

Exploring the context, role and impact of public health nursing during COVID-19: A multiple case study protocol

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Abstract

Aim: The purpose of this study is to: (a) describe public health nursing roles over the course of the COVID-19 pandemic in Ontario, Canada; (b) describe the contextual factors that influence public health nursing role implementation; and (c) describe nurses' perceived impact of their roles on client outcomes and professional/personal nursing practice.

Design: Descriptive multiple case study.

Methods: Recruitment of public health nurses (PHNs), working in direct service or administrative leadership positions, in an Ontario public health unit will be conducted through purposive and snowball sampling. Nursing roles will be compared and contrasted across three cases differentiated by geographic setting: urban, urban-rural, northern. In each geographic case, a priori estimates of sample size will include 10 PHNs providing direct care and at least five nurses in an administrative leadership role; with an overall estimated study sample size of 45 individuals. Demographic data will be collected using an online anonymous survey. Individual semi-structured interviews with PHNs, and focus groups with nursing administrators will be conducted via telephone and audio-recorded. Individual interviews and focus groups will be transcribed verbatim. Reflexive thematic analysis will be used to generate emergent themes in each case and cross-case synthesis will be used to compare and contrast patterns across geographic cases.

Discussion: Expected findings will provide an in-depth analysis of the rapidly evolving roles and functions of PHNs throughout the COVID-19 pandemic and their impact on individuals, families and communities. As well, findings will provide a new understanding about the contextual barriers and facilitators of PHN role implementation in their working environments.

Impact: Study findings can support decision-making in relation to funding, resource allocation and supportive work structures and processes at a public health system and/or individual public health organization level.

KEYWORDS

COVID-19 pandemic, nursing roles, public health nursing

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1 | INTRODUCTION

Public health nurses (PHNs) comprise the largest professional body of the public health workforce (Joyce et al., 2015; Yeager & Wisniewski, 2017) and serve as leaders in protecting, promoting and preserving the health and wellness of populations, communities, individuals and families (Community Health Nurses Association of Canada, 2009; Public Health Nursing Section of the American Public Health Association, 2013). Public health nursing is recognized as a nursing speciality with unique competencies and standards of practice (Community Health Nurses of Canada, 2019; Quad Council Coalition Competency Review Task Force, 2018). Across the international literature, common elements of PHN scope of practice and functions include: addressing health needs at the individual, family, community, population and system level; using a population health promotion approach; conducting population health assessments; addressing needs related to disease and injury prevention, health protection, emergency preparedness and response; and participating in health surveillance (Canadian Public Health Association (CPHA), 2010; Nursing and Midwifery Council, 2004; Quad Council Coalition Competency Review Task Force, 2018). Given their expansive scope of practice, PHNs have been well positioned to take on myriad of responsibilities in response to the COVID-19 pandemic.

The COVID-19 pandemic has illuminated continued underinvestment in public health infrastructure (Tulenko & Vervoort, 2020). Consequently, despite PHNs being central figures in the provision of services during a public health crisis, these positions have historically experienced funding reductions resulting in a degraded workforce due to unfilled vacancies or job eliminations (Edmonds et al., 2020; Swider et al., 2017; Young et al., 2014). Chronic underfunding in public health has far reaching implications. An insufficient and stretched PHN workforce impedes the public health system's ability to effectively address and respond to impending communicable and non-communicable disease threats (Edmonds et al., 2020). For example, in the current climate of COVID-19, the PHN workforce has become overwhelmed and overworked (Edmonds et al., 2020; Ibrahim et al., 2021; Inoue et al., 2020). However, attention towards financial investments, increases in workforce staffing and organizational structures (e.g. supportive leadership, workforce development) are elements that can support increased public health system performance efficiency and productivity (Guyon & Perreault, 2016; Khan et al., 2018; Regan et al., 2014). Investigations that profile the extensive roles of PHNs, the impact of their work and the facilitative elements of role implementation during a pandemic, can provide compelling evidence to strengthen workforce capacity from a funding and policy perspective and assist organizational planning of supportive working environments.

2 | BACKGROUND

Although limited, anecdotal commentaries and findings from qualitative studies on PHN pandemic roles and activities, spotlight

how critical PHNs are to the public health infrastructure. Across this limited literature the emphasis has primarily been on descriptions of PHNs engaged in direct pandemic response work. Ho and Parker (2006) illustrate the varied responsibilities of PHNs in Hong Kong during an avian influenza outbreak and the Severe Acute Respiratory Syndrome (SARS) pandemic. Major responsibilities of PHNs included contact tracing, case management, surveillance and monitoring the health status of infected individuals via home visits. Counselling and education to the public, government officials and other inter-disciplinary healthcare professionals via telephone hotlines, training other healthcare professionals and organizational policy development were also noted as common PHN activities (Ho & Parker, 2006). In an interpretive descriptive study from Canada, authors explored the experiences of PHNs from a municipal public health unit who staffed mass immunization clinics during the H1N1 influenza pandemic (Devereaux et al., 2020). Devereaux and colleagues described PHN roles such as clinic management, coordination of professional development and training for PHNs related to immunization, providing education and conducting mass immunizations to the public.

In Japan, PHN functions related to the prevention and control of COVID-19 have been described at the individual and general population level (Yoshioka-Maeda et al., 2020). PHNs have been conducting contact tracing for confirmed COVID-19 cases and medical surveillance during quarantine periods. PHNs have also been tasked with developing risk communication materials and resources for the public with messaging around preventive behaviours (e.g. hand washing, hygiene etiquette). PHNs have also assumed consultation roles in which they provide advice to the public and physicians about suspected COVID-19 cases and need for testing (Yoshioka-Maeda et al., 2020).

As this literature largely focuses on direct pandemic response roles, it does not fully capture the extent of other roles PHNs are engaged in throughout the course of a pandemic. In a public health crisis such as the COVID-19 pandemic, the majority of resources and PHN workforce capacity have been diverted towards the pandemic response, resulting in a reduced ability to deliver essential health promotion and prevention programs and services (Caldwell et al., 2021; Edmonds et al., 2020). Despite this diminished capacity, PHNs remaining in roles focused on delivering core public health services in the parameters of public safety (e.g. healthy growth and development), have demonstrated innovation, resilience and adaptability (Doran & Boyd, 2020; Schofield et al., 2020). There is some anecdotal evidence describing other critical PHN roles in the context of a pandemic, (Doran & Boyd, 2020; Schofield et al., 2020), however, no formal investigations exist in the published literature.

A further limitation in the literature is that PHN pandemic roles are commonly described without a deep understanding about the context in which they are implemented or the impacts that result from them. Existing evidence reports on factors that are valued by PHNs to support their practice. In a review of 29 international studies, Dingley et al. (2013) report on the integral elements of the PHN work environment which include: the importance of job autonomy

and teamwork, supportive leadership and management, staffing inadequacy, level of control over nursing practice and supporting organizational quality. Notably, only two of the included studies reported findings in the context of a pandemic (SARS); safety concerns were described in both regarding a lack of organizational communication, policies, social isolation, with a need for more nurse involvement in decision-making (Bergeron et al., 2006; Hsu et al., 2006). In an early community health nursing study from Canada using 23 focus groups of public health staff (nurses, policymakers/managers), Underwood et al. (2009) explore factors that support public health nursing which included: government and system attributes (e.g. stable and long-term funding); organizational values and leadership (e.g. shared organizational vision for public health); and supportive management practices (Underwood et al., 2009). Clearly, the environment in which PHNs carry out their roles is highly dynamic and complex. Continued work is needed to understand this particular context generally (Dingley & Yoder, 2013) and more specifically in pandemic circumstances to guide supportive structures and practices that facilitate PHN role implementation.

Impacts of PHN roles during a pandemic have also been provided little attention, although PHN effectiveness/impact has been studied in general. In a realist review of 20 studies, (Swider et al., 2017) diverse PHN interventions and associated outcomes were examined; findings reported significant improvements across clinical (e.g. addiction severity, prenatal health), behaviour (e.g. breastfeeding), attitudinal, healthcare utilization and health knowledge outcomes. PHN roles explored in this review centred primarily around delivering programs and services to maternal-child populations and those living with chronic illness. This review also noted that extensive information on PHN roles was often missing with a high degree of variability across outcomes and how they were assessed (Swider et al., 2017). Conversely, in a cross-sectional survey from the United States, a sample of PHNs were asked to identify the impact of having no public health nursing services on clients' health (Schaffer et al., 2015). Common concerns articulated were: (a) increases in communicable disease; (b) declines in health status as a result of loss of prevention services (e.g. increase in child abuse and neglect); (c) lack of service provision to populations who have experienced discrimination/exclusion/stigmatization; and (d) negative impacts to the public health infrastructure (i.e. loss of coordination) (Schaffer et al., 2015). It is expected that further exploration about the impacts of PHN roles, especially in a pandemic response, will help to reaffirm the valuable investment in recruiting, retaining and developing the PHN workforce.

3 | THE STUDY

3.1 | Aims

The overall purpose of this study is to understand the structures, processes and impact of the PHN role during the COVID-19 pandemic in Ontario, Canada. This study will address the following

questions: (1) How do PHNs and nursing administrators describe PHN roles over the course of the COVID-19 pandemic in three geographic areas in Ontario? (2) What are the contextual factors that influence the implementation of PHN roles? and (3) How do PHNs and nursing administrators describe their impact of PHN roles on client outcomes and professional/personal nursing practice.

3.2 | Design/Methodology

3.2.1 | Design

In this descriptive multiple case study, methodological decisions will be guided through the application of case study research principles as described by Yin (2014). According to Yin (2014), a case study design is well suited for exploring questions related to 'how', 'what' and 'why' of a phenomenon. As well, such design is best used when investigating contemporary, real-world events in which context plays an integral role (Yin, 2014). Since March 2020 until the present time, the COVID-19 pandemic has dominated the lives of individuals, communities and populations across the globe, with overwhelming impacts to their health and well-being. The public health system continues to be spotlighted due to its ever-shifting and crucial role in the pandemic response (Brownson et al., 2020). As such, there is critical relevance in studying the role, context and impact of PHNs over the course of this evolving and complex pandemic given they are an integral part of the public health workforce.

Specifically, a multiple case study design will be used to frame this study, which provides robust and reliable evidence through the examination of several cases instead of a single unit (Baxter & Jack, 2008). In using this design, careful attention must be made to selecting cases for the purposes of replicating results (Baxter & Jack, 2008; Yin, 2014). According to Yin (2014), each case is treated as an individual and distinct study, and the findings in each case require replication in other cases to demonstrate common or contradictory findings. Reasoned discussions are provided as to why certain cases yield certain results, or why contrasting findings are found in other cases (Yin, 2014). This design is appropriate given the substantial contextual variation of the public health system in Ontario (Ontario Ministry of Health, 2019). Across Ontario are 34 regionally based health units in which PHNs are employed. These health units and geographic regions in which they reside, vary according to leadership structure, funding and resource allocations, infrastructure, (Ontario Ministry of Health, 2019) population density, and other socio-demographic variables (Statistics Canada, 2018) that impact how public health services and programs are structured and provided.

3.2.2 | Defining the case

According to Miles and Huberman (1994) a case is defined as a phenomenon that has boundaries of context; it is recognized as the unit

of focus that is being analysed. The defined boundaries around the case help to determine what is in and out of scope for a study (Baxter & Jack, 2008; Miles & Huberman, 1994). There is diversity in how a case is defined; it can be identified as individuals, a role, a community, or a nation, although it will always occur in a specific social and physical context (Miles & Huberman, 1994). For this study, the case will be defined as the roles of PHNs in three distinct geographic areas in Ontario over the course of the COVID-19 pandemic (March 2020 until present; see Figure 1); and as this is a multiple case study, this will facilitate comparison of PHN roles between urban, urban-rural, and northern public health units.

3.2.3 | Case definitions

Establishing case definitions can advance knowledge related to the phenomenon being studied, and support the development of study propositions and case boundaries (Whitmore et al., 2018). For this study, case definitions for the terms of PHN and PHN role have been established. PHNs are baccalaureate prepared nurses who are members of a professional regulatory body for registered nurses (Canadian Public Health Association (CPHA), 2010) and are required to have nursing education from an institution in Canada or equivalent institution outside of Canada (Underwood et al., 2007). The activities of PHNs are diverse; they are engaged in the promotion, protection, and preservation of the health of populations (Community Health Nurses of Canada, 2019; CPHA, 2010). PHNs do so by integrating different forms of knowledge from public health science, primary health care, nursing, and the social sciences in practice (Community Health Nurses of Canada, 2019; CPHA, 2010; Schaffer et al., 2015). In Ontario, PHNs are employed by public health units or departments (health agencies established by municipalities, either independent from or embedded in municipal government) to deliver health promotion and protection services and programs to communities (Algoma Public Health & ANDSOOHA, 2008). To provide a reasonable and focused scope to this study, the roles of frontline PHNs will be the focus, and not the roles of nursing administrators

(Directors, Managers/Supervisors, Chief Nursing Officers), who provide a separate and unique role in the public health system.

With respect to the PHN role, Sullivan (2012) defines a role as a set of behavioural expectations assigned to a specific position. According to the Canadian Public Health Association (CPHA, 2010) PHNs have integral roles in six broad areas: health promotion, disease and injury prevention, health protection, health surveillance, population health assessment, and emergency preparedness and response. Schoenfeld and Mac Donald (2002) further identify six roles that transcend the above mentioned categories including: caregiver/service provider, educator/consultant, social marketer, facilitator/communicator/collaborator, community developer and policy formulator, and researcher/evaluator/resource.

3.2.4 | Binding the case

Baxter and Jack (2008) also identify the importance of determining case boundaries to ensure a study includes a focused question(s) and remains in scope. Yin (2014) indicates that binding a case helps differentiate between the specific phenomenon under study and its context. For this study, the case will be bound by parameters of time/context and setting (Creswell, 2007; Miles & Huberman, 1994). The time period and context for this study will be bound by the dates during which the COVID-19 pandemic occurred/continues to occur; from March 2020, when the World Health Organization declared COVID-19 a global pandemic (World Health Organization, 2020) until the present time as waves of the pandemic continue. With respect to setting, this study will be bound by the public health system in Ontario, focusing on three distinct geographic areas (urban, urban-rural, northern) across which 34 health units/regions/municipalities are established. Of these 34 health units, we have classified six as urban, 21 as a mix of urban-rural, and seven as northern. Categorization of these geographic areas is guided by both professional knowledge and the taxonomy of health region peer groups established by Statistics Canada (2018). In and between these areas are variations with respect to funding and resources, structure,

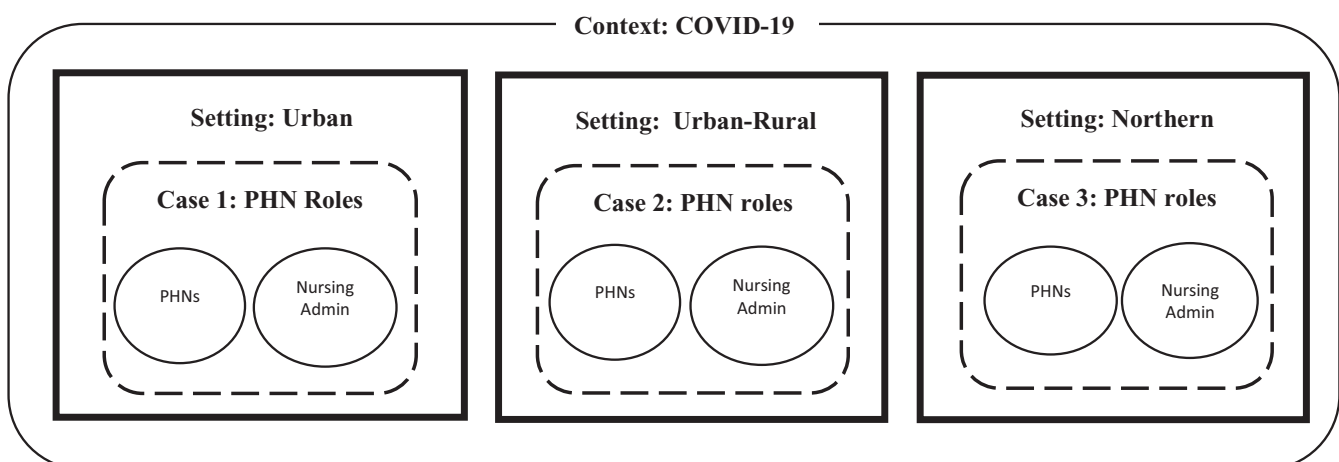


FIGURE 1 Case definition

community/population needs and capacities and population density among other considerations which are important to understanding PHN roles.

3.2.5 | Propositions

Established propositions in a case study design play a pivotal role in guiding data collection, data analysis and the discussion of results; they help to ensure that a study remains in scope and feasible to implement (Baxter & Jack, 2008; Yin, 2014). Propositions can emerge from existing literature, established theory or experiences based on personal or professional contexts (Baxter & Jack, 2008; Yin, 2014). For this study, propositions have been developed based on the expertise of the research team who have professional PHN experience and existing literature about the general role of PHNs, environmental dynamics in which roles are implemented, and broad effectiveness of PHN roles: (a) there are variations in PHN roles in and across geographic areas in Ontario due to contextual differences including but not limited to funding, structure, community/population needs and capacities, population density; (b) there are factors that influence PHN role implementation at the individual, organizational, community/regional and provincial level (Underwood et al., 2007, 2009); (c) variations in PHN role implementation have occurred over the course of the COVID-19 pandemic due to its evolution, and changes in funding, population health needs and organizational and governmental policies (Brownson et al., 2020; Edmonds et al., 2020); (d) impacts of the PHN role will vary due to role fluctuations across the COVID-19 pandemic and role differences in and across cases. The development of propositions can serve as the basis for preliminary conceptual frameworks guiding a case study design (Whitmore et al., 2018).

3.2.6 | Conceptual framework

A conceptual framework provides a graphical illustration of the primary items under investigation in a case study; this may include who will be studied, roles, innovations and their characteristics, outcomes and assumptions of certain relationships (Miles & Huberman, 1994). The initial framework serves as a reference point during data analysis and continues to evolve as emergent themes surface throughout the analysis and interpretation process (Baxter & Jack, 2008). For this study, a conceptual framework was developed based on aforementioned propositions stemming from professional experience and existing PHN literature (see Figure 2).

3.2.7 | Sample/Participants

In a case study design, the use of a variety of data sources is critical to understanding the entirety of a phenomenon (Baxter & Jack, 2008; Creswell, 2007; Yin, 2014). As Baxter and Jack (2008)

state, rigour is enhanced, findings are strengthened and understanding of cases is advanced when multiple data sources are integrated during data analysis. To increase credibility of findings, two data sources will be used in this study; individual interviews with frontline PHNs and focus groups with nursing administrators (i.e. Directors, Chief Nursing Officers, managers, supervisors) working in Ontario health units. Frontline PHNs will serve as the primary data source given their first-hand experience with role implementation (i.e. closeness to the studied phenomenon [Whitmore et al., 2018]). Nursing administrators will serve as a secondary data source due to their unique knowledge of overseeing PHN programs and services and close interactions with individual or teams of PHNs. These roles will include administrators of nurses who may or may not be nurses themselves.

A purposive sample of PHNs providing direct care to individuals or groups and nursing administrators working in Ontario health units will be recruited to provide information-rich cases (Creswell, 2007; Sandelowski, 2000). Inclusion criteria for frontline PHNs include: (a) designation as a registered nurse; (b) temporary or permanent status; (c) full-time status; (d) employed as a frontline public health practice at any of the 34 Ontario health units during the COVID-19 pandemic (March 2020--present time) for at least 8 months. Inclusion criteria for nursing administrators (Directors, managers, supervisors) include: (a) responsible for overseeing/decision-making related to PHN teams/programs/services during the COVID-19 pandemic (March 2020--present time) and (b) have a nursing or non-nursing professional designation. Exclusion criteria include: (a) PHNs or nursing administrators who have not worked at an Ontario health unit over the course of the COVID-19 pandemic; (b) registered practical nurses working in Ontario health units during the pandemic given differences in scope of practice compared with registered nurses and (c) part-time or casual frontline PHNs given they may not be as deeply immersed in a variety of PHN roles and activities.

A multifaceted recruitment strategy will be implemented. Relevant public health nursing organizations in Ontario will be contacted and requested to electronically distribute an invitation to participate in this project to their membership and or/advertise study recruitment via their communication channels (e.g. website, social media accounts). Snowball or chain sampling will also be used which involves relying on individuals to help identify potential cases based on their specialized knowledge or contacts (Miles & Huberman, 1994). As such, study promotional materials will also be shared via the research team's professional PHN networks via email or social media channels. Participants will also be encouraged to share the study information with their professional PHN networks. PHNs providing direct service and nursing administrators interested in participating will be instructed to contact a research team member to coordinate an interview time.

Determining appropriate sample size in a multiple case design requires discretionary judgement and a priori understanding of the conceptual complexity of a phenomenon under study (Miles & Huberman, 1994; Yin, 2014). Yin (2014) recommends the use of two to three replications when there is a straightforward theoretical

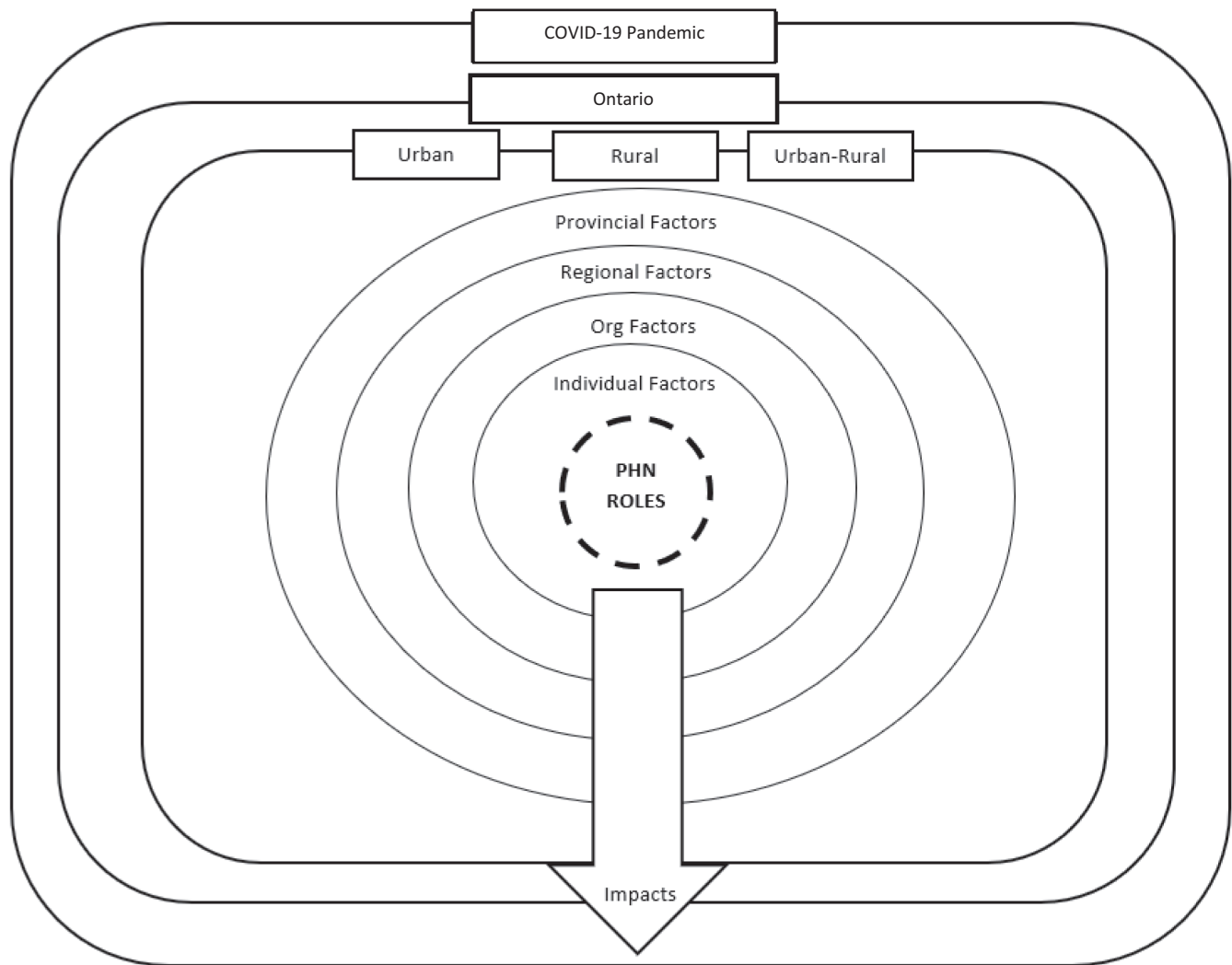


FIGURE 2 Conceptual framework of PHN roles, context and impact during COVID-19

understanding about a particular phenomenon. Given there is some existing and consistent evidence about contextual influences on PHN roles, PHN role implementation and PHN effectiveness to help infer a preliminary framework of these constructs, a three-case design will be used, differentiated by geography. In each case, a sample of 10 frontline PHNs and a focus group of 5–7 nursing administrators will be recruited. We estimate that the overall sample for the study will be a minimum of 45 participants.

3.2.8 | Data collection

Interviews serve as a critical source of data for case studies given this design focuses on exploring human behaviours or events (Yin, 2014). Individual, 1-h (Yin, 2014), semi-structured interviews will be conducted using an interview guide of open-ended questions to elicit an in-depth understanding of context, role and impact perceptions of PHNs (see Appendix S1). For the secondary data source of nursing administrators, focus groups will be conducted using a

guide of semi-structured open-ended questions to explore PHN role, context and impact to capture an administrative perspective (see Appendix S2). The use of focus groups can be beneficial in circumstances where there is limited time, participants have commonalities among them, and collective communication provides optimal information (Creswell, 2007). Prior to the interview or focus group, on confirming interest in participation, each participant will be sent an email with an electronic letter of information about the study and a consent form and a link to an anonymized demographic survey of seven questions to be completed via the LimeSurvey platform.

PHNs and nursing administrators will participate in interviews or focus groups respectively, via telephone. Interviews and focus groups will be audio-recorded using the Skype telephone platform and a digital handheld device for back-up purposes. Each interview or focus group will be conducted by a research team member with a nursing and public health background. This background provides interviewers with the contextual insight and enhanced relational/communication skills needed for probing and conducting content-rich interviews and focus groups. After the completion of each interview

and focus group, participants will receive a \$30 honorarium (electronic gift card) for their time and participation.

3.2.9 | Data analysis

Interviews will be transcribed using an external transcription service. Interviews will be stored and coded using NVivo 12.0 software package. Data collection and data analysis will be conducted simultaneously to allow for reciprocal modifications with the emergence of new understandings from new data (Baxter & Jack, 2008). Reflexive thematic analysis will be used to inductively analyse interview and focus group data (Braun & Clarke, 2006). This analytic method is recognized as a universal and flexible approach to identify, analyse and illustrate detailed data themes (Braun & Clarke, 2006). The six phases of reflexive thematic analysis will be used to analyse data in each case and linked back to established propositions: (1) familiarization with the data--transcripts will be read and re-read with initial themes noted; (2) generation of initial codes--an initial set of codes will be developed after two research team members independently code a subset of five interviews and develop through consensus an initial coding scheme used for coding subsequent transcripts; (3) searching for themes--codes will be collated into potential themes; (4) reviewing themes--alignment will be ensured between emergent themes, codes and entirety of data set; (5) defining and naming themes--themes will be refined with continued analysis, and definitions and labels for themes established; and (6) production of report--exemplars for each theme will be selected and alignment back to research questions will be ensured (Braun & Clarke, 2006). Using these emergent themes for each case, a cross-case analysis will then be conducted (Yin, 2014). Yin (2014) describes cross-case synthesis as an analytic approach that can be used with a multiple case study design to compare and contrast patterns across cases. As suggested by Yin (2014), word tables with the emergent themes for each individual case will be developed. This will be followed by a qualitative analysis of all word tables collectively to develop conclusions about the differences or similarities in case profiles.

3.3 | Ethical considerations

This study protocol received ethics approval from the local research ethics board associated with the project team's academic institution. Written consent will be obtained through a letter of information indicating study details and a consent form emailed to participants. Participants will be provided with the opportunity to ask questions to clarify study information via telephone or email with project staff. When collecting demographic information, a general link to an anonymous survey will be emailed to each individual participant. No identifying information will be collected through this one-time anonymous survey. Demographic data will be housed on the encrypted and secure LimeSurvey platform. At the beginning of each individual telephone interview with frontline PHNs and nursing administrator

focus group, participants will be provided with several study reminders: study participation is voluntary, they can withdraw at any time, can decline to answer questions throughout the interview or focus group; information shared will remain confidential and findings reported anonymously. Transcribed interviews and focus groups will be de-identified; participant names will be replaced with ID codes and public health unit names will be removed. A confidentiality agreement has been signed with an external transcription organization. Aggregate demographic data will be reported and qualitative thematic findings will be presented anonymously with identifiers removed if a direct participant quote is reported.

3.4 | Rigour

Lincoln and Guba's criteria for trustworthiness related to credibility (accuracy of findings), dependability (consistency of findings) and confirmability will serve as standards of rigour for this study (Guba, 1981; Lincoln & Guba, 1985). A modified form of member checking will be used to enhance credibility during each individual interview and focus group, with interviewers and facilitators restating or summarizing participant responses to ensure accurate understanding (Lincoln & Guba, 1985). Triangulation of data sources will also support an enhanced understanding of the phenomenon, while addressing credibility, dependability and confirmability (Krefting, 1991). Two data sources will be used including PHNs providing direct service as a primary source to report on their first-hand experiences, and nursing administrators (directors, managers, supervisors, Chief Nursing Officers) as a secondary source, given their insight into the experiences of PHNs based on frequent interactions with them throughout the pandemic. A stepwise replication technique will be used as a strategy for dependability (Guba, 1981). During the coding and theming phases of the reflexive analysis process, two researchers will divide the total number of interview and focus group transcripts for coding and theming and subsequently compare results in each geographic setting and across all three settings. Peer examination will also be used to increase credibility and dependability (Krefting, 1991; Lincoln & Guba, 1985). This will include the use of quarterly team meetings to discuss the ongoing research process and any preliminary results among research team members who have experience in qualitative methodology. The research team is also comprised of both knowledge users and researchers with extensive experience in public health nursing (direct care), nursing administration and qualitative research, demonstrating credibility among the research team.

4 | DISCUSSION

This study aims to provide an in-depth analysis of the rapidly evolving roles/functions, context and impact of PHNs throughout the COVID-19 pandemic. Given that PHNs and nursing administrators remain intensely engaged in the COVID-19 response, a practical

challenge may arise with the recruitment of sufficient samples in each region. Therefore, our team will discuss and decide on appropriate recruitment times during different pandemic waves and leverage existing relationships with local health units to support active recruitment. In addition, participants will be offered both daytime and evening interview options to accommodate their work and personal schedules. Another practical challenge may relate to conducting interviews and focus groups via telephone, an interview mode selected due to COVID-19 in-person restrictions, geographic distances and potential internet connection challenges. While telephone interviews may hinder opportunities to develop rapport and support candid discussions of the phenomenon under exploration, interviewers are experienced registered nurses with a background in public health who have strong interpersonal and communication skills to support fruitful, inclusive and respectful discussions.

4.1 | Limitations

This study sample only includes PHNs who work in a full-time capacity, and thus, findings may not reflect the experiences of part-time or casual PHNs who have also worked throughout the COVID-19 pandemic in Ontario. This was purposefully done given suspected diverse experiences based on employment status. In subsequent studies, an exploration into the experiences of part-time or casual PHNs may be conducted and compared with findings from this first study to validate speculations of employment status differences. This study is also only focused on PHNs working in one Canadian province and as such, findings may not be transferable to other provinces given variations in public health resources and systems. As a next step, there would be benefit in conducting a national study on PHN functions and environmental context, using provinces as cases, to determine if provincial differences exist. Our team also recognizes that because there are many health units across Ontario ($n = 34$) and the sample is self-selected, every health unit may not be represented in the study findings. However, with the intentional case identification based on geography, findings will capture the nuances of these specific regions in which each health unit resides.

5 | CONCLUSION

Findings from this study will capture the varied roles and activities of PHNs working in Ontario during the COVID-19 pandemic. PHN perspectives on the impact of their work and factors which influenced their ability to perform their nursing roles will also be explored. Findings will be also reported in the context of specific geographic regions (urban, urban-rural, northern) in Ontario to highlight any emerging differences and commonalities in and across these diverse settings. Such knowledge can support decision-making in relation to funding, resource allocation and supportive work structures and processes at a public health system and/or organizational level.

CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

PATIENT OR PUBLIC CONTRIBUTION

A public health nursing administrator (knowledge user) is involved as a co-investigator on the research team and has contributed to the design of the study and will be involved in the development of all related manuscripts.

PEER REVIEW

The peer review history for this article is available at <https://publons.com/publon/10.1111/jan.15304>.

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