*, vol. 27, no. 2, pp. 93-9.

The Department of Health 2014, *National Framework for Communicable Disease Control*, Commonwealth Government of Australia, viewed 20 August 2015, <http://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-nat-frame-communic-disease-control.htm#toc05>.

The Institute for Sustainable Resources 2010, *Impacts and adaptation responses of intrastructure and communites to heatwaves: the southern Australian experience of 2009*, Queensland University of Technology, Brisbane.

Todres, L & Wheeler, S 2001, 'The complementarity of phenomenology, hermeneutics and existentialism as a philosophical perspective for nursing research', *International Journal of Nursing Studies*, vol. 38, no. 1, pp. 1-8.

Turale, S 2010, 'Nurses: Are We Ready for a Disaster?', *Journal of Nursing Science*, vol. 28, no. 1, pp. 8-11.

Turale, S 2012, 'Disasters: Getting prepared and educated', *Nursing & Health Sciences*, vol. 14, no. 1, p. 1.

Turale, S 2014, 'Disaster training for nurses: a moral and humanitarian imperative', *International Nursing Review*, vol. 61, no. 1, p. 3.

Turale, S 2015, 'Nursing education: Preparing for the inevitability of disasters and emergencies', *Nurse Education in Practice*, vol. 15, no. 1, p. 52.

UNISDR 2005, *Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters*, United Nations ISDR International Strategy for Disaster Reduction, Geneva.

UNISDR 2015, *Sendai Framework for Disaster Risk Reduction 2015-2030*, United Nations, Geneva.

Usher, K 2010, 'Editorial: Are we ready? Preparing nurses to respond to disasters and emerging infectious diseases', *Journal of Clinical Nursing*, vol. 19, no. 11-12, pp. 1483-4.

Usher, K & Mayner, L 2011, 'Disaster Nursing: A descriptive survey of Australian undergraduate nursing curricula', *Ausralian Emergency Nursing Journal*, vol. 14, pp. 75-80.

Usher, K, Redman-MacLaren, ML, Mills, J, West, C, Casella, E, Hapsari, ED, Bonita, S, Rosaldo, R, Liswar, AK & Zang, Y 2015, 'Strengthening and preparing: Enhancing nursing research for disaster management', *Nurse Education in Practice*, vol. 15, no. 1, pp. 68-74.

van Manen, M 1990, *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy*, State University of New York Press, Canada.

van Manen, M 2014, *Phenomenology of Practice: meaning-giving methods in phenomenological research and writing*, Left Coast Press, Walnut Creek, CA. .

Victorian Bushfires Royal Commission 2010, *The 2009 Victorian Bushfires Royal Commission Final Report*, Victorian Government.

Ward, P, Rokkas, P, Cenko, C, Pulvirenti, M, Dean, N, Carney, S, Brown, P, Calnan, M & Meyer, S 2015, 'A qualitative study of patient (dis)trust in public and private hospitals: the importance of choice and pragmatic acceptance for trust considerations in South Australia', *BMC Health Services Research*, vol. 15, no. 1, p. 297.

Weaver, HJ, Blashki, GA, Capon, AG & McMichael, AJ 2010, 'Climate change and Australia's healthcare system – risks, research and responses', *Australian Health Review*, vol. 34, no. 4, pp. 441-4.

Weinsheimer, JC & Marshall, DG (eds) 1989, *Translators Preface*, Truth and Method, Sheed and Ward, London.

Whitehead, D 2007, 'Common qualititative methods', in Z Schneider, D Whitehead & D Elliot (eds), *Nursing and Midwifery Practice Research*, Mosby Elsevier, Sydney, Edinburgh, London, New York, pp. 105-21.

Williams, C 2012, 'Population-Focused Practice: The Foundation of Specialization in Public Health Nursing ', in M Stanhope & J Lancaster (eds), *Public Health Nursing*, Elsevier, Missouri.

Williams, J 2009, 'Bushfire disaster: a rural nurse's perception', *Australian Nursing Journal*, vol. 16, no. 9, p. 17.

Williams, S, Jacobs, K, Newton, P & Blakely, E 2009, *Natural disaster preparation and response: a guide for state housing authorities*, 113, (AHURI) Australian Housing and Urban Research Institute, Southern Research Centre.

Wilson, AME 2014, 'Application of Heideggerian phenomenology to mentorship of nursing students', *Journal of Advanced Nursing*, vol. 70, no. 12, pp. 2910-9.

Wood, PJ & Arcus, K 2012, ''Sunless lives': District nurses' and journalists' co-construction of the 'sick poor' as a vulnerable population in early twentieth-century New Zealand', *Contemporary Nurse*, vol. 42, no. 2, pp. 145-55.

World Health Organization 2007, *The Contribution of Nursing and Midwifery in Emergencies*, WHO, viewed 15 August 2015, <http://www.thebreakingnews.com/files/articles/midwives-in-emergencies.pdf>.

World Health Organization 2015a, *2015 WHO Strategic Response Plan: West Africa Ebola Outbreak*, World Health Organization Geneva, Switzerland

World Health Organization 2015b, *Humanitarian Health Action. Definitions: Emergencies, Disasters and Natural Hazards.*, WHO, viewed 15 August 2015, <http://www.who.int/hac/about/definitions/en/>.

World Health Organization, Public Health England & United Nations Secretariat of the International Strategy for Disaster Reduction 2013, *Disaster Risk Management for Health Fact Sheets*, WHO2015, <http://www.who.int/hac/techguidance/preparedness/risk_management_communicable_diseases_17may2013.pdf?ua=1>.

Wrathall, M 2005, *How to Read Heidegger*, Grant Publications, London.

Wulff, K, Darrin, D & Nicole, L 2015 'What Is Health Resilience and How Can We Build It?', *Annu. Rev. Public Health*, vol. 18, no. 36, pp. 361-74.

Yan, YE, Turale, S, Stone, T & Petrini, M 2015, 'Disaster nursing skills, knowledge and attitudes required in earthquake relief: implications for nursing education', *International Nursing Review*, pp. n/a-n/a.

Yang, Y-N, Xiao, LD, Cheng, H-Y & Zhu, J-C 2010, 'Chinese nurses' experience in the Wenchuan earthquake relief', *International Nursing Review*, vol. 57, no. 2, pp. 217-23.

Yasmin, K, Ghazal, F, Bonnie, H, Eileen, dV, Charoula, T, Moira, G & Brian, S 2015, 'The evidence base of primary research in public health emergency preparedness: a scoping review and stakeholder consultation', *BMC Public Health*, vol. 15, no. 432, pp. 1-13.

Yin, H, He, H, Arbon, P & Zhu, J 2011, 'A survey of the practice of nurses' skills in Wenchuan earthquake disaster sites: implications for disaster training', *Journal of Advanced Nursing*, vol. 67, no. 10, pp. 2231-8.