

Running Head: PARAMEDICS' PANDEMIC CONFIDENCES AND CONCERNS

Paramedics' Confidences and Concerns About
Infectious Disease Pandemics

by

Lisa Young

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Royal Roads University

Victoria, British Columbia, Canada

Supervisor: Dr. Cheryl Heykoop

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COMMITTEE APPROVAL

The members of Lisa Young's Thesis Committee certify that they have read the thesis titled *Paramedics' Confidences and Concerns About Infectious Disease Pandemics* and recommend that it be accepted as fulfilling the thesis requirements for the Degree of Master of Arts in Disaster and Emergency Management:

Beverly Dobbyn [signature on file]

Final approval and acceptance of this thesis is contingent upon submission of the final copy of the thesis to Royal Roads University. The thesis supervisor confirms to have read this thesis and recommends that it be accepted as fulfilling the thesis requirements:

Dr. Cheryl Heykoop [signature on file]

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Abstract

Pandemics occur when a new or unfamiliar type or strain of infection is introduced, causing widespread illness globally. The unpredictable nature and impact of pandemics requires healthcare systems to prepare for the likely surge in sick patients, increased staff exposure to the infection, and possible absenteeism in pre-hospital and hospital care. However, research on pandemic preparedness in pre-hospital care is sparse, and there is particularly limited research on paramedic preparedness for pandemics. This comparative study engaged 13 paramedics from British Columbia, Canada about their confidences and concerns about working during a future pandemic, exploring both urban and rural community contexts. Participant views informed eight key recommendations for paramedic pandemic preparedness: pandemic planning documentation, collaborative planning, clear and trustworthy communication, compliance with infection prevention and control principles, education and training, adequate and effective equipment, a focus on staff and family well-being, and further research in pandemic preparedness.

Keywords: pandemic, preparedness, paramedic, pre-hospital, EMS, healthcare, emergency, healthcare worker, influenza, infection control

Table of Contents

Abstract 4

Table of Contents 5

List of Figures 8

List of Acronyms 9

Acknowledgements 10

Preface 12

Chapter 1: Introduction 14

 Research Problem 15

 Research Purpose and Questions 15

 Methodological Overview 16

 Organisation of Study 16

Chapter 2: Literature Review 19

 Chapter Introduction 19

 Key Concepts 19

 Pandemic Preparedness of Healthcare Workers 22

 Chapter Summary 28

Chapter 3: Methodology 30

 Chapter Introduction 30

 Research Goals and Questions 30

 Theoretical Framework 30

 Methodological Framework 32

PARAMEDICS’ PANDEMIC CONFIDENCES AND CONCERNS	6
Methods and Data Collection.....	33
Data Analysis.....	37
Ethical Considerations	39
Rigour	42
Strength and Limitations of the Study	44
Knowledge Transfer.....	45
Chapter Summary	45
Chapter 4: Findings.....	47
Chapter Introduction	47
Increased Exposure and the Risk of Absenteeism	48
Risk Perception	49
Routine Daily Practices.....	51
Training and Education.....	53
Availability of Effective Equipment and PPE	55
Communication.....	57
Collaboration.....	60
Personal and Family Well-Being	61
Chapter Summary	63
Chapter 5: Discussion and Recommendations.....	65
Chapter Introduction	65
1. Provide Comprehensive Pandemic Planning Documentation	65
2. Develop Pandemic Plans Collaboratively with Relevant Partners	67

PARAMEDICS' PANDEMIC CONFIDENCES AND CONCERNS	7
3. Promote Pandemic Plans and Information Through Robust Communication Strategies	67
4. Improve Knowledge Through Education and Training	69
5. Promote Compliance with Routine IPAC Principles.....	70
6. Provide Adequate Stocks of Effective Equipment.....	71
7. Develop Strategies to Support Staff and Family Care and Well-Being.....	72
8. Situate Further Pandemic Research in Pre-Hospital Care	73
Recommendations.....	74
Conclusion	75
Participant List.....	77
References.....	78
Appendix A Participant Consent Form.....	94
Appendix B Interview Protocol	96
Appendix C Focus Group Protocol.....	100

List of Figures

Figure 1. Playing nurse with teddy bear, Keighley, UK. December 1976. 12

List of Acronyms

BC	British Columbia
BCEHS	British Columbia Emergency Health Services
CDC	Centers for Disease Control and Prevention
EMS	Emergency Medical Service
EVD	Ebola Virus Disease
FGD	Focus Group Discussion
IPAC	Infection Prevention and Control
PHAC	Public Health Agency of Canada
PHSA	Provincial Health Services Authority
PPE	Personal Protective Equipment
RRU	Royal Roads University
SARS	Severe Acute Respiratory Syndrome
WHO	World Health Organization

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Preface



Figure 1. Playing nurse with teddy bear, Keighley, UK. December 1976.

As I ponder how I got here, I am taken back to a time when I was five years old, sitting on the arm of the chair, listening to my Grandad reading me a story. I loved stories then, and still do. It was around this same age that I also made the decision to be a nurse when I grew up (see Figure 1). Specifically, I remember announcing to my family: “I’m gonna be a nurse when I grow up”. I said it with such conviction that no one questioned or doubted it. The only question my Mum asked was, “why?” My response: “I want to make a difference for patients.” It was that simple. So, at the age of 18 I left home and moved to Nottingham in the United Kingdom to start my nurse training. To this day, I have never doubted my decision, and although I have played many roles in healthcare since, in my heart I will always be a nurse.

So, again I ask the question: how did I get here? When my career changed and I moved into the field of infection prevention and control, my Mum again asked “why?” Again, my reply was “to make a difference for patients.” Our conversation went back and forth, yet eventually explored how I could make a difference while no longer nursing patients at the bedside. I believed then (and still do), I could make a greater difference to patient care by working with healthcare workers. I now work outside of the traditional nursing environment, having moved

into pre-hospital care, and it is through my role as an Infection Prevention and Control Leader I strive to make a difference to patient care.

As someone working in infection prevention and control, I often find myself considering what could happen to patient care in the event of a global pandemic. Approximately one in ten patients acquire an infection from a healthcare encounter in Canada (Gravel et al., 2007), and 8,000 Canadian patients die each year (Zoutman et al., 2003). Yet, how many more people could be negatively affected if they require healthcare during a pandemic? How could this affect paramedics? Finally, how could patient care be affected if paramedics and other health professionals are sick? Although these questions do not keep me awake at night, I do think about them often, and they were particularly relevant during the Ebola outbreak of 2014-2016 in West Africa. I wondered: What happens if this becomes a global problem? What can I do to make a difference? This is how I got here. I want to make a difference to patient care, and in doing so, I want to keep the staff I work with safe.

To do so, I am interested in listening to staff to improve clinical practice. To listen, I believe, we have to ask (Swensen, Kabcenell, & Shanafelt, 2016). So, through this interest, and in my quest to improve patient care, I am reminded of where this all began: listening to stories and striving to make a difference. Listening and making a difference. What truly matters to the paramedics I work with every day? How can they feel safe at work to help the patients in their care feel safe? My research is just one small part in answering such questions. However, it is my hope that by listening and providing a voice to paramedics, I contribute to the body of knowledge in pre-hospital care and I continue to make a difference to patients and the healthcare system. This is why I do this work.

Chapter 1: Introduction

Historically, highly contagious infectious disease pandemics, such as pandemic influenza and Severe Acute Respiratory Syndrome (SARS), have spread rapidly across the globe resulting in widespread disease, economic hardship, and death amongst affected populations (Centers for Disease Control and Prevention [CDC], n.d.; Hawryluck, Lapinsky, & Stewart, 2005; Taubenberger & Morens, 2010). Infectious disease pandemics occur when a new or unfamiliar disease type or strain causes significant illness, affecting global populations at a faster rate than can be contained or controlled (Coppola, 2011; Daly, Gustafson, & Kendall, 2007). These diseases are generally the result of viruses or a mixed viral and bacterial infection (World Health Organization [WHO], 2014c).

Influenza is one of the most understood infectious disease pandemics (herein referred to as pandemics) due to the frequency of related events throughout history. Although influenza is typically recognised as a seasonal infection, it has the potential to spread rapidly when a new or unfamiliar virus strain emerges (WHO, 2014c). This rapid transmission of the infection potentially results in a pandemic. This rapidity was exemplified in 2009 with H1N1, when the virus spread worldwide within eight weeks (Pandemic Influenza Preparedness Team, 2011). Research suggests influenza pandemics will continue in the future (Hawryluck et al., 2005; Smith, 2006). Research also anticipates future pandemics will result in a surge of extremely sick patients, increasing the risk of exposure and disease amongst healthcare workers (Hawryluck et al., 2005). Compromised surge capacity for a protracted period in the event of a pandemic could increase the healthcare system's vulnerabilities (Barbisch & Koenig, 2006), particularly when already affected by staff sickness. Therefore, on-going planning and preparation are required to

predict and respond effectively to influenza and other future pandemics. As such, it is important to consider how healthcare workers, such as paramedics, can best prepare and mitigate the potential threats of pandemics for themselves and others.

This graduate research contributes to this knowledge gap in the pandemic preparedness literature. In this opening chapter, I introduce my research problem and present my research purpose, questions, and methodology. I also offer an outline and description of each of the chapters contained in this thesis report.

Research Problem

Existing pandemic preparedness research focused on healthcare workers generally discusses risk perception and willingness to work in a pandemic situation (Gershon et al., 2010; Ives et al., 2009; Smith, Morgans, Qureshi, Burkle, & Archer, 2009) and explores ways to mitigate potential absenteeism (Dewar, Barr, & Robinson, 2014; Pandemic Influenza Preparedness Team, 2011). However, qualitative research on first responder or paramedic preparedness to pandemics appears limited. The emergent and unpredictable nature of their work suggests paramedics are likely at an increased risk of exposure during a pandemic. Therefore, it is important to examine paramedics understanding of pandemic preparedness.

Research Purpose and Questions

The purpose of my research study was to gain a deeper understanding of the concerns paramedics have about working during a pandemic, and the key elements they consider important to establish and build their confidence to prepare for such an event. The following research questions guided this study: (a) What are the confidences and concerns held by paramedics regarding pandemics, and why do they hold these beliefs? (b) How could

paramedics feel more confident about working during a pandemic? The results of this research study seek to inform policies and practices to best support paramedics to prepare and mitigate the potential threats of pandemics.

Methodological Overview

I employed a qualitative comparative case study approach to conduct my research. Merriam (1998) described a case study as “an examination of a specific phenomenon, such as a program, an event, a person, a process, an institution, or a social group” (p. 9). A comparative case study approach was undertaken to present a more generalised evaluation of the phenomenon of paramedic preparedness in the context of paramedics. The findings from semi-structured interviews and a focus group from two geographically distinct areas of British Columbia (BC) were compared and contrasted. The comparative case study approach encouraged broader interpretation, supporting the desire to inform future practice.

Organisation of Study

This study is organised into 5 chapters.

Chapter 2: Literature review. Chapter two examines pandemics and the existing research on healthcare workers' preparedness. This chapter begins with a definition of key terms relevant to my study: epidemic, pandemic and pre-hospital care. I then explore the research focused on pandemic preparedness across four interconnected domains relevant for healthcare workers in pandemic preparedness: education, training and compliance; communication strategies; resources; and personal and family care. Lastly, I consider factors of pandemic response concern and confidence and note gaps in existing research and practice.

Chapter 3: Methodology. Chapter three provides a detailed overview of comparative case study methodology and the approach taken for this research study. I begin by contextualising my research by articulating my theoretical and methodological approach. This is followed with a detailed description of the data collection and analysis processes, and an exploration of the ethical issues associated with my study, including how I addressed trustworthiness and rigour. The chapter concludes with an exploration of how the research findings are presented and shared.

Chapter 4: Findings. This chapter presents the views and opinions of the 13 participants involved in my research. To emphasise the voices of these paramedics, quotes from participants are italicised. In this chapter, I examine the inextricably linked confidences and concerns of participants about pandemic planning and preparedness, and highlight case distinct themes as appropriate. Within, emanating from the data analysis, the findings are presented as eight central themes: increased risk of exposure and absenteeism, risk perception, routine daily practices, training and education, availability of effective equipment and PPE, communication, collaboration, and personal and family well-being.

- increased risk of exposure and absenteeism;
- risk perception;
- routine daily practices;
- training and education;
- availability of effective equipment and personal protective equipment;
- communication;
- collaboration; and

- personal and family well-being.

Chapter 5: Discussion. In this final chapter, I discuss my findings in relation to the literature. I specifically consider factors supporting paramedics' confidence in pandemic preparedness and response, and offer recommendations to improve professional practice. This chapter is organised according to eight recommendations informed by the findings:

- provide comprehensive pandemic planning documentation;
- develop pandemic plans through a collaborative process with relevant partners;
- promote pandemic plans and information through robust communication strategies;
- improve knowledge through education and training, promote compliance with routine IPAC principles;
- provide adequate stocks of effective equipment;
- develop strategies to support staff and family care and well-being; and
- situate further research in pandemic planning, preparedness and response in the field of pre-hospital care.

Chapter 2: Literature Review

Chapter Introduction

Historically, highly contagious pandemics, such as pandemic influenza and Severe Acute Respiratory Syndrome (SARS), have rapidly spread and negatively affected populations worldwide. These pandemics result in widespread disease, economic hardship, and death (CDC, n.d.; Hawryluck et al., 2005; Taubenberger & Morens, 2010). Research suggests pandemics are likely in our future (Taubenberger & Morens, 2010), and resulting in a surge of extremely sick patients. Pandemics create an increased exposure of healthcare workers to the infectious disease. As a result, it is projected pandemics will pose considerable risk to healthcare services due to absenteeism and sickness (Hawryluck et al., 2005). Despite the prospect of future pandemics, limited research has explored paramedics' pandemic preparedness. In this chapter, I examine pandemics and existing research on healthcare workers' preparedness. I also consider the specific research on paramedic preparedness and highlight the research gaps, framing the scope of my research study. Before examining the literature, I define key concepts relevant to my study: epidemic, pandemic and pre-hospital care.

Key Concepts

Epidemic. Epidemics may be sporadic or seasonal, affect many individuals and cause disease in a defined area or population (Epidemic, n.d.; WHO, 2014c). Epidemics have the potential of becoming pandemics (see definition below). For example, in 2014, the Ebola outbreak primarily affected the population of three countries in West Africa. Within a short period of time, Ebola infected more than 28,000 people in West Africa and caused more than 11,000 deaths (CDC, 2016a; WHO, 2017). Although the disease was primarily confined to West

Africa, cases of Ebola virus disease (EVD) in healthcare workers who had not travelled to West Africa were identified in the United States of America (WHO, 2014b) and Spain (WHO, 2014a). These cases suggested the potential of a global pandemic. Given the size and scale of the epidemic, global action was accelerated (CDC, 2016a; IPAC-Canada, n.d.; WHO, 2017) and healthcare systems established response plans should EVD spread globally (Stephens, et al., 2015; WHO Ebola Response Team, 2016).

Pandemic. Biological threats posed by microorganisms, pollutants, chemicals or toxins, can cause disease in plants, animals or humans, with disastrous potential (Coppola, 2011). Infectious disease pandemics occur when a new or unfamiliar disease type or strain causes significant illness, affecting global populations at a faster rate than can be contained or controlled (Coppola, 2011; Daly, Gustafson, & Kendall, 2007). Pandemics can be caused by bacteria or, more commonly viruses, and may last for months, years and even decades (Patrick, Shaban, & FitzGerald, 2011). Furthermore, pandemics have the potential to impact human populations causing increased human fatalities (Coppola, 2011). For example, four influenza pandemics have occurred over the last 100 years, affecting between 60 million and 500 million people, and resulting in more than 100 million deaths in total (CDC, 2016b). The highly infectious nature of influenza, and the possibility of novel strains emerging established this virus as a significant pandemic threat. These features of influenza and its unpredictable nature have the potential to impact human health and global economic well-being (WHO, 2013). Although influenza is one type of pandemic that will likely reoccur, history has shown that the world is also at risk from other infectious diseases with pandemic potential, such as SARS.

In 2003, SARS emerged in Southern China (Coppola, 2011; WHO, n.d.) and, aided by international travel patterns (CDC, 2004), resulted in a pandemic that affected 26 countries, including Canada (WHO, n.d.). Due to the ease of transmission and the number of people affected, SARS demonstrated the potential for a new infectious disease to spread rapidly. SARS also verified the increased risk pandemics pose to healthcare workers generally, and paramedics specifically. In Toronto, Canada, 224 people were diagnosed with SARS, 850 paramedics were exposed to the disease and 62 developed a SARS-like illness (Silverman, Simor, & Loutfy, 2004). The pattern of spread emphasised the need for healthcare workers and paramedics to prepare for pandemics, including early detection and adherence to infection prevention and control principles (CDC, 2004).

Pre-hospital care. Although emergency medical care originated as a transport service, modern Emergency Medical Services (EMS) initiate care at the scene of injury or illness. By initiating care at a scene, EMS extends the continuum of care to the pre-hospital environment and allows patients to be treated early, before arriving at a hospital or healthcare setting (Mistovich, Karren, & Hafen, 2014). EMS was provided to the residents throughout BC by commercial and municipal operators, starting in the early 1900s. BC Ambulance Service became the first provincially operated ambulance service in Canada in 1974 (Provincial Health Services Authority [PHSA], 2017). Today, across BC, more than 3,600 paramedics respond to more than 475,000 calls each year (PHSA, 2016). The unpredictable nature of presenting conditions and symptoms in pre-hospital care increases paramedics' vulnerability to infections. Yet, with proper planning, paramedics can be better prepared to deal with infectious pandemic events (Hawryluck et al., 2005).

Pandemic Preparedness of Healthcare Workers

To support pandemic preparedness in healthcare, the WHO (2009), the CDC (2014), and the Public Health Agency of Canada (PHAC; Government of Canada, 2015) provided guidance on how to prepare for, and respond to, an influenza pandemic. This guidance is particularly relevant because healthcare workers are likely to have an increased exposure to the causal infectious disease (Draper, et al., 2008). Although these guidelines have relevance in practice, it is also important to consider how healthcare workers feel about pandemic preparedness. For example, what are healthcare workers' confidences and concerns? Existing research exploring healthcare workers' preparedness examines factors that give healthcare workers confidence to respond to pandemics and highlights their concerns, exploring ways to mitigate potential absenteeism (Dewar et al., 2014). Although it is impossible to accurately predict how many healthcare workers will stay away from work during future pandemics due to fear, sickness or family responsibilities. High absenteeism was encountered during the last influenza pandemic, with 28% of Canadian healthcare workers reported absent from work due to illness or family care (Mitchell et al., 2012). Paramedics are often the first point of contact with patients in the healthcare system, potentially placing them in greater jeopardy than other healthcare workers. As such, paramedics' concerns and confidences about pandemic preparedness are relevant and critical to policy and process development (Barnett, et al., 2010; Watt, et al., 2010). However, there is limited research examining preparedness of paramedics' specifically, to address such concerns.

Below, I review the research on healthcare workers' preparedness more broadly, noting any research that pertains to paramedics specifically. I scrutinise existing research focused on

pandemic preparedness of healthcare workers across four interconnected domains: education, training and compliance; communication strategies; resources; and, personal and family care.

Education, training and compliance. In existing pandemic preparedness research, healthcare workers noted the critical importance of education and training to both prepare for, and respond to, a pandemic (Chaput, Deluhery, Stake, Martens, & Cichon, 2007; Hashim et al., 2012; Hui, Jian-Shi, Xiong, Peng, Da-Long, 2007; Tippett et al., 2010). For example, Bensimon and colleagues interviewed healthcare workers, including one paramedic, and reported value in the broader context of education, and linking knowledge with the quality of care (Bensimon, Tracy, Bernstein, Shaul, & Upshur, 2007). Similarly, a study by Tippet and colleagues (2010) focused on the association between knowledge and attitudes regarding an influenza pandemic and anticipated behaviours. This study demonstrated paramedics reported an increased confidence to work during a pandemic when they perceived they had received adequate education and training to prepare them to practice safely. An observational study of the SARS outbreak in Taiwan (Chow-In Ko et al., 2004), also suggested targeted training could positively impact staff safety during a pandemic. Specifically, in reviewing EMS utilisation during the SARS outbreak, the researchers reported only three paramedics acquired the disease from non-occupational exposures (Chow-In Ko et al., 2004). These findings suggest targeted training provided prior to the outbreak supports EMS personnel to safely adhere to procedures in all 1,760 SARS-related transports. Similarly, Gershon and colleagues (2009) described positive participant response to simulation or drill-based training through the execution of a post session questionnaire.

Other researchers found the formation and training of a dedicated team of staff to care for high risk patients built confidence amongst all staff responding during a pandemic (Rebmann, et al., 2009). Interviewees reported lower anxiety when teams were established, received specialist training, and provided care for patients with influenza to reduce exposure to all other staff (Dewar, et al., 2014). However, research with paramedics suggested a core team of trained professionals was not applicable in their context, with respondents arguing that everyone needs to be adequately trained, prepared and informed given the increased risks of exposure during a pandemic (Smith et al., 2009).

Although education is an important factor, compliance with infection prevention and control (IPAC) principles and protocols to ensure staff and patient safety must be simultaneously evaluated (Chor et al., 2012). Pandemic research also suggests variable compliance amongst healthcare workers (Roberts & Bryce, 2015). Dewar and colleagues (2014) found Australian healthcare managers observed high levels of policy compliance they attributed to education and awareness-raising measures provided before and during the 2009 influenza pandemic resulting in enhanced staff awareness, knowledge and confidence in practice. Conversely, through an exploration of paramedic compliance to IPAC procedures during hypothetical pandemics, Roberts and Bryce (2015) identified poor levels of IPAC compliance. This low compliance rate led them to speculate the invisible nature of biological threats may influence responses and potentially shape compliance behaviour. Smith and colleagues (2009) found similar findings when interviewing paramedics regarding disaster preparedness. They determined paramedics' level of risk perception and the adequacy and frequency of educational interventions may have contributed to poor compliance response. Equally, Listyowardojo, Nap, and Johnson (2010)

postulated on the positive relationship between a high perception of personal risk and safety behaviour amongst healthcare workers. Shortly prior to the H1N1 influenza pandemic, healthcare workers perceived the risk of acquiring influenza during a pandemic to be low. Under conditions of low perceived risk, the researchers surmised “if perceived risk is low, the incentive to comply may be lacking” (Listyowardojo et al., 2010, p. 4). It should be noted that Listyowardojo and colleagues did not assess compliance with safety measures in their work. Slovic, Fischhoff, and Lichtenstein’s early work (1979) in the field of hazard risk analysis, also suggested visibility could affect risk perception. In the case of influenza, the regularity and visibility of annual influenza outbreaks could affect healthcare workers’ views on the importance of pandemic preparedness and compliance with IPAC principles. Consequently, although education and training are important, it is also important to consider paramedics’ perception of risk, in order to influence IPAC compliance.

Communication strategies. Communication is closely linked to education, training and compliance. Research suggests clear and trustworthy communication is important in pandemic preparedness (Gershon et al., 2010; Roberts & Bryce, 2015; Smith et al., 2009). Through a series of surveys between 2009 and 2012, healthcare workers reported reduced levels of stress correlated with sufficiency of information (Adini, Laor, & Aharonson-Daniel, 2014). Reflecting on pandemic preparedness within a paediatric facility, Filice and colleagues (2013) expressed concern about the adequacy and penetration of policy and guidance to all professional levels. They called for collaborative and inclusive communication to ensure healthcare workers are highly informed during a pandemic. To strengthen communication messages, hospital-based healthcare leaders emphasised the importance of a single point of contact during a pandemic to

reduce confusion and establish a source of truth (Dewar et al., 2014). Roberts and Bryce (2015) also stressed the need for clear communication. Their study involving frontline paramedics in British Columbia found less than 50% of respondents knew who was responsible for updating and communicating the organisation's pandemic plan. Research presents a picture of confusion and lack of trust in information provided before and during a pandemic, reinforcing Roberts and Bryce's (2015) call for robust communication in pandemic preparedness.

Scanlon, Luukko and Morton (1978) criticised media outlets for reporting inaccurate information and news. Conversely, in 2009 accurate reporting appeared to influence vaccination policy following the death of a child (Quigley, Macdonald, & Quigley, 2016). As demand outstripped supply, Canadian provinces developed vaccination priority groupings. Interestingly, there appears to be no evidence exploring a collaborative role with the media in pandemic preparedness or response. As a significant channel of communication this research likely exists in other areas of disaster management, but is beyond the scope of this study. Nonetheless, in a letter to the editor of *Emerging Infectious Diseases*, the extent of Italian media coverage during the SARS pandemic of 2003 was discussed (Rezza, Marino, Farchi, & Taranto, 2004). The authors suggested it could serve as a call to action and may play a role in public education.

The need for effective communication strategies also extends to collaborative work involving multiple healthcare institutions and community-based actors in support of broad consultations and cooperative working relationships. In exploring nursing students' perceptions on disaster nursing, Jennings-Sanders, Frisch, and Wing (2005) concluded collaborative disaster response processes should be built into nurse training programs. More recently, Stephens and colleagues (2015) described the value of a collaboration following the treatment of three patients

with Ebola in a US hospital. Although these accounts are outside pre-hospital care, they do provide context to collaborative pandemic planning in EMS and disaster planning more broadly.

Resources. Studies on pandemic preparedness also argue for pandemic plans translated into action. These action-oriented plans include following through on directives concerning the stockpiling of appropriate and high-quality personal protective equipment (PPE; Hui et al., 2007; Rebmann, Wilson, LaPointe, Russell, & Moroz, 2009). The provision of appropriate PPE, vaccines and other resources were also linked to reciprocity. Healthcare workers suggested organisations have an obligation to ensure safe conditions if staff are to work during a pandemic (Bensimon et al., 2007). Conversely, a study by Gershon and colleagues (2010) suggested healthcare workers are uncertain about the availability of PPE and are concerned the equipment will not protect them from the disease. The authors concluded such levels of distrust could contribute to absenteeism during a pandemic. Similarly, Ives et al. (2009) interviewed UK healthcare workers regarding their attitudes to working during an influenza pandemic. This work “stressed the importance of being provided with effective PPE” (Ives et al., 2009, p. 8-9). Limited research was found exploring paramedics’ confidences and concerns about resources (Gershon et al., 2010). My research provides an opportunity to explore and expand our understanding of this area further. While research provides evidence on the need to address resource availability in pandemic planning, the importance healthcare workers place on personal and family care, including resource allocation is stressed in the final domain.

Personal and Family Well-Being. Lastly, personal safety and family well-being is an important factor that affects pandemic preparedness and the willingness to work during a pandemic. Damery and colleagues (2010) suggested healthcare workers may be willing to take

necessary risks as they perform their professional role, but were unwilling to endanger their family. This was especially true in the case of parents with young children. Edeghere and colleagues (2015) found healthcare workers reported concern for their own safety, but more commonly expressed concern about the risk their work posed for their family. Ives and colleagues (2009) presented similar findings in a UK study, in which interviewees expressed great concern for their children and dependents. Furthermore, according to Gershon and colleagues (2010), pharmaceutical availability for all staff and their families, alongside child- and elder-care contributed to paramedics' willingness to work during a pandemic. Damery and colleagues (2010) observed similar results as the majority of their respondents felt their employers should provide protective measures for families. An examination of the literature suggests, although healthcare workers anticipate a level of risk as implicit in their professional role, they were deeply concerned about the impact of such threats to their family. Research also highlighted healthcare workers concern for their family safety, advocating for equitable resource allocation between staff and their families, and alternative safety interventions (Dewar et al., 2014; Rebmann, et al., 2009).

Chapter Summary

Highly contagious pandemics can spread rapidly, negatively affecting worldwide populations and resulting in widespread disease, economic hardship and death (Hawryluck et al., 2005; Taubenberger & Morens, 2010). With proper planning, healthcare workers and systems can be better prepared to deal with such an event (Barnett, et al., 2010; Hawryluck et al., 2005; Watt, et al., 2010). However, healthcare workers have also expressed concerns about their confidence in the existing plans and procedures for pandemic planning (Roberts & Bryce, 2015).

Much of the existing research has been gathered through questionnaires and surveys and was not designed to explore the concerns or confidences of frontline healthcare workers fully.

Furthermore, in the context of paramedics' preparedness and response, there is limited research to explore their specific confidences and concerns. My qualitative case study provides an opportunity for identification and deeper understanding of the key elements paramedics consider important in the context of a pandemic. In establishing paramedics' confidence to work during a pandemic and identifying their concerns allows better understanding regarding paramedic pandemic preparedness. This knowledge can inform effective and responsive strategies to support paramedics in pandemic preparedness (Barnett, et al., 2010).

Chapter 3: Methodology

Chapter Introduction

In this chapter, I begin with a reintroduction of my research goals and questions. I then provide a description of my research approach and methodological and theoretical frameworks used to help frame my study. An explanation of data collection and analysis methods follows, after which I reflect upon the ethical considerations of my research, including strengths and limitations. In closing, I propose methods for knowledge mobilisation and knowledge transfer.

Research Goals and Questions

As noted in the literature review, research specifically focused on the concerns and confidences of paramedics in the context of a pandemic is sparse. The existing research tends to focus on a willingness to work and the potential for high absenteeism (Gershon et al., 2010; Smith et al., 2010), and pandemic and infection control training needs (Chaput et al., 2007; Gershon et al., 2009; Roberts & Bryce, 2015). My research seeks to understand paramedics' confidences and concerns and the factors contributing to these ideas and beliefs. The following research questions guided this study: (a) What are the confidences and concerns held by paramedics regarding pandemics, and why do they hold these beliefs? (b) How could paramedics feel more confident about working during a pandemic? This research aims to inform the development of more effective and responsive strategies to support paramedics in pandemic preparedness.

Theoretical Framework

To conduct this study, it was important to first examine my research motivations. Ravitch and Riggan (2016) suggested wanting to do research in a particular field, or having

interest in a subject, is not reason enough to do research. Conversely, Booth and colleagues (2008) noted that identifying an issue or question for further study is often rooted in initial interest (Booth, Colomb & Williams, 2008). My desire to explore this research was rooted in my experience as a nurse with a long career working in infection prevention and control. More specifically, my involvement in disaster planning and preparedness for an influenza pandemic and other biological threats influenced my desire to pursue this topic. Through my interactions with healthcare workers in pandemic planning and preparation, I have witnessed a range of responses from complete confidence to intense questioning and bewilderment about what is required to plan and prepare for a pandemic. Specifically, I am curious about what paramedics' confidences and concerns and what I can do to contribute to mitigate or allay their concerns.

As a social constructivist, I believe the confidences and concerns of paramedics are entrenched in the many interacting social systems in which they live and work (Creswell, 2014) and these interactions inform how paramedics may see the world. Vygotsky (1978) illustrated the importance of social interaction in gaining knowledge and understanding through his writings on childhood development. In these writings, he observes that a child constructs meaning through social engagement and not simply contact with an object. Vivien Burr (2015) argued there is no single description for social constructivism, but rather there is a "family resemblance" (p. 2) in various published descriptions. However, she does assert knowledge is a social process constructed through interaction with others and the world in which we live. Thus, to better understand the confidences and concerns of paramedics, it was important for me to actively engage with paramedics and construct an understanding of the world from their perspective.

Methodological Framework

I chose to use a qualitative comparative case study approach for my research study. Merriam (1998) described a case study as “an examination of a specific phenomenon, such as a program, an event, a person, a process, an institution, or a social group” (p. 9). As much of the literature into pandemic preparedness comes from a quantitative perspective, there are few qualitative studies, and I found none clearly employing a case study approach. Given that I wanted to understand the phenomenon from various perspectives, a case study was most appropriate. As Blatter (2008) proffered, case studies are suited to drawing out ideas to provide rich insight. Furthermore, case studies support the in-depth, evidence-led understanding of the specific topic of my research in its natural context (Merriam, 1998).

Recognising different approaches exist to case study design, I chose to follow Merriam's (1998) approach. Merriam's approach comes from a constructivist worldview, suggesting support for an inquiry into knowledge and understanding that is constructed in the reality of social interaction (Yazan, 2015). According to Merriam (1998), the first step in case study research is to identify the case. Merriam (1998) also advised research question development occur concurrently with case identification, followed by data collection, analysis and reporting. Akin to other qualitative methodologies, the research process is not linear. Data collection and analysis coincide with the analysis supporting the identification of, or need for, additional data (Baxter & Jack, 2008; Yazan, 2015).

To support a more generalised evaluation of the phenomenon, I also chose to conduct a comparative case study approach, where the views of paramedics in two distinct geographical areas were compared and contrasted. According to Yin (2003), a comparative case study

approach seeks to build a universally acceptable explanation. It is important to note, it is difficult to generalise outside the bounded context of the cases being studied (Creswell, 2014). Yet, in comparing the differences and similarities of two contrasting geographic cases, there is greater likelihood for the findings to be considered more broadly. Furthermore, should a broader interpretation be desired, additional cases would be advantageous.

Methods and Data Collection

Research overview. Recruitment and data collection were initially planned to take place over the nine weeks of March and April 2017, but final interviews did not occur until August. Between May and August 2017, I travelled to the research sites to conduct one-on-one interviews and a focus group discussion with paramedics. Following each interview and focus group, audio data was manually transcribed and verified with participants. Data analysis and interpretation was conducted throughout August 2017.

Geographical bounding. Miles, Huberman, and Saldaña, (2014) describe a case as a phenomenon representing a unit of analysis bounded by time or space. However, I believe Merriam (1998) provides a more fulsome description of a case. Merriam describes a case as a program, person, process, or social unit. In this study, cases are represented by paramedics within two specific geographical areas: an urban and rural community.

The comparative case study was geographically bounded to two distinct areas in BC: a major urban area (Vancouver) and a rural community. I was curious about differences in service and resources, and influence this has on paramedics' confidences and concerns about working during a pandemic. The differentiation was determined to help understand the influences of

environment, patient demands, ambulance call volume, and communication mechanisms on paramedics constructed worldview.

To select a rural community, the factors of population, distance from the largest urban city, number of paramedics working within the area, and interest to participate in the study was considered. Specifically, I sought to identify a community that was several hours drive from Vancouver, with an area population of less than 100,000 people. To help maintain anonymity of participants, I do not identify the rural community. Conversely, Vancouver was selected as the urban community. As the largest urban area in BC, Vancouver is home to a population of approximately 2,300,000 people across the metropolitan area (Advameg, Inc., 2017). With more than 550 paramedics employed in the Metro Vancouver area, identifying the community does not compromise participant anonymity.

Both communities have a similar age distribution, which may indicate a similarity in medical concerns. Nonetheless, the concentration of population and social influences in Vancouver significantly influences the types and number of calls attended by paramedics. Furthermore, in the Metro Vancouver area, nearly 70% of the 550 paramedics are employed as full time employees, compared to the 150 paramedics working in the rural community, most of whom are part time workers. However, the data generated cannot necessarily be generalised outside of these two areas, as they do not represent all urban and rural communities (Creswell 2014).

Participant selection. Purposive sampling of paramedics was used to identify participants. Purposive sampling is the deliberate seeking out of participants with characteristics that support the needs of the research (Morse, 2004). This sampling method was chosen to

improve the likelihood of gaining answers to the research questions (Creswell, 2014) by acknowledging participants' insights and experiences from both the community in which they live and the organisation in which they work (Bloor & Wood, 2006). Convenience sampling, a type of purposive sampling, was used to select participants according to their location and experiences in pre-hospital care (Merriam, 1998), with additional participants being sought through nominated sampling by asking initial participants to refer or nominate willing colleagues (Morse, 2004). Participants were selected from both communities. Volunteers were excluded from the study if they did not work and live (at least part time) in one of the chosen communities, and if they had not worked in their respective community for at least one month.

Recruitment process. To assist with recruitment I sent information to each station in the designated areas. Participants were encouraged to contact me directly by email for further information. This initial introduction was followed by telephone discussions with unit chiefs to explain the intent of the research and ask if they could engage staff in their station without coercion. In the rural community, following organisational approval, I approached staff directly in their place of work. However, this strategy was not possible in most areas of Vancouver as the paramedics spend very little time in the station and do not welcome impromptu visitors during their limited break time. The volunteer nature was explicitly emphasised at all stages of recruitment, and free informed consent was sought from each interview or focus group participant (see Appendix A).

Data collection methods. A hallmark of case study data collection is the inclusion of data from multiple sources (Baxter & Jack, 2008). As this study focused on the experiences of paramedics, the principal data source was information and stories shared through semi-structured

interviews and one focus group discussion. Five to ten participants were sought in each area, in total one focus group (five participants) and nine interviews (five in Vancouver and four in the rural setting) were conducted between May 11th and July 25th, 2017.

All interviews took place in person, at a mutually agreed time and place, and data was collected through audio recording of the interview, along with hand written notes and memos. I looked to provide a comfortable space for participants to express their thoughts and feelings and discover a deeper understanding of their concerns and confidences. Specifically, I employed a conversational, semi-structured style of interviews guided by an interview protocol (see Appendix B). In this manner participants could convey experiences from their own perspective (Kvale, 1996) as they were guided through a similar process to share information.

Although a focus group was not initially intended as a method of data collection, it was included as an option in my recruitment materials. Therefore, when participants asked if they could be interviewed together, I adapted accordingly. Fortunately, I had prepared for all eventualities when visiting stations, including the creation of a focus group discussion protocol (see Appendix C). I was pleased to have the opportunity to gain collective insights from the group, where participants could interact with each other and potentially increase the possibility for deeper insights (Morgan & Krueger, 1993; Rennekamp & Nall, 2004). Recognizing confidentiality could not be promised, a request for privacy of all participants preceded the discussion (Roulston, 2010).

Interviews were planned to be an hour in length, yet varied according to the participants' comfort and experiences, with one interview lasting two hours. Courteous enquiry was made during the longer interviews to ensure participants were happy to proceed and did not have other

commitments. The focus group also lasted approximately one hour, providing rich insights through the group conversation (Morgan & Krueger, 1993).

Manual transcription using InqScribe (version 2.2.3.258), took place as close to the interviews and focus group as possible, supporting an improved interview technique going forward. Transcripts were then shared with participants to fact check the data, and allow participants to enhance their responses if desired. As a novice researcher, I felt following a script to be disingenuous, but the act of transcribing my data provided the opportunity to consider my research style. Through active reflection, I identified occasions where complex or unclear questions were used, with the potential to lead or confuse the interviewee. Roulston (2010) highlighted the lifelong learning researchers' experience and poignantly guided the novice researcher that practice and reflection develop the reflexive interviewer, suggesting the "study of ones' own interview" (Roulston, 2010, p. 154).

Data Analysis

According to Baptiste (2001), analysis begins at the inception of the study, with the examination of the data commencing in earnest as the second phase. I commenced inductive analysis by immersing myself in the data, reading and re-reading the transcribed interviews, handwritten notes and memos prior to moving into phase two (Ritchie & Spencer, 2002). Although most of my reading took place using an iPad, it was important for me to hold and read printed transcripts, which allowed me to jot notes and take the first step into coding.

The second phase of data analysis involved sorting the data, which Baptiste (2001) described as tagging or coding data, then grouping the coded data together to form categories. Despite facilitating a class on data analysis and reading numerous works on the subject, I found,

in my eagerness to expedite analysis, I was formulating themes as I transcribed the interviews and read the data. I risked jumping straight into categorising my data and missing the coding phase. As conveying the voice of the participant was fundamental to my research, it was important to manage my enthusiasm, and discover “patterns, themes and categories in one’s data” (Patton, 2002, p. 453), rather than pre-defining them. When I absorbed myself in the process, coding became intuitive and the data revealing. I would have missed so much had I proceeded on my misguided path of analysis.

Data was first inductively coded by working line by line through the transcribed data, making notes, comments and observations on the page as I read, taking inspiration from items of interest or dialogue important to my study (Merriam, 1998; Patton, 2002). In-vivo codes were used as appropriate, using a word or phrase directly from the transcribed data (Saldaña, 2009). As the initial codes were inspired by the transcribed data, they were often random and did not immediately display patterns. I then used MAXQDA12 to organise the data and develop codes that best described the data across the different transcripts (Merriam, 1998). This phase of coding took place over several days, initially generating 138 different codes, which were printed out as labels and laid out across an empty desk. These codes were then further evaluated for similarities, and codes considered to be outside the scope of my research were put to one side (Merriam, 1998). I ultimately settled on 91 distinct codes, which were organised into 12 consistent categories and then eight central themes (Connolly, 2003).

Grouping or theming of the data was again a tactile process, with the coded labels being brought together into virtual category buckets. The development of conceptual categories moved the data analysis into its interpretive phase (Connolly, 2003). Although comparative case studies

can limit the study away from the unusual or rare (Campbell, 2010), my analysis illuminated the consistent and divergent themes influenced by the geographical location. Finally, four mind maps were created to visually display the confidences and concerns according to the two locations, which aided me in looking for comparable and distinct patterns, according to the comparative case study approach I employed. These conceptual categories were further distilled into eight themes, which are discussed further in chapters four and five.

Ethical Considerations

As Creswell (2014) noted, ethical issues arise throughout the research process, and must be considered prior to engaging in research. To ensure ethical considerations were adhered to, ethical approval was successfully sought through the Royal Roads University (RRU) Ethics Board in compliance with the *Request for Ethical Review for Research Involving Humans* (2014) and the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, & Social Sciences and Humanities Research Council of Canada, 2014). Following this process, approval was formally sought through BCEHS to undertake my research within the organisation. As an employee of BCEHS potential power imbalances were also considered.

Power imbalances. The role of the researcher is one of data collector and interpreter (Simons, 2009), and in the role of researcher I felt obliged to do so in a rigorous and trustworthy manner (Creswell, 2013). In particular, I was committed to telling the participants' story (Lincoln & Guba, 2002) in a way that maintained the integrity of the data, but remained true to the participants' meanings (Lincoln & Guba, 2002). In doing so, I was also aware that my

position as an employee of BCEHS could influence the participants' responses, and ultimately my research findings.

Although, I do not directly manage any BCEHS employees, my professional role makes me known to many paramedics within the organisation, with trust already established. However, the perception of power on the part of the participants had to be considered. Power imbalances were a risk in undertaking a research study in this organisation, but I felt it necessary to conduct my research for the relevance of the data and the importance of the paramedics' stories (Bloor & Wood, 2006). I considered myself well placed within the organisation to undertake this research, and my roles as employee, researcher and student were discussed with all participants during recruitment and at the start of each interview. Furthermore, I emphasised their voluntary participation at all stages and sought free and informed consent for their involvement.

Informed consent. Informed consent was obtained from all participants (see Appendix A). When possible, volunteers were sent the consent form ahead of our meeting. This allowed participants time to read the details and formulate questions or raise concerns. I thoroughly outlined the consent process and answered questions at the start of each interview. To ensure anonymity for all generated data, I used a coded identification system on all written and recorded information. Such anonymity was not possible for the focus group. The difference between anonymity and privacy was acknowledged (Miles et al., 2014). The inability for anonymity in a focus group was explained to all participants, and all agreed verbally to maintain and respect everyone's privacy at the beginning of the session. I made it clear if anyone was uncomfortable with taking part in a focus group, they could leave, with the offer of a one on one interview as an alternative. I also highlighted the inability to remove them from the recording after the focus

group had started, as their responses could affect all subsequent discussion. All volunteers for the focus group remained, and one participant requested a follow-up interview to share additional thoughts and experiences. Furthermore, upon sharing the transcribed data with the group, despite using the coded identification system, participants were reminded to respect individuals' privacy. In an aim to safeguard participants' privacy, names are only held by me as the researcher and not shared with any outside person or organisation.

Data storage. Data was collected in both written and electronic audio formats. Electronically recorded data was downloaded onto an encrypted password protected USB flash drive. All information that contained personal information, including signed consent forms, written notes and recorded data were securely stored in a locked filing cabinet or storage box. While travelling to interview participants, I used a locked suitcase for secure storage. Data will be held for one year, after which it will be securely deleted or destroyed.

Impact of research on participants. Although risks for those participating were considered minimal, as the subject was not felt to be sensitive, probing into personal concerns and experiences had the possibility of eliciting an emotional reaction (Marshall & Rossman, 2016). As a researcher, I looked to maintain the psychological safety of each participant. BCEHS offers a confidential counselling service and contact details were available to all participants at the time of the interview or focus group (Creswell, 2014). Perceived power imbalances and the research process itself also had the potential to evoke concern.

Honesty and transparency were important in mitigating the impact of any perceived power imbalances formed by my employment within BCEHS. Creswell (2014) warns of the risks and emphasises the importance of a trustworthy and rigorous process. All participants were

introduced to my research before each interview and had numerous opportunities to inquire as to the expected outcomes of my study. Reassurance about personal information safeguards and anonymity were reiterated as necessary throughout each interview. I also clarified my role as the researcher, and how I could or could not support participants involved in this study.

Impact of research on researcher. Although the subject matter being discussed in the interviews was unlikely to impact my personal safety, the effect of listening to others' concerns and fears has the potential to affect my psychological well-being. The researcher's emotions play an important part in interpretive research (Holland, 2007). In exploring others' thoughts and feelings, the researcher opens oneself up to vulnerability (Holland, 2007). As a nurse, with experience in listening to and understanding patients' and relatives' fears, I felt I was resilient in this area. That being said, it was important to monitor personal well-being, particularly considering this new experience and heavy workload. As I travelled to the rural area to engage paramedics in my study and conduct interviews over a four-day period, I found I was exhausted at the end of the day. I felt both physically drained and mentally overloaded. I have kept a journal throughout my research and used it to express my thoughts and feelings through personal reflective writing (Pitts et al., 2009). Furthermore, I established a network of colleagues with whom I could debrief including my supervisor and committee (Williamson & Burns, 2014), and my husband who was always a telephone call away.

Rigour

Research is a constructed process, an interaction between participant, environment and researcher (Lincoln & Guba, 2002). Therefore, an element of conscious reflexivity was essential to my study. As a novice researcher, the whole undertaking of this research study has been

experiential learning (Miles et al., 2014). I recognise my experience as an infection prevention and control professional and an employee within BCEHS creates pre-conceived ideas about what is important in pandemic planning and preparedness for me. This has been addressed through on-going personal reflection, by allowing participants the opportunity to review their interview responses, and through my open and transparent approach to the research (Cooper & Endacott, 2007). On occasion, participants sought professional advice and information during an interview. Although I was happy to support this, I did not want to influence subsequent responses or comments. Therefore, I explained I would note their questions and respond after completion of the interview.

The need to ensure rigour and legitimise my research are issues that challenge all novice researchers and are a legacy of the move to qualitative research methodology (Koch & Harrington, 1998). Lincoln and Guba (2002) argued that the quality of the narrative in a case study contributes to the trustworthiness and rigour of the research, as the thick description allows the findings to be judged. Multiple perspectives are documented here to evidence the trustworthiness of the findings (Creswell, 2014). Transcribed data as an initial phase of analysis has been shared with participants to member check accuracy. Participants were invited to identify responses I may have misinterpreted and provide additional clarity or information. Those who responded confirmed my transcribed interpretation of the interview, and agreement was assumed from those who did not reply. Lastly, this report allows the reader to evaluate the resonance of the findings with your own experiences, understanding or beliefs (Lincoln & Guba, 2002).

Strength and Limitations of the Study

The inability to generalise outside the bounded context of a case being studied could be identified as a limitation of the research (Creswell 2014). Two geographical areas in BC, one urban and one rural, were identified for this study. Generalisation outside of these two areas is not recommended, as they do not represent all urban and rural communities. Cronbach (1975) argued generalisation should not be the priority, and the rich descriptions and understanding of a phenomenon in context are the more relevant measures. It is suggested that my deep inquiry using a case study approach should provide rich data, which can act to inspire further research and generalizable elements.

Equally, the limited number of participants does not provide a comprehensive pool of experiences and knowledge. To this point, the open and honest discussion with a small number of paramedics acts to highlight areas of significance to them, which can be measured against literature currently available. However, although I discuss the elements unique to the individual cases, it must be noted that time and financial resources prevented repeated interviews by which to fully explore the divergent themes. Furthermore, it could be argued that the voluntary nature of my recruitment process promotes a bias towards those who already have an interest or motivated by strong feelings. Lastly, Simons (2009) identified the subjectivity of the researcher could also be a possible limitation to case study research. Despite these limitations, it was the goal of my research to gather data on the confidences and concerns of paramedics about pandemic preparedness. A secondary objective was to encourage future inquiry into the phenomenon of pandemic preparedness in pre-hospital care.

Knowledge Transfer

This research report will be shared with senior leadership in PHSA and BCEHS. Although approval to approach potential participants was sought from certain leadership within BCEHS, findings are expressed in a manner that prevents the identification of those who contributed to my research. I will present the findings with the BCEHS Learning Team and the Emergency Management team. The Learning Team oversees the learning needs of all paramedics. The Emergency Management Team is responsible for the development of the organisation's disaster plan, as well as policies and procedures relevant to emergency preparedness and response to biological hazards and disasters. It is my hope that BCEHS considers the information presented in this research and engages with additional paramedics across the province to also understand and respond to their confidences and concerns. I also feel it important to share my research findings with all frontline paramedics. However, I recognize that the length of this document could deter engagement. Therefore, to engage paramedics, I intend to create a video or infographic to share the research findings. Finally, my findings and experiences through this research study will be applied to my professional practice in IPAC.

Chapter Summary

This chapter has outlined the research approach to respond to my research questions: (a) What are the confidences and concerns held by paramedics regarding pandemics, and why do they hold these beliefs? (b) How could paramedics feel more confident about working during a pandemic? An overview of comparative case studies was provided, with justification for this approach, along with consideration of the data collection methods, analysis and ethical concerns.

I also explored the strengths and limitations of this study. Finally, potential knowledge transfer possibilities are described. Findings from this research study are presented in the next chapter.

Chapter 4: Findings

Chapter Introduction

In this chapter, I share the research findings of this study. Presenting the voices and perspectives of the research participants is integral to this study and creating improvement in practice. Quotations from participants are italicised for added emphasis. Although I had initially planned to organise the findings into the broad themes of confidences and concerns, analysis of the data highlighted the interconnected nature of confidences and concerns. Questions about paramedics' concerns often generated responses that described concerns and offered possibilities to enhance confidence. For example, when asked what would make them feel more confident to respond during a pandemic, one participant answered, "*Having better PPE [building confidence]. N95 isn't particularly fool proof [highlighting concern]*" (Interview 8). This participant turned a possible concern about the efficacy of the PPE into an action-oriented response and identified something that would promote confidence. In accordance with the comparative case study approach I employed, I also planned to note differences according to the two distinct geographic cases. However, I found fewer case distinct differences than anticipated. Therefore, in this chapter, confidences and concerns are presented within each theme and the geographically situated elements are highlighted when applicable. Specifically, the findings are organised into eight themes: increased risk of exposure and absenteeism, risk perception, routine daily practices, training and education, availability of effective equipment and PPE, communication, collaboration, and personal and family well-being.

Increased Exposure and the Risk of Absenteeism

EMS is a responsive, yet unpredictable healthcare environment. Paramedics arrive at a call without a full medical history on the patient they are attending. One participant described the role of paramedics as *canaries* to illustrate the first contact characteristic of the role and the unpredictable nature of the job: *As good as we, some people are, and all the advancements . . . it's also reactive you know. And I know that they're trying to be preventive but you can't even anticipate what's going to happen* (Interview 9). Participants in the focus group discussion (FDG) also emphasised the in-the-moment thinking and response that occurs during routine calls:

There have been circumstances that, I am sure everyone in this room has gotten, we should have maybe prepared differently based on the patient . . . those are the circumstances that we find ourselves in. Oh my, I wish I had my gloves, my gown and my. Those are ones that are maybe a little more unsure in my mind.

Specifically, when discussing pandemics and pandemic preparedness, participants voiced concern about the increased exposure of paramedics to the agent of disease. For example, in the FDG, participants reflected upon the SARS outbreak in Toronto and the increased risk of exposure:

we're gonna be exposed to that patient long before they get a chance to use that stuff. Like, yeah, it seems like, even in Toronto, they had their SARS outbreak, they had a huge percentage of their paramedics got it. (FDG)

Despite concerns being raised in both settings, the rural paramedics interviewed gained some assurance from their physical geographical situation (Interview 6 & FDG), as one participant

stated during the FGD: *it probably won't make it this far*. Equally, an interview participant said: *if it was going to hit here, chances are probably slim, but it's like anywhere, it does happen in small communities* (Interview 3), suggesting acknowledgement of risk, albeit small.

Connections between staff and patient safety were also made when discussing the risk of exposure, as one participant expressed concern about how staff could acquire and quickly spread the disease if they decided to work while infected in order to maintain the service: *I know there would be a lot of us that would drop very quickly and would spread the infection* (Interview 8). When discussing the possibility of a pandemic and the increased likelihood of paramedic exposure, participants from both geographical areas raised questions about how absenteeism would be addressed to ensure business continuity (Interviews 2 & 7): *How they are going to operate if they have 30% of staff unable to work?* (Interview 2). Furthermore, reflecting on past experiences of a seasonal outbreak at a rural station, FGD participants recounted the event and highlighted the need for pre-emptive planning:

One year we had a gastrointestinal illness go through the station . . . it was horrible, and it was a massive disaster on the scale of the station. Now if I go, we're gonna end up with an influenza like illness, that's gonna come through . . . well that's it, close the doors, move on home, cuz we don't have the ability to replace the minimal staff that we have right now. It's not like we can pull people off the road and train them, there's a certain skill set that we need. (FGD)

The first responder role of a paramedic and the unpredictable nature of their work increases the risk exposure and associated acquisition of a pandemic-related infection. This increased risk

may result in absence from work, potentially impacting business continuity, elements that warrant consideration in pandemic planning.

Risk Perception

Although most participants demonstrated knowledge of previous pandemics, not all had personal experiences. However, the combination of previous knowledge and experience appeared to have influenced their risk perception. Interestingly, when reflecting on the potential of an influenza pandemic, many participants perceived 'flu' as something that could be managed given its mild nature and the annual seasonal outbreaks. As such, many participants expressed a level of confidence with influenza and felt equipped to work during an influenza pandemic (Interviews 1, 6, 7, 8, 9, & FGD). One participant expressed: *If it's H1N1 and its flu, it's a large flu pandemic, but it's not lethal* (Interview 7). In contrast, when asked about experiences during the SARS pandemic and EVD outbreak, most participants expressed greater concern about the nature of the infection or how the presenting symptoms could affect them (Interviews 1, 2, 5, 6, 8, & FGD). In particular, participants noted that when they were more fearful about the infection, they were more likely to comply with infection control principles (Interviews 2, 6, & FGD). However, they also noted they may be more hesitant to work (FGD). For example, when discussing the Ebola outbreak, a participant expressed that he would be more open to following protocols: *I'd be more willing to wear all of that, just in case, cuz if I was afraid I was going to die from bleeding from the inside out* (Interview 8). When discussing their availability to work during a pandemic, a focus group participant indicated: *Well yeah, if you hear of like Ebola, and of people dying, I might not put in availability and come to work. I mean, I will be completely honest. But H1N1, that wasn't the case* (FGD).

It appears personal experience may also shape risk perception. One participant shared how vaccinating their child during a previous influenza pandemic shaped their perception of risk:

My [child] ended up having a reaction to the H1N1 shot. [They] became lethargic, [they] was very, not anaphylaxes, but very sick from it. Hospitalised, high fever, it wasn't good. . . . Yeah, it was awful and scary that's for sure. Ever since then, well I always knew, but now I'm a huge germophobe, and I don't let the kids – "don't touch the door knobs, sanitize your hands" (Interview 3).

It is evident that knowledge and experience shape paramedics perception of risk influencing their actions. This is particularly relevant considering the relative comfort they demonstrate towards influenza, including pandemic influenza.

Routine Daily Practices

It was clear through conversations with research participants that paramedics generally rely on, or return to, the familiar (Interviews 6, 9, & FGD). Specifically, respondents referred to their routine daily practice and the importance of always exercising caution and employing preventative practices irrespective of the situation. For example, during the FGD, a participant told the group:

I think there's a certain amount of precautions that are universal precautions, that protect us for a certain amount of time. I'm comfortable with the fact that I've got my mask and my gloves and I can approach this percentage of people before something bad happens. (FGD)

Likewise, when discussing confidences in being able to work during a pandemic, another participant spoke of routine daily practices: *take precautions, regardless of what it is, or whether*

it's Ebola or whether it's just, you know, a flu outbreak (Interview 6). Other participants referred to specific elements of routine practices, such as hand hygiene: *wash your hands, use sanitizer . . . we've got the basics* (Interview 8), and environment cleaning: *I take the wipes and I clean the front of the ambulance and the door knobs, the steering wheel, the microphone, the radio, cuz people don't do it* (Interview 3). Nonetheless, the impact of increased exposure and potential absenteeism on workload concerned participants (Interviews 8, & 9). One suggested an impact on routine infection control principles: *higher the volume, quality of cleanliness goes down*, emphasising the importance of habitual practice in addressing such concerns.

Amongst paramedics involved in this research, there appears to be confidence in the protective and routine daily practices. Still, the invisible nature of infections and the risk of environmental contamination are causes for concern. For example, one participant expressed concern about possible inadvertent cross contamination due to the lack of visible evidence of an infection:

I get that there's cross contamination, and that we've got the basics of— but, sucks when you've got a cancer patient in your ambulance, because there's no way it's going to be as clean as it needs to be for them (Interview 8).

Similarly, another participant raised: *cuz, I'm going to go do another ambulance call after that, and put another person in that ambulance* (Interview 9), and Participant 5 suggested that timely recognition and risk assessment is complex in pre-hospital care: *the more difficult part of the whole thing is to recognise the thing early enough to take all the precautions*, indicating a need for early patient screening.

In addition to these IPAC principles, the FGD also observed they take comfort in knowing that patients are being screened for potential risk factors or indicators of high risk infections through the call taking system:

I think if we know what we're going to. . . . I heard that on the dispatch end, in the last year or sometime, they rephrased some of the call assessments, to try and identify some of the symptoms of these potential outbreaks. So, I was excited to hear that. That helps us on our end. (FGD)

In addition to the screening of patients through the call taking system, the focus group also found confidence in the notification through their computer aided dispatch system (CAD): *I think the one nice thing that we've got now, that if we go to calls, it's got a safety bulletin on our CAD.* Nevertheless, the FGD also determined that screening and informing was not enough, and staff needed to understand what to do with that knowledge.

Although reliance on routine daily practices and a sense of confidence to work during an influenza pandemic is evident in the responses shared here, knowledge and understanding are required to underpin both staff and patient safety.

Training and Education

When discussing how confidences could be increased, many participants spoke about education and training as an important element both in preparing paramedics for both routine daily practice as well as pandemic preparedness (Interviews 2, 3, 7, 8, & FGD). For example, one participant noted: *Education and training. It's a big deal* (Interview 2). Likewise, education and training were discussed during the focus group, where one participant advocated for further training, remarking: *I would say, more training. I think that's where we're really lacking.*

Knowledge is power, right? (FGD). Participants also reflected on their professional and personal life experiences to emphasise how education should be targeted to the audience: *But people like [name] and myself, we're older, we've had our careers, we've done a bazillion things, we've lots of life experience. . . . But there are a lot of people in this business* (Interview 6), new employees: *we have a lot of really new people . . . it's not fair to say to a brand-new employee who doesn't know [anything], here go do this* (Interview 2), and adult learning: *and you've gotta look at your audience too, and I find this is one of our problems, we've gotta look at our audience as adults, and the type of learners we usually are* (Interview 1).

When reflecting on preferred training methods for education, many participants spoke about the importance of hands-on training. For example, one participant noted: *I think most first responders are, you know, the hands-on training type persons* (Interview 1). This sentiment was echoed during the focus group: *But this one will actually teach you hands-on, and familiarisation with the suits and that type of thing. That's what we should have* (FGD). The practice aspect of hands-on training was also identified as an important element: *practice of donning and doffing is a big deal* (Interview 2). Furthermore, another participant advocated for short in-the-moment training, describing an exemplary example:

But the stuff that I get the most of is, I get back to the station and there's some guy there, either my unit chief or someone else there, and 'hey we're doing training on this'. And not, we're taking you out of service . . . but you know, 10 minute in-service is fabulous. It's just the unit chief doing his own thing, no one told him to. He's saying, 'here's some problems that I want you guys to watch out for . . . don't do this and do this and here let

me demo a couple of problems.' And also saying, 'do you guys have any suggestions on how to fix this.' That's phenomenal, absolutely phenomenal. (Interview 7)

This view was further emphasised by participants' requests for regular education, which the focus group also suggested would improve knowledge retention: *we should have a yearly training of, of it right, coz that's where people retain most of the information (FGD)*. Other ideas included having annual refresher trainings (Interview 1), and in person education sessions to sustain skills (Interview 2). Electronic and video-based education were also proposed as platforms for education: *it's great to put videos up, you know, and I'm working with webinars right now . . . which is very interesting, and a good way to teach, but it's still not what I want (Interview 1)*. However, participants still promoted in-person training: *I know that a lot of our stuff is done on line, because it's cheaper, but unless you actually practice it, it's not going to sink in (Interview 2)*.

Although it is important to acknowledge the need for additional education and training, participants also expressed that the education currently received offers a good foundation to be built upon: *And as I said, I think the training we get is really quite good. I mean not just the online courses, but the other courses that we attend (Participant 6)*. Although robust training strategies are critical in pandemic preparedness, so too is resource allocation.

Availability of Effective Equipment and PPE

Although many participants raised concern about the efficacy and availability of PPE and other equipment (Interviews 1, 2, 5, 7, 8, 9, & FGD), the discourse generally focused on the elements of a pandemic plan that would or could improve paramedics' confidences. According to participants, many felt it is important to have a stockpile of PPE and equipment (Interviews 1,

7, & FGD) to ensure availability when needed. For example, during the FGD: *I would back that up with equipment though. Because, honestly, I think, having a store in, having a stock pile in this area for this outbreak, having a stock pile in that area for that outbreak is a good idea* (FGD). In addition, the risk of exhausting stock levels was also raised: *having a cache of additional equipment, because we know that as soon as there's a pandemic there's gonna be a run on everything* (Interview 8). Running out of equipment is a particular risk when demand outstrips the ability to procure outside Canada: *the most important piece out of the last two responses has been supply. . . . and when these pandemics hit, the borders close up, and when the borders close up we lose acquisition to some of our supplies* (Interview 1). Nonetheless, even with a stockpile of equipment, participants noted that without proper maintenance and stock rotation, it might not support the frontline paramedics when they need it (Interviews 7, 8, & FGD). Similarly, the effectiveness of PPE was also discussed.

A degree of confidence in the available PPE was expressed: *Depending on what the pandemic is. Avian flu, I mean, I have a very limited knowledge about how it actually works, but I would assume it is similar to general flu process. In which case, it should do decently* (Interview 8). This confidence was dependent on personal requirements: *PPE that actually fits people taller than 5 foot 10 would be fabulous. . . . The PPE doesn't fit well and is uncomfortable as all hell* (Interview 7). The active nature of the work and duration of transports also concerned participants when discussing currently available PPE (Interviews 4, 7, & 8). For example:

If you're wearing your goggles and your mask its now going to be fogging up coz you're in a little box. . . . If you're busy you're getting stuff, you know. If you're breathing heavy

your mask is going to be, you know, not working as long cuz its getting wet. It's in the way, you can't see properly, it's harder to do a line if you've got those big gloves on, especially if you're double gloving. (Interview 8)

Although confidences and concerns regarding the availability of effective equipment and PPE was consistent across both communities, the rural community did raise the scarcity and age of equipment, and associated training is a worry:

More equipment for specific issues, like, we're talking about the level one suits, level two suits, there's none of that, at all [here], and I think a lot of us that have had a little more training are aware of that, and go, it's about time you guys start rolling stuff out across the province. (FGD)

Similarly, another rural participant shared this perception:

It sometimes feels like, rural areas are the last ones to be so, the last ones to have the latest kit. Like here we had the old bags for the jump kits instead of the pelican case. . . . I have never felt that when it comes to pandemic and infections, I have never felt that we were a second-tier area. Like I always felt that we were treated equally to the other areas, so that's what I want to be there. (Interview 5)

In addition to the need for readily available effective equipment and PPE, participants also expressed a lack of pandemic planning awareness and the need for clear communication.

Communication

In conversations with participants, there was a mixed response to the question, “are you aware of a pandemic plan?” Some participants were aware of a plan (Interview 2 & 7), while others stated they hoped one existed (FGD). This lack of awareness does not necessarily mean

communication is unclear, but may be related to the number and frequency of messages and communications shared with paramedics. As one participant stated:

We get bombarded with other things, and I think it's just the pitfalls of a large organisation. We'll get an email [that a hospital in another part of the province] is going to be closed on Monday. And we are like, 'really', and 'we care about that, because?' But it's one of those gang emails that get sent out to everybody, and yes, if you were working in [that area] you would need to know that. If you are working in [another area] not so much. It doesn't really impact us. (Interview 6)

Other participants confirmed the sense of drowning in communications: *a lot of the memos are province wide too, so some of the memos are really concentrated on issues that are really only an issue in [place] (FGD), and: All the posters, oh my God, nobody looks at them, there are so many. . . . Nobody takes any notice of them, there are so many. . . . It is like white noise. Nobody looks at them (Interview 2).*

Although there was a sense the volume of information was overwhelming, negative statements often started conversations about how this could be reformed. These conversations focused on strategies to improve information comprehension, build confidence amongst paramedics, and shed light on important messages (Interviews 5, 8, & 9). One participant stressed the value of short and to the point messaging: *You see these signs and symptoms . . . this is what you immediately need to do, in terms of taking precautions. And then give the rest of the information (Interview 6).* Such clarity could be further emphasised by frontline leaders if equipped with accurate and in-depth information and the capacity to communicate it, thus improving their ability to clarify the meaning: *at the bottom of all the memos they say if you have*

any questions, ask your unit chief. . . a little bit more of the background information, shared to the supervisory level would go a long way (Interview 8). Another participant emphasised the importance of a credible messenger: *Having people with specialised training like our TAs [Technical Advisor] and that kind of thing. . . . So that when the plan is put into action, crews know what we're talking about and that they can trust these people* (Interview 8). An opinion shared by others:

I have heard from [the Technical Advisor] that people are being tracked and nobody goes into that area and comes out without the World Health Organization knowing about it. So, I had a great confidence in that. Although, that was just hearsay, but if [the Technical Advisor] says it, it might as well be gospel. (Interview 2)

Nevertheless, participants also practiced reflexivity and questioned people's ability to filter credibly sourced information from information distributed by non-credible sources. As one participant questioned: *How much do people analyse the credibility of the media content that they're ingesting? I don't think people are very good at it in general. But, you know, that's certainly a big thing* (Interview 7). This person's opinion serves as a reminder that the clarity of the message is as essential to ensure reputable organisations are viewed as the source of truth.

Certainly, participants expressed concern about the role of the media and how the media can induce anxiety amongst healthcare workers and the public (Interviews 1, 4, 5, & 7), for example: *The media did such a good job with 'Fearbola', that everybody felt it was just around the corner. And all you had to say was Africa and nobody even looked at a map. . . . So, I think the media plays a big part in that* (Interview 1). However, the media was also recognised as a source of pandemic information (Interviews 6, 7, 8, & FGD). Furthermore, Participant 9

suggested engagement of media sources to aid transmission of information amongst the public to reduce the reliance on emergency services when other routes into healthcare would be more appropriate: *you know the media can help with that*. Although robust internal communication is critical in pandemic preparedness, it must be balanced to avoid overwhelming staff, and crafted to ensure clarity. Equally, collaboration with external partners can support an informed healthcare community and high quality, safe care.

Collaboration

In discussing the importance of pandemic preparedness and exploring possible solutions to help mitigate challenges associated with absenteeism, participants expressed the importance of collaboration. Specifically, it was acknowledged that collaboration could occur between other healthcare institutions (Interviews 1 & 8) and community partners (Interview 6). In an urban setting, healthcare organisations can work together through interagency collaboration. However, in rural settings where healthcare infrastructure is more limited, collaboration requires broader community collaboration, prompting a participant (Interview 6) to question: *how well is it [a pandemic plan] coordinated with the other organisations, within an organisation within a community?* One participant also spoke about what other agents across the healthcare continuum are doing in pandemic planning and response:

How are the hospitals preparing? You know, we're one big family now so, keep us in the loop. . . . we are under the same umbrella. So, I think by improving that communication, us knowing what they're doing, them knowing what we're doing, makes the whole thing go a lot smoother (Interview 8).

From such responses, it would also appear, although framed differently, urban paramedics look to the large hospitals and agencies for a collaborative relationship, and their rural partners seek a similar relationship within their community as a whole. Many of the elements discussed to this point are related to the organisation to implement or address. Personal well-being is one area over which paramedics have a degree of control and was discussed in most of the interviews.

Personal and Family Well-Being

Throughout the interviews personal well-being was also discussed as an important factor related to pandemic preparedness and response. Participants felt the effects of a pandemic on their health should be communicated and their well-being addressed by the organisation. A participant asked: *If we're exposed, how's it going to affect us. What's the incubation period?* (Interview 8). This statement reflects the importance participants placed on supportive communication strategies. One participant highlighted personal well-being in pandemic preparedness should be examined through education and training: *You deliver the message on how to take care of themselves and their families during training and give them the confidence that when they get out in the field, and they face this, they can deal with it properly* (Interview 1). However, in general, most participants felt well-being was a personal factor they could control (Interviews 1, 4, & 6), for example:

My immune system's not compromised. I'm healthy, you know. I take care of myself, I try to get as much sleep as I can . . . I take my vitamins. As soon as I start to feel something coming on, "Oh well, betta rest a little bit more, betta take better care of myself", I obviously failed somewhere" (Interview 4).

In addition to personal wellbeing, participants also expressed fear and anxiety related to how an exposure could affect their friends and family:

You are exposed to a virus, let's say, and there's the incubation period where you're taking it home, you're taking it out for drinks with your friends, you're spreading it all around. Everybody likes to share, and you know, a week down the road, two days down the road, when I'm gonna start to show signs, I'm not going to be able to fix the people I've already impacted. So, I mean that's kind of a big deal. Right. Especially for those of us who have young kids at home, or, people who are already ill. (Interview 8)

Furthermore, participants in Vancouver raised questions about how they and their families would be cared for. Conversations explored the possibility of alternative living arrangements and facilities to help limit exposure of their families to disease: *This seems really high risk. Should we possibly be putting that paramedic up in a hotel and not exposing them to their family for a couple days?* (Interview 9). Another participant suggested steps be taken to ensure families are cared for: *because if you're not worried about your family at home, you have a lot better time supporting the population* (Interview 8). Vaccine therapy for staff and their families was also touched upon, with concern expressed about testing and long term effects (Interview 4 & FGD). Availability and safety was also questioned when considering vaccine availability to family members: *It depends on how available the vaccine is. I will probably still take the vaccine, but, you know it depends on vaccine availability, it depends on vaccine stability* (Interview 7). One participant also suggested making vaccines available to both staff and their family should be accompanied with education to combat people's misconceptions: *But it needs to be available, and there needs to be a solid education piece there. There's a lot of miss information there,*

especially in North America, regarding vaccinations (Interview 8). Lastly, participants in the rural community emphasised the need to have credible counsellors to support staff in making informed decisions. For example, one FGD participant had spoken with medical staff when considering immunizing their child, and another discussed vaccination during pregnancy with trusted friends (FGD).

Given the level of concern regarding increased exposure to diseases and how this can affect families, participants in both locations shared strategies they have developed to keep their families safe (Interviews 3, 8, & 9). These strategies often involve discouraging contact following a day at work: *My husband's not allowed to greet me until after I get out of the shower when I get home. That's like a standard rule* (Interview 9). Clearly, such strategies are also linked to risk perception, as discussed earlier in this chapter.

Although paramedics discussed personal well-being with confidence, family care was introduced as a mechanism to reduce anxiety and allow paramedics to continue to work. Nonetheless, strategies to support family care, such as alternative accommodation and vaccination therapy were considered.

Chapter Summary

This chapter summarises and conveys the words of research participants regarding their concerns and confidences about pandemic preparedness and response. While I sought to compare the two geographically defined cases, many themes are consistent between cases. Reflecting on the data from this study about confidences and concerns, it is clear to me that confidences and concerns are not two distinct categories. Rather they are inextricably bound together in the minds of paramedics in BC.

For ease and digestibility of the findings, the findings have been presented under eight central themes relating to confidences and concerns: increased risk of exposure and absenteeism, risk perception, routine daily practices, training and education, availability of effective equipment and PPE, communication, collaboration, and personal and family well-being. In the final chapter, I explore these findings as they relate to the literature and offer recommendations to improve professional and practice in paramedic preparedness.

Chapter 5: Discussion and Recommendations

Chapter Introduction

Confidences and concerns about paramedic preparedness are inextricably linked and have implications on how paramedics will navigate future pandemics. Specifically, concerns about exposure to infections, absenteeism and pandemic planning awareness are countered with routine practices, effective equipment and PPE, robust communication and an acknowledgement of staff well-being. In this discussion chapter, I explore my findings as they relate to the literature. To support an action-oriented discussion, I have organised the chapter into eight sections, with each section highlighting a key practice or research recommendation:

1. Provide comprehensive pandemic planning documentation;
2. Develop pandemic plans through a collaborative process with relevant partners;
3. Promote pandemic plans and information through robust communication strategies;
4. Improve knowledge through education and training;
5. Promote compliance with routine IPAC principles;
6. Provide adequate stocks of effective equipment;
7. Develop strategies to support staff and family care and well-being; and
8. Situate further research in pandemic planning, preparedness and response in the field of pre-hospital care.

1. Provide Comprehensive Pandemic Planning Documentation

Future pandemics are inevitable (Taubenberger & Morens, 2010) and protocols and guidelines are important resources to assist the healthcare sector to prepare and respond to

pandemics (WHO, 2009; CDC, 2014; Government of Canada, 2015). For example, to prepare and plan for an influenza pandemic, WHO (2009), CDC (2014) and PHAC (Government of Canada, 2015) developed guidelines and protocols. BCEHS also has a pandemic plan in place to guide future pandemic responses (2015). Interestingly, despite BCEHS' pandemic plan, several study participants were unaware of its existence but hoped one existed.

Emergency medical care is emergent and unpredictable. Paramedics have an elevated likelihood of exposure to an infectious disease due to the first contact nature of EMS (Barnett, et al., 2010; Watt, et al., 2010), and their repeated exposure (Patrick, Shaban, & FitzGerald, 2011). Plans to support paramedics and the healthcare system more broadly are integral to pandemic planning and response. This not only requires staff be aware of the plan and the protocols to follow to keep themselves safe, but it also requires a plan to decrease the risk of disease acquisition and ensuing potential absenteeism (Pandemic Influenza Preparedness Team, 2011; Mitchell et al., 2012). Specifically, participants in this study raised concern regarding the potential for high absenteeism amongst paramedics and a surge in patients, impacting workload and business continuity (Interviews 2, 7, 8, & FGD), and requiring careful consideration. Furthermore, addressing the concerns of those at the frontline promotes a responsive service with the potential to address paramedics concerns through confidence building and contingency planning. To ensure sufficient preparation and support for healthcare workers during a pandemic, comprehensive pandemic planning documents should be made available, which also encompass the recommendations presented below.

2. Develop Pandemic Plans Collaboratively with Relevant Partners

The expansive relationship with other healthcare institutions and community-based actors provides an opportunity for broad collaboration to inform practice and support a cooperative pandemic response. It was evident from those interviewed that the unpredictable nature of their work influences a desire for pre-emptive, collaborative planning (Interviews 1, 6, 8, & FGD). I did not locate existing research explicitly describing a collaborative approach to pandemic planning. However, the value of collaboration is described in disaster healthcare research. Collaboration is supported by a study by Stephens and colleagues (2015) concerning the treatment of three patients with Ebola in a US hospital. Jennings-Sanders and colleagues' (2005) study exploring student nurses' perceptions of disasters broadly also included recommendations for a collaborative response with law enforcement and health agencies. Collaboration with organisations and other community partners in the development of a comprehensive pandemic plan promotes a sense of confidence amongst paramedics and the possibility of a cohesive pandemic response. However, as noted in this research, as collaborative plans and protocols are established it is important these reflect the unique contexts of healthcare and EMS.

3. Promote Pandemic Plans and Information Through Robust Communication Strategies

Communication strategies in healthcare are vital to the dissemination of accurate information (Gershon et al., 2010; Roberts & Bryce, 2015; Smith et al., 2009). Participants in this research expressed inconsistent awareness and understanding of a pandemic plan within BCEHS. Research conducted in the United States with physicians noted poor information penetration of a pandemic plan through their organisations (Filice et al., 2013). Although the professional background of their participant group is different from my study, BC paramedics

conveyed a similar experience (Interview 9 & FGD). Clear and trustworthy communication is important to best prepare staff to respond during a pandemic response (Adini et al., 2014) and ensure paramedics do not feel they are “flying blind” (Smith et al., 2009, p. 24). Sharing information throughout a large provincial organisation with a diverse workforce can be challenging. Participants in this study described several measures to disseminate information more effectively including pre-emptive messaging to frontline leaders (Interview 8), concise communiqués with direction to further information (Interview 6 & 9), and the use of local expertise to respond to questions (Interview 8).

Study participants also identified media as a powerful source to disseminate information to staff and the public. Despite this, participants conveyed a level of distrust of the media to provide accurate information (Interviews 1, 4, 5, 7, & 8) consistent with previous research (Smith, 2006), I located no literature regarding the role of the media in pandemic planning. However, following the SARS pandemic, Rezza and colleagues (2004) wrote a letter to the editor of *Emerging Infectious Diseases*, exploring the role of the Italian media in public education and including a call to action. The media has long been criticised for sharing only bad news which affects the public’s perception of risk (Slovic et al., 1979). An accurate portrayal of an event without sensationalising the story requires an authentic exchange between healthcare and media outlets, further emphasising the value of collaboration as previously discussed. Regardless of the communication transfer mechanisms, it is apparent that clear, open and trustworthy communication throughout all phases of a pandemic is essential for staff morale and compliance with directions.

4. Improve Knowledge Through Education and Training

Education and training are closely linked to communication. Substantial research supports this view (Hashim et al., 2012; Hui et al., 2007; Tippet et al., 2010) and all research participants in this study raised the importance of education and training. Research on the pre-hospital environment includes education and training as an area of pandemic study (Chaput et al., 2007; Gershon et al., 2009; Roberts and Bryce, 2015).

In the context of a large provincial pre-hospital care service, training and capacity building should be considered in rural and urban areas according to their different needs. Participants suggested multiple methods to support training and education ranging from visual prompts to full-day practice sessions. Through interviews and focus group discussion, BC paramedics favoured hands-on training, with short practice or information-based sessions being preferred. Also, in accordance with recommendations made by Roberts and Bryce (2010), participants in my research advocated for regular training, possibly engaging the services of frontline leaders and other locally situated experts. Targeted training used during the SARS outbreak in Taiwan suggests positive staff outcomes (Chow-In Ko et al., 2004). Gershon and colleagues (2009) provided a reliable evaluation of the usefulness of simulation or drill-based training, supporting the favoured hands-on training described in the previous chapter. However, knowledge transfer and information retention requires further investigation to best address the needs of the diverse workforce in BC, as does an exploration of the most effective methods for knowledge transfer.

Participants in this study suggested hands-on and face-to-face training; short in the moment sessions; engagement of frontline leaders; and familiarisation with equipment and

product evaluation, be considered. Likewise, healthcare workers have reported value in the broader context of education (Bensimon et al., 2007). Education is broader than skills building. Training sessions should engage staff in all aspects of pandemic preparedness, including familiarisation with equipment and product evaluation. For example, additional education and training could include routine IPAC principles, and the correct use of PPE and other associated equipment. These facets of education were identified as essential to paramedics' confidence to work before and during a pandemic.

5. Promote Compliance with Routine IPAC Principles

Routine practices and principles are the required IPAC measures taken in all healthcare settings to reduce the risk of infection transmission. They incorporate activities such as hand hygiene, environmental cleaning and the use of PPE (PHAC, 2012). Although participants spoke of familiarity and a reliance on routine practices to work with confidence during a pandemic (Interview 6, 9, & FGD), they raised concerns about the potential to inadvertently transmit the infection to patients, family and friends (Interviews 8 & 9). Interestingly, reactions about safety and the role routine practices play during a pandemic changed when discussing diseases like SARS and Ebola, compared to influenza. Participants expressed anxiety about Ebola, stating they were more likely to comply with infection control principles if faced with such a disease (Interviews 2, 6, & FGD). Conversely, many participants dismissed the 'flu' as nonlethal (Interview 7). This reaction suggests compliance is influenced by severity of disease or symptoms experienced, rather than policy.

Exposure to infections may be exacerbated by the invisible nature of microorganisms, particularly early in a pandemic when little is known or understood about the infection

(Interview 9). Roberts and Bryce (2015) made a similar observation in their BC study, speculating that the invisible nature of biological threats can influence compliance behaviour amongst paramedics. Although these observations echo that of the participants in my research, Roberts and Bryce did not explore this concern further in their quantitative survey. The relationship between risk perception and IPAC compliance has also been discussed by others (Listyowardojo et al., 2010; Smith et al., 2009). Nonetheless, compliance with IPAC principles has been shown to improve staff safety, such as during the SARS outbreak in Taiwan, where researchers reported no occupational related infections amongst EMS personnel (Chow-In Ko et al., 2004). Compliance with routine IPAC practices is vital to controlling transmission and safeguarding patients and staff, and warrants action in this area.

6. Provide Adequate Stocks of Effective Equipment

The availability of equipment and the capacity of that equipment to offer protection to paramedics are linked to adherence with IPAC principles. Participants in my study felt it important to have a stockpile of PPE and equipment to ensure availability when needed (Interviews 1, 7, & FGD). Healthcare workers cite their organisation's obligation to ensure safe work conditions (Bensimon et al., 2007). Uncertainty about the effectiveness of equipment made available to them is also reported, purporting that trust is significant in pandemic preparedness (Gershon et al., 2010). Gershon and colleagues (2010) surveyed a broad range of healthcare and emergency personnel, including paramedics, who indicated a lack of confidence in available PPE, feelings reiterated by Ives and colleagues (2009). Participants in this study described similar concerns and views. They expanded on published research by describing issues with quality, size and choice of equipment, and noting the provision of effective PPE and other

equipment could strengthen confidence (Interviews 4, 7, & 8). Notably, the rural community participants commented they felt less robustly equipped than the larger urban centres, who are likely to have newer equipment. The pandemic context was also discussed. Many suggested they might feel safe using the available PPE for influenza but questioned their safety in an Ebola event or other such diseases.

Participants also expressed concern about the functioning of the equipment and their level of knowledge of how to construct or use it (Interview 7 & FGD). Education and training have been described as integral in skills development, acquaintance with equipment and PPE, and staff engagement (Gershon et al., 2009). As such, ensuring adequate provision of all equipment, needed during a pandemic, with any necessary maintenance program, has been shown to be important to all healthcare workers, but specifically BC paramedics in this study. Furthermore, engagement of staff in equipment choice could build necessary trust to support compliance with the use of PPE and other equipment.

7. Develop Strategies to Support Staff and Family Care and Well-Being

Participants in this study also raised concerns about how pandemics could affect their personal and family wellbeing consistent with the literature (Damery et al., 2010; Edeghere et al., 2015; Ives et al., 2009). Research suggests that although personal safety may be a concern, healthcare workers were more unwilling to endanger their family's well-being through their chosen profession (Damery et al., 2010; Edeghere et al., 2015). Participants in this study discussed mechanisms put in place to ensure the safety of their family and in-depth research into vaccination safety for their children (Interview 9 & FGD). It was evident paramedics see strength in the family unit, suggesting resilience comes from the support network the family

provides (Interview 8). However, even though promotion of staff and family well-being appeared important to paramedics, concern was expressed when the subject of vaccinations was discussed. Although Gershon and colleagues (2010) found that healthcare workers in the US, expected the distribution of vaccines and other pharmaceuticals to personnel and their families, participants of this study did not reflect the same sentiment. Some participants described anxiety about vaccination safety generally (Interviews 4, & FGD); with others indicating apprehension when considering what should be available to their family (Interview 7). Additional evidence on vaccination confidence, uptake and safety is likely available but was outside the scope of my research.

Research anticipates absenteeism associated with a surge of extremely sick patients (Hawryluck et al., 2005). Promotion of vaccination programs outside of a pandemic may improve trust when it is critical. Additional mechanisms such as alternative staff accommodation and information sharing could build confidence, reducing the risk of absenteeism.

8. Situate Further Pandemic Research in Pre-Hospital Care

As indicated throughout this study, pandemic research grounded in pre-hospital care is sparse. Fothergill (2000) highlighted differences between researchers and practitioners that challenge knowledge transfer and policy generation, which could be addressed through interdisciplinary research (Klein, 2008). Although my research has sought to contribute to the body of knowledge in pre-hospital pandemic planning, preparedness, and response, much remains to be explored. My research presents the confidences and concerns of a small number of paramedics in two geographical areas of BC. Further research is needed to consider the

following questions: What are the views of paramedics more broadly throughout BC? What concerns paramedics in other parts of Canada? Additionally, the solutions and measures proposed by those interviewed require evaluation for transferability to other locations, efficacy in the field of EMS, and sustainability. Lastly, more direct research engagement is required with those who work in the field to best develop evidence-based, contextualized responses.

Recommendations

The following recommendations are informed by the literature and findings in this study, as discussed above. Although not an exhaustive list, it is proposed these recommendations are realistic and grounded in the needs as expressed by the participants.

Recommendation 1: Provide comprehensive pandemic planning documentation.

Recommendation 2: Develop pandemic plans through a collaborative process with relevant partners.

Recommendation 3: Promote pandemic plans and information through robust communication strategies.

Recommendation 4: Improve knowledge through education and training.

Recommendation 5: Promote compliance with routine IPAC principles.

Recommendation 6: Provide adequate stocks of effective equipment.

Recommendation 7: Develop strategies to support staff and family care and well-being.

Recommendation 8: Situate further research in pandemic planning, preparedness and response in the field of pre-hospital care.

Conclusion

Infectious biological hazards, such as pandemic influenza and SARS, pose a threat to humans, globally, and impose a burden on healthcare organisations (CDC, n.d.; Hawryluck et al., 2005; Taubenberger & Morens, 2010). Pandemics can significantly impact frontline staff, who are a critical resource in healthcare systems. Pandemics have demonstrated the ability to affect large populations, requiring communities to plan and prepare to respond to the potential for local transmission. The symptomology of such infectious diseases increases the likelihood of the victim becoming a patient who requires hospitalisation, with associated EMS transport. Although few studies have been published on pandemic preparedness amongst paramedics, those that have report concerns about risk perception and willingness to work (Gershon et al., 2010; Smith et al., 2009), and the need for education (Chaput et al., 2007; Hashim et al., 2012; Hui et al., 2007). My research provided an opportunity to study these concerns with BC paramedics and highlight steps that can be taken to improve and strengthen confidence.

It is important to note that this study is not necessarily generalizable and further research is necessary to generalise these findings. The sample size does not provide a comprehensive pool of experiences and knowledge, and limiting the cases to two geographical areas in BC, does not allow generalisation outside of these two areas, as they are not necessarily representative of all urban and rural communities. Furthermore, time and scope of this graduate study did not allow for the in-depth enquiry I set out to undertake. In saying that, the open and honest discussion with a small number of paramedics does highlight areas of significance to them, which can be measured against literature currently available.

Despite these limitations, this study offered paramedics in BC the opportunity to share their experiences, thoughts, and feelings about pandemic preparations. This research focused specifically on their confidences and concerns. Through the research, it is evident participants play a vital role in understanding pandemic preparedness in context and offering contextualised solutions and possibilities to improve confidence and allay concerns. Moving forward, determining how paramedic engagement in pandemic preparedness and response can be increased to make a difference in the lives of patients who need it most is essential. The potential contribution to the process of pandemic planning of every medical professional needs further research as well. This is something I am committed to exploring through future research and practice.

Participant List

Participant 1

Participant 2

Participant 3

Participant 4

Participant 5

Participant 6

Participant 7

Participant 8

Participant 9

Focus Group Participants

References

- Adini, B., Laor, D., & Aharonson-Daniel, L. (2014). Factors affecting preparedness and capacity to manage pandemic influenza: Perceptions of healthcare managers. *Public Health, 128*(8), 703-708. doi:10.1016/j.puhe.2014.06.002
- Advameg, Inc. (2017). [Detailed Vancouver Metropolitan profile]. Retrieved July 29, 2017, from City-Data database.
- Baptiste, I. (2001). Qualitative data analysis: Common phases, strategic differences. *Forum: Qualitative Social Research, 2*(3). Retrieved from <http://www.qualitative-research.net/index.php/fqs/article/view/917>
- Barbisch, D. F., & Koenig, K. L. (2006). Understanding surge capacity: Essential elements. *Academic Emergency Medicine, 13*(11), 1098-1102. doi:10.1197/j.aem.2006.06.041
- Barnett, D. J., Levine, R., Thompson, C. B., Wijetunge, G. U., Oliver, A. L., Bentley, M. A., . . . Tebruegge, M. (2010). Gauging U.S. emergency medical services workers' willingness to respond to pandemic influenza using a threat- and efficacy-based assessment framework. *PLoS ONE, 5*(3), 1-10. doi:10.1371/journal.pone.0009856
- Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *Qualitative Report, 13*(4), 544-599. Retrieved from <http://nsuworks.nova.edu/tqr/vol13/iss4/2/>
- BC Emergency Health Services. (2015, September). *Pandemic/epidemic emergency management plan*. Unpublished internal policy, BCEHS.

- Bensimon, C. M., Tracy, C. S., Bernstein, M., Shaul, R. Z., & Upshur, R. E. G. (2007). A qualitative study of the duty to care in communicable disease outbreaks. *Social Science & Medicine*, 65(12), 2566-2575. doi:10.1016/j.socscimed.2007.07.017
- Blatter, J. K. (2008). Case study. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (pp. 68-71). Thousand Oaks, CA: SAGE Publications Ltd. doi: 10.4135/9781412963909
- Bloor, M., & Wood, F. (2006). *Keywords in qualitative methods*. London, England: SAGE Publications Ltd. doi: 10.4135/9781849209403
- Booth, W. C., Colomb, G. G., & Williams, J. M. (2008). *The craft of research* (3rd ed.). [Kindle version]. Chicago, IL: University of Chicago Press. Retrieved from www.amazon.ca
- Burr, V. (2015). *Social constructivism* (3rd ed.). [Google Books version]. London, England: Routledge. Retrieved from <https://books.google.ca/>
- Campbell, S. (2010). Comparative case study. In A. J. Mills, G. Durepos & E. Wiebe (Eds.), *Encyclopedia of case study research* (pp. 175-176). Thousand Oaks, CA: SAGE Publications Ltd. doi: 10.4135/9781412957397
- Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, and Social Sciences and Humanities Research Council of Canada, *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*, December 2014. Retrieved from http://www.pre.ethics.gc.ca/pdf/eng/tcps2-2014/TCPS_2_FINAL_Web.pdf

Castillo-Montoya, M. (2016). Preparing for interview research: The interview protocol refinement framework. *The Qualitative Report*, 21(5), 811-831. Retrieved from <http://nsuworks.nova.edu/tqr/vol21/iss5/2>

Centers for Disease Control and Prevention. (n.d.). *CDC estimates of 2009 H1N1 influenza cases, hospitalizations and deaths in the United States*. Retrieved from http://www.cdc.gov/h1n1flu/estimates_2009_h1n1.htm

Centers for Disease Control and Prevention. (2004). *Public health guidance for community-level preparedness and response to severe acute respiratory syndrome (SARS)*. Retrieved from <https://www.cdc.gov/sars/guidance/core/index.html>

Centers for Disease Control and Prevention. (2014). Updated preparedness and response framework for influenza pandemics. *Morbidity and Mortality Weekly Report* 63(6). Retrieved from <http://www.cdc.gov/mmwr/pdf/rr/rr6306.pdf>

Centers for Disease Control and Prevention. (2016a). *2014 Ebola outbreak in West Africa*. Retrieved from <https://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/index.html>

Centers for Disease Control and Prevention. (2016b). *Past pandemics*. Retrieved from <https://www.cdc.gov/flu/pandemic-resources/basics/past-pandemics.html>

Chaput, C. J., Deluhery, M. R., Stake, C. E., Martens, K. A., & Cichon, M. E. (2007). Disaster training for prehospital providers. *Prehospital Emergency Care*, 11(4), 458-465. doi:10.1080/00207450701537076

- Chor, J. S. Y., Pada, S. K., Stephenson, I., Goggins, W. B., Tambyah, P. A., Medina, M., . . . Chan, P. K. S. (2012). Differences in the compliance with hospital infection control practices during the 2009 influenza H1N1 pandemic in three countries. *The Journal of Hospital Infection*, *81*(2), 98-103. doi:10.1016/j.jhin.2012.04.003
- Chow-In Ko, P., Chen, W., Huei-Ming Ma, M., Chiang, W., Su, C., Huang, C., . . . Lin, F. (2004). Emergency medical services utilization during an outbreak of severe acute respiratory syndrome (SARS) and the incidence of SARS-associated coronavirus infection among emergency medical technicians. *Academic Emergency Medicine*, *11*(9), 903-911. doi:10.1197/j.aem.2004.03.016
- Connolly, M. (2003). Qualitative analysis: A teaching tool for social work research. *Qualitative Social Work*, *2*(1), 103-112. doi: 10.1177/1473325003002001282
- Cooper, S., & Endacott, R. (2007). Generic qualitative research: A design for qualitative research in emergency care? *Emergency Medicine Journal*, *24*(12), 816-819. doi:10.1136/emj.2007.050641
- Coppola, D. P. (2011). *Introduction to international disaster management* (2nd ed.). Amsterdam: Butterworth Heinemann.
- Cox, R., & Heykoop, C. (2016a). *Sample focus group script* [Word document]. Retrieved from Moodle platform.
- Cox, R., & Heykoop, C. (2016b). *Sample interview guide* [Word document] Retrieved from Moodle platform.

- Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). [Kindle iOS version]. Thousand Oaks, CA: SAGE Publications Ltd. Retrieved from www.amazon.ca
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative and mixed methods*. [Kindle iOS version]. Thousand Oaks, CA: SAGE Publications Ltd. Retrieved from www.amazon.ca
- Cronbach, L. J. (1975). Beyond the two disciplines of scientific psychology. *American Psychologist*, 30(2), 116-127. doi:10.1037/h0076829
- Daly, P., Gustafson, R., & Kendall, P. (2007). Introduction to pandemic influenza. *BC Medical Journal*, 49(5), 240-244. Retrieved from <http://www.bcmj.org/article/introduction-pandemic-influenza>
- Damery, S., Draper, H., Wilson, S., Greenfield, S., Ives, J., Parry, J., . . . & Sorell, T. (2010). Healthcare workers' perceptions of the duty to work during an influenza pandemic. *Journal of Medical Ethics*, 36(1), 12-18. doi:10.1136/jme.2009.032821
- Dewar, B., Barr, I., & Robinson, P. (2014). Hospital capacity and management preparedness for pandemic influenza in Victoria. *Australian and New Zealand Journal of Public Health*, 38(2), 184-190. doi:10.1111/1753-6405.12170
- Draper, H., Wilson, S., Ives, J., Gratus, C., Greenfield, S., Parry, J., . . . & Sorell, T. (2008). Healthcare workers' attitudes towards working during pandemic influenza: A multi method study. *Bio-Med Central Public Health*, 8(1), 192. doi:10.1186/1471-2458-8-192

Edeghere, O., Fowler, T., Wilson, F., Caspa, R., Raichand, S., Kara, E., ... Olowokure, B.

(2015). Knowledge, attitudes, experience and behaviour of frontline health care workers during the early phase of 2009 influenza A(H1N1) pandemic, Birmingham, UK. *Journal of Health Services Research & Policy*, 20(1), 26-30. doi:10.1177/1355819614554243

Epidemic. (n.d.). In *Merriam Webster dictionary*. Retrieved from <http://www.merriam-webster.com/dictionary/epidemic>

Filice, C. E., Vaca, F. E., Curry, L., Platis, S., Lurie, N., Bogucki, S., & Shah, M. N. (2013).

Pandemic planning and response in academic pediatric emergency departments during the 2009 H1N1 influenza pandemic. *Academic Emergency Medicine*, 20 (1), 54-62. doi:10.1111/acem.12061

Fothergill, A. (2000). Knowledge transfer between researchers and practitioners. *Natural Hazards Review*, 1(2), 91-98. doi:10.1061/(asce)1527-6988(2000)1:2(91)

Gershon, R. R. M., Magda, L. A., Qureshi, K. A., Riley, H. E., Scanlon, E., Carney, M.

T., ... Sherman, M. F. (2010). Factors associated with the ability and willingness of essential workers to report to duty during a pandemic. *Journal of Occupational and Environmental Medicine*, 52(10), 995-1003. doi:10.1097/JOM.0b013e3181f43872

Gershon, R. R. M., Vandelinde, N., Magda, L. A., Pearson, J. M., Werner, A., & Prezant, D.

(2009). Evaluation of a pandemic preparedness training intervention of emergency medical services personnel. *Prehospital and Disaster Medicine*, 24(6), 508-511. doi:10.1017/s1049023x00007421

- Government of Canada. (2015). *Canadian pandemic influenza preparedness: Planning guidance for the health sector*. Retrieved from <http://www.phac-aspc.gc.ca/cpip-pclcpi/assets/pdf/report-rapport-2015-eng.pdf>
- Gravel, D., Taylor, G., Ofner, M., Johnston, L., Loeb, M., Roth, V., ... Matlow, A. (2007). Point prevalence survey for healthcare-associated infections within Canadian adult acute-care hospitals. *Journal of Hospital Infection*, 66(3), 243-248. doi:10.1016/j.jhin.2007.04.008
- Hashim, A., Jean-Gilles, L., Hegermann-Lindencrone, M., Shaw, I., Brown, C., & Nguyen-Van-Tam, J. (2012). Did pandemic preparedness aid the response to pandemic (H1N1) 2009? A qualitative analysis in seven countries within the WHO European region. *Journal of Infection and Public Health*, 5(4), 286-296. doi:10.1016/j.jiph.2012.04.001
- Hawryluck, L., Lapinsky, S. E., & Stewart, T. E. (2005). Clinical review: SARS - lessons in disaster management. *Critical Care (London, England)*, 9(4), 384-389. doi:10.1186/cc3041
- Holland, J. (2007). Emotions and research. *International Journal of Social Research Methodology*, 10(3), 195-209. doi:10.1080/13645570701541894
- Hui, Z., Jian-Shi, H., Xiong, H., Peng, L., & Da-Long, Q. (2007). An analysis of the current status of hospital emergency preparedness for infectious disease outbreaks in Beijing, China. *AJIC: American Journal of Infection Control*, 35(1), 62-67. doi:10.1016/j.ajic.2006.03.014
- IPAC-Canada. (n.d.). *IPAC Canada news archives 2015*. Retrieved from http://www.ipac-canada.org/news_archives.php

Ives, J., Greenfield, S., Parry, J. M., Draper, H., Gratus, C., Petts, J. I., . . . & Wilson, S. (2009).

Healthcare workers' attitudes to working during pandemic influenza: A qualitative study. *BMC Public Health*, 9(1), 56. doi:10.1186/1471-2458-9-56

Jennings-Sanders, A., Frisch, N., & Wing, S. (2005). Nursing students' perceptions about disaster nursing. *Disaster Management & Response*, 3(3), 80-85. doi:10.1016/j.dmr.2005.08.001

Klein, J. T. (2008). Evaluation of interdisciplinary and transdisciplinary research. *American Journal of Preventive Medicine*, 35(2), S116-S123. doi:10.1016/j.amepre.2008.05.010

Koch, T., & Harrington, A. (1998). Reconceptualizing rigour: The case for reflexivity. *Journal of Advanced Nursing*, 28(4), 882-890. doi:10.1046/j.1365-2648.1998.00725.x

Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. Thousand Oaks, CA: SAGE Publications Ltd.

Lincoln, Y., & Guba, E. C. (2002). Judging the quality of case study reports. In A. M. Huberman & M. B. Miles (Eds.). *The qualitative researcher's companion* (pp. 204-215). Thousand Oaks, CA: SAGE Publications Ltd doi: 10.4135/9781412986274.n9

Listyowardojo, T. A., Nap, R. E., & Johnson, A. (2010). Perceptions of personal health risks by medical and non-medical workers in a university medical center: A survey study. *BMC Public Health*, 10(1). doi:10.1186/1471-2458-10-681

Marshall, C., & Rossman, G. B. (2016). *Designing qualitative research* (6th ed.) [Kindle iOS version]. Thousand Oaks, CA: SAGE Publications Ltd. Retrieved from www.amazon.com

Merriam, S. B. (1998). *Qualitative research and case study applications in education* (2nd ed.).

[Kindle iOS version]. San Francisco, CA: Jossey-Bass. Retrieved from
www.amazon.com

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). [Scribd version]. Thousand Oaks, CA: SAGE Publications Ltd.

Retrieved from Scribd database.

Mistovich, J. J., Karren, K. J., & Hafen, B. Q. (2014). *Prehospital emergency care* (10th ed.). H. A. Werman (Ed.). Boston, MA: Pearson.

Mitchell, R., Ogunremi, T., Astrakianakis, G., Bryce, E., Gervais, R., Gravel, D., . . . Weir, C.

(2012). Impact of the 2009 influenza a (H1N1) pandemic on Canadian health care workers: A survey on vaccination, illness, absenteeism, and personal protective equipment. *AJIC: American Journal of Infection Control*, 40(7), 611-616.

doi:10.1016/j.ajic.2012.01.011

Morgan, D. L., & Krueger, R. A. (1993). When to use focus groups and why. In D. L. Morgan (Ed.), *Successful focus groups: Advancing the state of the art* (pp. 3-19). Thousand Oaks, CA: SAGE Publications Ltd doi: 10.4135/9781483349008.n1

Morse, J. M. (2004). Purposive sampling. In M. S. Lewis-Beck, A. Bryman & T. Futing Liao (Eds.), *The SAGE encyclopedia of social science research methods* (pp. 885). Thousand Oaks, CA: SAGE Publications Ltd. doi: 10.4135/9781412950589

Pan-Canadian Public Health Network. (2015). *Canadian pandemic influenza preparedness: Planning guidance for the health sector*. Retrieved from <http://www.phac-aspc.gc.ca/cpip-pclpci/assets/pdf/report-rapport-2015-eng.pdf>

- Pandemic Influenza Preparedness Team. (2011). *Healthcare worker willingness to work during a pandemic*. London, England: The Stationary Office. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/215675/dh_125428.pdf
- Pandemic. (n.d.). In *Merriam Webster dictionary*. Retrieved from <http://www.merriam-webster.com/dictionary/pandemic>
- Patrick, J. R., Shaban, R. Z., & FitzGerald, G. (2011). Influenza: Critique of the contemporary challenges for pandemic planning, prevention, control, and treatment in emergency health services. *Australasian Emergency Nursing Journal*, 14(2), 108-114.
doi:10.1016/j.aenj.2011.03.001
- Patton, M. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: SAGE Publications Ltd.
- Pitts, J., Lynch, M., Mulholland, M., Curtis, A., Simpson, J., & Meacham, J. (2009). Disaster planning: Using an “evolving scenario” approach for pandemic influenza with primary care doctors in training. *Education for Primary Care*, 20(5), 346-352.
doi:10.1080/14739879.2009.11493816
- Provincial Health Services Authority. (2016). *BCEHS quick facts*. Retrieved from <http://www.bcehs.ca/about/accountability/fact-sheets-and-faqs>
- Provincial Health Services Authority. (2017). *BC Emergency Health Services: Emergency medical care & patient transfer services*. Retrieved from <http://www.bcehs.ca>
http://stevescollection.weebly.com/uploads/1/3/8/6/13866629/saldana_2009_the-coding-manual-for-qualitative-researchers.pdf

- Public Health Agency of Canada. (2012). *Routine practices and additional precautions for preventing the transmission of infection in healthcare settings*. Retrieved from http://publications.gc.ca/collections//collection_2013/aspc-phac/HP40-83-2013-eng.pdf
- Quigley, K., Macdonald, C., & Quigley, J. (2016). Pre-existing condition: Taking media coverage into account when preparing for H1N1. *Canadian Public Administration*, 59(2), 267–288. doi:10.1111/capa.12169
- Ravitch, S. M., & Riggan, M. (2016). *Reason & rigor: How conceptual frameworks guide research* (2nd ed.) [Kindle iOS version]. Thousand Oaks, CA: SAGE Publications Ltd. Retrieved from www.amazon.com
- Rebmann, T., Wilson, R., LaPointe, S., Russell, B., & Moroz, D. (2009). Hospital infectious disease emergency preparedness: A 2007 survey of infection control professionals. *AJIC: American Journal of Infection Control*, 37(1), 1-8. doi:10.1016/j.ajic.2008.02.007
- Rennekamp, R. A., & Nall, M. A. (2004). Using focus groups in program development and evaluation. *University of Kentucky Cooperative Extension, Lexington*. Retrieved from <http://dcyfernetsearch.cehd.umn.edu/sites/default/files/Rennekamp,%202008.pdf>
- Rezza, G., Marino, R., Farchi, F., & Taranto, M. (2004). SARS epidemic in the press. *Emerging Infectious Diseases*, 10(2), 381-382. Retrieved from MEDLINE database
- Ritchie, J., & Spencer, L. (2002). Qualitative data analysis for applied policy research. In A. M. Huberman & M. B. Miles (Eds.), *The qualitative researcher's companion* (pp. 305-329). Thousand Oaks, CA: SAGE Publications Ltd. doi: 10.4135/9781412986274.n12

- Roberts, K. A., & Bryce, E. (2015). Pandemic preparedness of BC paramedics. *Canadian Journal of Infection Control*, 30(4), 225-231. Retrieved from <http://ipac-canada.org/photos/custom/OldSite/cjic/vol30no4.pdf>
- Roulston, K. (2010). *Reflective interviewing: A guide to theory and practice*. Thousand Oaks, CA: SAGE Publications Ltd. doi:10.4135/9781446288009
- Royal Roads University. (2014). *Request for ethical review for research involving humans*. Retrieved from <http://research.royalroads.ca/ethics-students>
- Saldaña, J. (2009). *The coding manual for qualitative researchers*. Thousand Oaks, CA: SAGE Publications Ltd. Retrieved from http://stevescollection.weebly.com/uploads/1/3/8/6/13866629/saldana_2009_the-coding-manual-for-qualitative-researchers.pdf
- Scanlon, T. J., Luukko, R., & Morton, G. (1978). Media coverage of crises: Better than reported, worse than necessary. *Journalism Quarterly*, 55(1), 68–72. doi:10.1177/107769907805500109
- Silverman, A., Simor, A., & Loutfy, M. R. (2004). Toronto emergency medical services and SARS. *Emerging Infectious Diseases*, 10(9), 1688-1689. doi:10.3201/eid1009.040170
- Simons, H. (2009). *Case study research in practice*. London: SAGE Publications Ltd. doi:10.4135/9781446268322
- Slovic, P., Fischhoff, B., & Lichtenstein, S. (1979). Rating the risks: The structure of expert and lay perceptions. *Environment*, 21(3), 14-39. doi:10.1080/00139157.1979.9933091

- Smith, E., Morgans, A., Qureshi, K., Burkle, F., & Archer, F. (2009). Paramedics' perceptions of risk and willingness to work during disasters. *Australian Journal of Emergency Management, 24*(3), 21-27. Retrieved from <https://ajem.infoservices.com.au/items/AJEM-24-03-08>
- Smith, R. D. (2006). Responding to global infectious disease outbreaks: Lessons from SARS on the role of risk perception, communication and management. *Social Science & Medicine, 63*(12), 3113-3123. doi:10.1016/j.socscimed.2006.08.004
- Stephens, D. S., Ribner, B. S., Gartland, B. D., Feistritzer, N. R., Farley, M. M., Larsen, C. P., & Fox, J. T. (2015). Ebola virus disease: Experience and decision making for the first patients outside of Africa. *PLOS Medicine, 12*(7), e1001857. doi:10.1371/journal.pmed.1001857
- Swensen, S., Kabcenell, A., & Shanafelt, T. (2016). Physician-organization collaboration reduces physician burnout and promotes engagement: The Mayo Clinic experience. *Journal of Healthcare Management, 61*(2), 105-128. Retrieved from ProQuest database.
- Taubenberger, J. K., & Morens, D. M. (2010). Influenza: The once and future pandemic. *Public Health Reports, 125*(3 suppl), 15-26. doi:10.1177/00333549101250s305
- Tippett, V. C., Watt, K., Raven, S. G., Kelly, H. A., Coory, M., Archer, F., & Jamrozik, K. (2010). Anticipated behaviors of emergency prehospital medical care providers during an influenza pandemic. *Prehospital and Disaster Medicine, 25*(01), 20-25. doi:10.1017/s1049023x00007603

- University of Washington. (2009). *Academic pathways study interview protocol (example technical public institution/urban private university/suburban private university/large public university*. Retrieved from https://www.engr.washington.edu/caee/APS_Process_Procedures/Appendix_3-A_APS_Structured_Interview_Protocol_Example_Ext.pdf
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. M. Cole, V. John-Steiner, S. Scribner & E. Souberman (Eds.). Cambridge, MA: Harvard University Press. Retrieved from <http://ouleft.org/wp-content/uploads/Vygotsky-Mind-in-Society.pdf>
- Watt, K., Tippet, V. C., Raven, S. G., Jamrozik, K., Coory, M., Archer, F., & Kelly, H. A. (2010). Attitudes to living and working in pandemic conditions among emergency prehospital medical care personnel. *Prehospital and Disaster Medicine*, 25(01), 13-19. doi:10.1017/s1049023x00007597
- Williamson, A. E., & Burns, N. (2014). The safety of researchers and participants in primary care qualitative research. *The British Journal of General Practice: The Journal of The Royal College of General Practitioners*, 64(621), 198-200. doi:10.3399/bjgp14X679480
- World Health Organization Ebola Response Team. (2016). After Ebola in West Africa - unpredictable risks, preventable epidemics. *New England Journal of Medicine*, 2016(375), 587-596. doi:10.1056/nejmsr1513109
- World Health Organization. (n.d.). *SARS (Severe Acute Respiratory Syndrome)*. Retrieved from <http://www.who.int/ith/diseases/sars/en/>

World Health Organization. (2009). *Pandemic influenza preparedness and response*. Geneva, Switzerland: WHO Press. Retrieved from

http://www.who.int/influenza/resources/documents/pandemic_guidance_04_2009/en/

World Health Organization. (2013). *Pandemic influenza risk management: WHO interim guidance*. Geneva, Switzerland: WHO Press. Retrieved from

http://www.who.int/influenza/preparedness/pandemic/GIP_PandemicInfluenzaRiskManagementInterimGuidance_Jun2013.pdf

World Health Organization. (2014a). *Ebola virus disease - Spain*. Retrieved

from <http://www.who.int/csr/don/09-october-2014-ebola/en/>

World Health Organization. (2014b). *Ebola virus disease - United States of America*. Retrieved

from <http://www.who.int/csr/don/01-october-2014-ebola/en/>

World Health Organization. (2014c). *Infection prevention and control of epidemic- and pandemic-prone acute respiratory infections in health care*. Geneva, Switzerland: WHO Press. Retrieved from

http://apps.who.int/iris/bitstream/10665/112656/1/9789241507134_eng.pdf

World Health Organization. (2017). *Ebola virus disease: Fact sheet*. Retrieved from

<http://www.who.int/mediacentre/factsheets/fs103/en/>

Yazan, B. (2015). Three approaches to case study methods in education: Yin, Merriam, and

Stake. *The Qualitative Report*, 20(2), 134-152. Retrieved from

<http://nsuworks.nova.edu/tqr/vol20/iss2/12>

Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA:

SAGE Publications Ltd.

Zoutman, D. E., Ford, B. D., Bryce, E., Gourdeau, M., Hebert, G., Henderson, E., ... Paton, S.

(2003). The state of infection surveillance and control in Canadian acute care

hospitals. *American Journal of Infection Control*, 31(5), 266-273. doi:

10.1067/mic.2003.88

Appendix A

Participant Consent Form

My name is Lisa Young and this research project is part of the requirement for a Master of Arts in Disaster and Emergency Management at Royal Roads University. My credentials with Royal Roads University can be established by telephoning Dr. **Jean Slick** – School Director, Associate Professor, Disaster & Emergency Management.

I am an employee of BC Emergency Health Services as the Leader for Infection Prevention and Control. I do not operationally manage any member of BC Emergency Health Services staff. I have no additional conflicts of interest to declare.

This document is an agreement to participate in my research project, *Paramedics' Confidences and Concerns about Infectious Pandemics*, the objective of which is to identify and better understand the confidences and concerns paramedics have about working during an infectious pandemic, and how to address these concerns. If you have any questions or would like any part of this form clarifying, please feel free to ask me.

The interview is likely to last a maximum of one hour. The questions will refer to your personal and professional experiences of infectious pandemics, and whether you have any concerns about a pandemic or working during a pandemic. Also, how you could feel more confident about working during a pandemic will be explored. While we will be discussing your personal and professional concerns, it is not the aim of this interview to cause you distress. If you feel uncomfortable to continue, you can stop the interview at any point, and request the information recorded up to that time be destroyed.

Information from this interview will be recorded in hand-written and audio-recording format and will be summarized in the final document. At no time will any comment be attributed to you unless your specific agreement to attribute that comment has been obtained

beforehand. All hand-written documentation will be stored in a locked cabinet, and electronic data recordings will be stored on a password-protected data storage device. This data will be held for one year, after which time the data will be securely deleted or destroyed as applicable. Please inform me if you wish the information be returned or destroyed prior to this date.

You understand that your participation is not required by your employer, and your responses will be recorded without risk of recourse. While you may not notice any direct benefits in participating in this research study, it is an opportunity to share your views and experiences, which may help to shape future pandemic planning.

In addition to submitting my final report to Royal Roads University in partial fulfillment for a Master of Arts degree in Disaster and Emergency Management, I will also be sharing the research findings with the BC Emergency Health Services senior leadership. A copy of the final report may also be stored on the Royal Roads thesis repository, which is publicly accessible.

I appreciate you giving your time to support my research. If you have any concerns or questions following this interview, please feel free to contact me.

Your participation is completely voluntary. This research project has received clearance from the RRU Research Ethics Board. If you have any questions regarding your rights as a research participant, please contact the ethics office at RRU.

By signing this letter, you give free and informed consent to participate in this project.

Name: (Please Print): _____

Signed: _____

Date: _____

Appendix B

Interview Protocol

Introduction Script

Hello [name]. Thank you very much for taking the time to speak with me. As we discussed when I asked if you would be interested in taking part in this research, I am an employee of BCEHS, but today I am here as a student undertaking a graduate disaster and emergency management program at Royal Roads University. In the context of that program, I am completing a research study into the concerns and priorities paramedics have when thinking about working during an infectious disease pandemic or epidemic. I explained that a pandemic is when an infection spreads to the majority of people around the world or over a large part of the world (Pandemic, n.d.). This interview will last approximately an hour today, is that still alright for you?

As part of this interview, I have ten questions to help guide our conversation. However, if you want to take a break, get a drink or stop the interview at any point, please let me know, and we will stop and reassess what to do and how you want to continue. Should you want to discontinue, I want to again reassure you that all notes and recordings will be destroyed immediately.

Before we start I would just like to go through the consent you signed earlier and confirm that you are still happy to continue? As part of the consent form, you indicated that I have your permission [or not] to audio record our conversation today. Are you still alright [or not] with me recording today? ___[response]___. Thank you for letting me know, [please let me know if you want the recording to stop at any point; OR I will only take notes of our conversation]. I want to confirm with you that all identifying elements of the notes or recording will be removed, and the anonymised information will be stored securely.

Do you have any [additional] questions from what I have said so far? Again, if you have any questions during the interview or need clarification, please feel free to ask.

Interview Questions

Before we start on the interview questions, can you tell me a little about yourself?

Probe regarding career

How long have you been a paramedic?

Can you tell me about any other careers have you had?

Probe regarding family

Can you tell me about your family?

1. What infection prevention and control training or education have you received either at work or through other organisations?

Probe regarding personal protective equipment, hand hygiene and influenza season education/training

Can you tell me more about what was included in your training?

Did your training include hand hygiene?

Did your training include any other aspects of infection control that you can think of?

2. Have you worked during a pandemic as a paramedic or in another healthcare role?

Probe regarding the SARS outbreak in 2003, influenza pandemic of 2009.

3. What issues during that/those experiences concerned you at the time?

Probe, personally or professionally

How did you feel working during that time?

How did your family feel about you potentially coming into contact with patients who had [identified infection] infection?

What were your expectations of the organisation for your safety?

4. Having gone through that experience, what other concerns would you have if a pandemic happened this month?

Probe, personally or professionally

How do you feel about that experience now?

How does your family feel about the chance that you could have to work through a large infectious outbreak again? Can you tell me more about that?

5. Again, having that experience, what do you now feel are your priorities if you are to work during a large infectious outbreak here in BC or worldwide?

Probe, personally or professionally

6. What sort of support would you like your organisation to provide for you to work during worldwide pandemic?

Probe

Are there any physical equipment needs that you think would have helped during your previous experiences?

Are there any elements that training would have supported during your previous experiences?

What type of emotional supports would help you or your family?

7. Are there any other supports that you would add if a large-scale outbreak in BC were forecast?

Probe

Are there any supports you included for the epidemic that you now feel are not important?

Can you tell me what would help you and your family feel more confident in your safety at work?

8. What sort of support would you like your organisation to provide for you to work if there was a serious infectious disease that was affecting another country, but through travel could affect BC?

Probe

For example, the Ebola outbreak was in West Africa and no cases were transmitted here in BC. What sort of information would you like to receive? Can you tell me more about that? How would you like to receive that information?

9. What elements of a plan to prepare you for a pandemic would you identify as the most important to you?

Probe

Is your own safety or your family's safety most important to you? Can you tell me more about that?

Does that supersede the safety of the public you may be called to help?

How can that element be addressed in an emergency plan?

What sort of measures would you like to see put in place?

10. If you had one recommendation for others, what would it be?

Closing

11. Is there anything you would like to say or add?

12. Do you have any questions?

(Castillo-Montoya, 2016; Cox & Heykoop, 2016b; University of Washington, 2009)

I would like to thank you again for sharing your thoughts and feelings with me. Your contribution is extremely important to my research. As I analyse my data, I would like to verify that I have interpreted your responses as you intended them to be understood. To do this, I would like to share a summary of my analysis. What is the best way to share this summary with you? By email or hard copy by post? If you have any concerns or clarifications, I would like to discuss them further, to gain a better understanding. Is that alright with you? I would also like to share a summary of my final report with you, and let you know how the research is progressing.

Appendix C

Focus Group Protocol

Introduction Script

Hello everyone. Thank you all for taking the time to come together [today]. I would first like to introduce myself. I am Lisa, and today I am here as a student undertaking a graduate disaster and emergency management program at Royal Roads University. As I discussed with each of you, the purpose of my research is to inquire as to the concerns and priorities paramedics have when thinking about and actually working during an infectious disease pandemic or epidemic. Your participation in this focus group is extremely valuable to my research. My role is to provide you with the space to share your knowledge, thoughts and feelings.

Just to ensure that we all have the same understanding of the key terms, a pandemic is when an infection spreads to the majority of people around the world or over a large part of the world (Pandemic, n.d.). An epidemic affects a large number of individuals within a particular population, community, or region at the same time (Epidemic, n.d.).

This focus group will last approximately an hour today. Is that still alright for everyone? [Eye contact with each participant, to acknowledge their consent]. As part of this focus group conversation, I have some questions to help guide our discussion, but I would like you to feel comfortable in sharing and experiencing this as a conversation rather than me asking you questions. There are no right or wrong answers, and you may each have differing experiences to share. I would really like to provide each of you with the opportunity to speak to those experiences even if they are different. If you have something to add to something said by another, please feel free to once they have finished speaking. If someone has not contributed, I may ask you if you have something to add, as I want to provide everyone with the opportunity to share.

If you want to get a drink or move around, please feel free to do so. If you want to take a break or stop the conversation at any point, please let me know, and we will stop and reassess what to do and how you want to continue. However, if we discontinue, any information already recorded will remain as part of the anonymous information and used in my research.

Before we get started I would just like to go through the consent you all signed earlier and confirm that you are still happy to continue? [Look at each participant]. Obviously as we are all in the room together, and you all know each other, it is not possible to maintain anonymity here. However, I would ask that we all respect each other's privacy, and that the names of other participants and thoughts shared are not discussed outside of this meeting today. Does anyone have any concerns about this?

I also want to explain that if you should wish to discontinue participation after we have started, the information already recorded will remain as part of the anonymous information, as it cannot be extracted from the conversation. Does anyone have any concerns about this piece?

As part of the consent form, you indicated that I have your permission [or not] to audio record our conversation today. Are you still alright [or not] with me recording today?

___[response]___. Thank you for letting me know, [please let me know if you want the recording to stop at any point; OR I will only take notes of our conversation]. I will also be taking some very brief notes as we talk. All notes and recording will have any identifying elements removed, and will be securely stored.

Does anyone have any [additional] questions from what I have said so far? Again, if you have any questions during the interview or need clarification, please feel free to ask.

Introductory Questions

1. To start, I have introduced myself, but maybe we can go around and each person introduce themselves and tell us about yourself? [your names will be removed from the transcription of the recording]

Probe regarding career, how long a paramedic

Probe regarding family

Transition Questions

2. What type of infection prevention and control training or education have you received either at work or through other organisations?

Probe regarding personal protective equipment, hand hygiene and influenza season education/training

3. Has anyone had experience working during an epidemic or pandemic? Can you tell me more about that experience?

Probe regarding the SARS outbreak in 2003 or influenza pandemic of 2009

Probe regarding concerns through that experience

Key Questions

4. Having gone through that experience, what concerns would you have if a pandemic were forecast to happen this year?

Probe, personally or professionally

5. Again, having that experience, what do you feel are your priorities if you are to work during the pandemic?

Probe, personally or professionally

6. What sort of support would you like your organisation to provide for you to work during that pandemic?

Probe, physical equipment, training or emotional supports

Probe regarding personal supports

7. What sort of support would you like your organization to provide for you to work if there was a serious infectious disease that was affecting another country, but through travel could affect BC?

Probe, such as Ebola

8. What elements of a plan to prepare you for a pandemic would you identify as the most important to you?
9. How do those elements differ if preparing for a local epidemic?

Closing

10. Is there anything that anyone would like to say or add?
11. Does anyone have any questions?

(Castillo-Montoya, 2016; Cox & Heykoop, 2016a; University of Washington, 2009)

I would like to thank you all again for sharing your thoughts and feelings with me. Your contribution is extremely important to my research, and I am grateful that you have all shared your experiences and concerns with me today. As I analyse my data, I would like to verify that I have interpreted your responses as you intended them to be understood. To do this, I would like to share a summary of my analysis. What is the best way to share this summary with each of you? By email or hard copy by post? If you have any concerns or clarifications, I would like to discuss them further to gain a better understanding. I would also like to let you know how the research is going, and I will share a summary of my final report with you.

Thank you all again for coming, and I think there is still coffee if you want to stay and chat socially.