

# Promoting Infant Mental Health Through Evidence-Informed Interventions to Support Infant Feeding and the Transition to Parenthood: A Clinical Practice Example

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## Abstract

Infant mental health is influenced by many factors including the successful transition to parenthood and the feeding relationship with caregivers. Region of Peel – Public Health in Ontario, Canada promotes infant mental health through interventions that encourage cue-based feeding and responsive infant care that helps individual families meet their infant feeding goals and build a foundation of responsive parenting. Interventions have been developed to meet the needs of a large, ethnically diverse population. The use of a biodevelopmental framework identifying nutrition and the environment of relationships as important foundations of health provided key areas of focus for Nurturing the Next Generation, a public health strategic priority. Research evidence, literature syntheses, local research, and data informed the interventions. The promotion of a positive nursing practice environment supports the public health nurses who deliver these interventions. This framework of effective public health practice contributes to long-term health outcomes, including the promotion of mental health for infants, their families, and the population.

## Keywords

Public health nursing, transitions, breastfeeding, infants

## Introduction

Public health nurses (PHNs) have a long history of working with families in the transition to parenthood. From the time before conception to the time when children are school age, working with families is a cornerstone of public health work. One of the key mandates of public health is primary prevention—to prevent disease or injury before it occurs (Canadian Public Health Association, 2010). Public health services for the infant population provide a critical window of opportunity for upstream primary prevention to promote and protect the mental health of the next generation and provide future cost savings for the health system. Public health is mandated through the Ontario Public Health Standards “to achieve optimal preconception, pregnancy, newborn, child, youth, parental, and family health” based on local needs (Ministry of Health and Long-Term Care, 2018, p. 36). Breastfeeding and mental health promotion are two topic areas for which a

program of public health interventions has been developed and implemented.

An abundance of research conducted over the last several decades has highlighted the critical importance of maternal sensitivity and responsiveness in the early years as influencing the behavioral, cognitive, and health trajectories of children through the life course (Ainsworth et al., 1974; Bowlby, 1988; Center on the Developing Child at Harvard University, 2010; Zeannah & Smyke, 2008). The long reach of early childhood is evident in the findings of studies indicating that early stressors and trauma are consistently linked to increased risk of mental health issues in adulthood as well as other chronic diseases including cancer, heart

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disease, and diabetes (Danese & McEwen, 2012; Felitti et al., 1998; Hertzman & Boyce, 2010).

It is well documented that both pregnancy and the transition to parenthood are major adjustment periods for families (Brouse, 1988; Imle & Atwood, 1988; Schumacher & Meleis, 1994). The transition to parenthood is often a stressful and challenging time as parents learn to care for their baby and adapt to their new lives (Buist et al., 2003; Gilmer et al., 2016; Gottlieb, 1985). Normal stresses during the transition to parenthood include an upheaval of roles, heightened feelings of anxiety, and a general decrease in a sense of well-being (Miller & Sollie, 1980). Like other transitions, the meanings attached to parenthood may be experienced as positive, neutral, or negative (Schumacher & Meleis, 1994). Having supports in place for families during this time of transition helps to facilitate an easier adjustment and is linked to children's developmental outcomes (Ghate & Hazel, 2002; Irwin et al., 2007; Trivette et al., 2010). Nursing therapeutics are needed to support complex transitions as outlined in transition theory (Meleis et al., 2010). Public health nursing interventions are one way to support these transitions as they alleviate parental stress, promote parental well-being and responsiveness, and increase their confidence and coping behaviours.

Given how significant the early days and weeks of an infant's life are to their lifelong health and well-being, PHNs play a critical role to foster and support parents' knowledge, skills, confidence and responsiveness as they learn to care for their baby. This support helps to facilitate positive early family dynamics that are crucial for child development (Goodman, 2008; Swanson & Wadhwa, 2008) and lay a foundation for the promotion of infant mental health.

A decision to focus on parental support was identified in the Region of Peel (population 1.4 million; comprised of the cities of Brampton, Mississauga, and the Town of Caledon in Ontario, Canada), given the large annual birth cohort of 16,000 (Region of Peel – Public Health, 2019c) and the opportunity to influence the health trajectories of so many children. This prompted the Nurturing the Next Generation (NTNG) public health strategic priority (Region of Peel – Public Health, 2009) with a goal to use upstream approaches “To support evidence-informed, population-based interventions that promote the health of families from preconception to parenting” (Region of Peel – Public Health, 2017, p. 3).

Deciding where to focus public health efforts and determining what specific interventions to implement as part of NTNG was challenging because human development is complex. From the beginning of life to the end of life, there are a host of interconnected factors influencing the physical, mental, and social health of people. To provide insight and direction on where to

focus interventions, public health turned to theory for guidance. The “Biodevelopmental Framework for Understanding the Origins and Disparities in Learning, Behavior and Health” (Shonkoff, 2010, p. 358) was adopted by Peel Public Health to facilitate the understanding of this complexity and to inform areas of focus that would support NTNG's goal. The framework (Shonkoff, 2010) lends itself well to public health planning from a population health perspective as it considers the key influences for health across the life span. It identifies three important foundations of health: environment of relationships; nutrition; and physical, chemical, and built environments. These three foundations influence outcomes in health-related behaviors, educational achievement and economic productivity, and physical and mental health which make them important areas to focus on. The framework also highlights important causal mechanisms and physiological adaptations that occur in children's development. It provides a clear way to communicate about healthy development with other health providers and stakeholders who also contribute to children's development.

The purpose of this paper is to describe a public health practice example of how PHNs used the framework (Shonkoff, 2010) and many sources of evidence to inform a suite of comprehensive interventions that support families within the environment of relationships and nutrition foundations of health. PHNs promote positive infant mental health by supporting families to gain knowledge, skill, confidence, and responsiveness in infant feeding and parenting from birth.

## Relevance to nursing practice

In Peel's health care context, most births occur in hospitals with physician care and a high caesarean birth rate at 29% (Region of Peel – Public Health, 2019c). Home births and midwifery care are extremely limited. Hospital stays are short (usually 24 h) and discharge occurs before breastfeeding has been established. It is in the first few days postpartum, when mothers question their milk supply and often supplement breastfeeding with infant formula (Region of Peel – Public Health, 2019b). These first few days and weeks are a time of opportunity to help families provide responsive, cue-based care and parenting to their infants through public health interventions.

PHNs are well positioned, through their knowledge, skill and mandate to provide this support for families as part of the local community health infrastructure. This support enhances parents' abilities to take care of themselves and their infants. Through public health nursing practice, nurses bridge the gap for families between hospital and home both directly and in collaboration with

community partners who provide additional supports for families as infants grow and develop.

This paper is timely in that people in Peel, similar to other jurisdictions, are experiencing growing mental health challenges coupled with a lack of resources to manage them. The prevalence of grade 7 to 12 Peel students with moderate to high psychological distress increased from 24% in 2013 to 39% in 2017 (Region of Peel – Public Health, 2019a). This is coupled with a doubling of emergency department visits due to anxiety and mood disorders among children and youth from 2007 to 2016 (Region of Peel – Public Health, 2018). These and other trends provide important data supporting the need for upstream interventions to promote infant mental health and provide primary prevention for families.

At the systems level, locally, the landscape of public health in Ontario, Canada is changing, with potential health unit amalgamations and budget cuts on the horizon. Nationally, there have been concerns that there are “growing weaknesses and erosions” (Marcellus & Shahram, 2017, p. 50) within the public health infrastructure in Canada. Practice examples such as this provide good rationale for a strong public health system and workforce.

## Methods

Considering the broad mandate of NTNG, and the many opportunities for public health intervention, the first step was to explore what interventions public health could consider that would result in improved outcomes for children and families in Peel. Canadian Institutes of Health Research-funded literature syntheses (realist reviews) were undertaken, asking the question: “What population-level interventions can public health realistically implement to support optimal child well-being (social, emotional and cognitive) from the prenatal period, through infancy, to the end of the first year of life?” Literature was synthesized in the practice domains of parent education (Gilmer et al., 2016), social connectivity (Bennett et al., 2017), and social marketing (Region of Peel – Public Health, 2014c). Although the findings from these syntheses would inform public health programming, there was still a need to better understand the local parenting context before developing specific interventions. This prompted an environmental scan of the early child development sector in Peel (Region of Peel – Public Health, 2014a) and the Parent Experience Study (PES; Region of Peel – Public Health, 2014b).

The Early Child Development Service Sector Review (E-Scan) (Region of Peel – Public Health, 2014a) sought to document Peel’s existing early child development programs, services, and initiatives and assessed the community’s capacity to support healthy child

development within the three foundations of health. The findings confirmed that Peel was well resourced with community partners committed to children’s early development. Highlights included that healthy attachment, parent education, and skill development were strong components of programming in Peel. Gaps were recognized in the areas of nutrition information and skill, mental health services, early identification of developmental delays, and services to support family relationships.

The qualitative PES (Region of Peel – Public Health, 2014b) was undertaken based on the finding from the realist review by Gilmer et al. (2016) that the parent perspective is often missing when programs and services are developed. The PES helped public health to gain perspective about becoming a parent in Peel. The PES highlighted many factors within the environment of relationships and nutrition foundation that needed to be considered in the development of public health programming for families in our community. These factors included that (a) becoming a parent was a significant life transition; (b) an additional stressful transition occurred at the end of parental leave; (c) parents, especially newcomers, without family or friends to connect with felt isolated; (d) parents were anxious about not knowing how to do things right; (e) parents had many challenges including exhaustion, learning new skills, making decisions about child care and employment, changing relationships, and developing new identities as parents; (f) some parents also felt geographically isolated from services and were challenged to access programs; and on a positive note (g) personal, social, and community supports eased the transition. Specific to nutrition, parents had needs for information and skill development, found breastfeeding more challenging than expected, and were confused by conflicting information about infant feeding in general.

Local data were also used to inform programming. Through analysis of these data (Region of Peel – Public Health, 2016), public health learned:

- Most parents are married and in their early 30s at the time of baby’s birth.
- 68% of parents with at least one child under age six are immigrants.
- 17% of children under six live in low-income families.
- Most Peel parents are highly educated.

The Peel Infant Feeding Survey (Region of Peel – Public Health, 2019b) provided robust evidence about feeding trends. Findings included that most women in Peel intend to breastfeed and 98% of them initiate breastfeeding either in hospital or after discharge, although when surveyed, almost half of babies were given liquids other than breast milk in hospital.

**Table 1.** Steps and methodologies used to develop public health interventions.

Steps	Methodology	Purpose
1	Identification of the “Biodevelopmental Framework for Understanding the Origins and Disparities in Learning, Behavior and Health” (Shonkoff, 2010, p. 358).	To provide evidence-informed direction for focused public health interventions that would positively influence health outcomes.
2	Realist reviews (literature syntheses) undertaken in three public health practice areas: parent education (Gilmer et al., 2016), social connectivity (Bennett et al., 2017), and social marketing.	To better understand what evidence-informed interventions might be plausible in the context of public health and the Peel community.
3	The Early Child Development Service Sector Review.	To better understand community partners’ capacity to promote health within the foundations of health.
4	The Peel Parent Experiences Qualitative Study.	To gain the perspective of parents to inform public health interventions.
5	Analysis of local demographic data.	To better understand the context of being a parent in Peel.
6	Peel Infant Feeding Survey.	To determine infant feeding trends in Peel.

Only 13% of babies were exclusively breastfed at six months of age, while 68% were still feeding at least some breast milk to their baby at six months of age. Table 1 provides a summary of the steps and methodologies undertaken to inform the interventions.

## Results

Findings from the E-Scan, PES, and local data were synthesized with a realist perspective of “...what works for whom in what circumstances, and in what respects?” (Pawson, 2006, p. 80) recognizing that many sources of evidence would be needed to develop local interventions for families. Data, together with PHN expertise, family input, and community partner insights formed the basis of specific and tailored public health interventions within the environment of relationships and nutrition foundations of health.

Multipronged interventions as outlined in Table 2 support the transition to parenthood by building parental confidence and competence to promote healthy nutrition and a positive feeding relationship between infants and their caregivers. The main focus of the work has been to support families to achieve their infant feeding goals, whatever they may be, without judgment. Breastfeeding is encouraged as much as possible for as long as possible, recognizing that some families choose not to breastfeed. Public health has taken care to ensure interventions are comprehensive and can meet the unique needs of a large and culturally diverse population of families. The approach includes health promotion strategies to build healthy public policy, strengthen community actions, develop personal skills, and reorient health services to address both individual and population-level needs (World Health Organization, 1986).

Within this multipronged approach, the interventions are supported by the literature to increase breastfeeding duration and exclusivity by providing wrap-around support for families, where and when they need it, to ensure they have access to the infant feeding and emotional support they need in the early days after birth (McFadden et al., 2017). The role modeling and interactions with nurses fosters parental responsiveness, cue-based feeding, and a positive parent–infant relationship. These interventions are congruent with the findings in Mercer and Walker (2006) suggesting that “interactive reciprocal nursing interventions are the most effective in enhancing mother–infant interactions and maternal knowledge about infant care” (p. 568).

## Discussion

Public health used an evidence-informed framework (Shonkoff, 2010) and the findings from many sources to develop and deliver interventions for local families. The interventions have been fully implemented since 2015 and are regularly monitored to ensure that there is adequate client reach, efficiency, and quality. Formal evaluations have been conducted for some interventions, and program adjustments have been made. For example, the Breastfeeding Companions Program Evaluation identified that the program was efficient to operate yet had capacity to reach more clients. As such, PHNs devised a plan to increase uptake of the program. Where formal evaluations have not occurred, regular continuous quality improvement has been undertaken and interventions have been adapted to better meet community need; for example, increasing investment in the PHN Liaison role at Peel’s local hospitals and pilot testing the introduction of an intensive breastfeeding home visiting model.



**Table 2.** Interventions to enhance infant nutrition and the environment of relationships.

Intervention	Description
Prenatal education	Provide education on-line and in-person with content that focuses on healthy pregnancy, infant feeding and parental adjustment after birth.
PHN Liaisons at Peel Hospitals, seven days per week.	The Liaison provides a critical link; connecting parents to services and referrals that support infant feeding and other needs such as an intensive home visiting program to support those experiencing vulnerability (including mental illness). The Liaison role is possible through dedicated public health budget allocation and strong partnership with local hospitals to ensure a supportive transition from hospital to home.
BFI designation at public health and hospitals as a policy-level intervention to support informed choice and to promote breastfeeding.	Public health held BFI designation from 2009 to 2019, and works with local area hospitals to support their achievement and maintenance of BFI designation. Two of the three hospitals sites received BFI designation in 2017.
Breastfeeding Companions Program offers peer support.	Lay peers provide telephone support with the objective to support mothers' infant feeding goals until babies are three months old. Peers are women with breastfeeding experience who are matched with new mothers. This program delivery model is supported by evidence (McFadden et al., 2017) and has evolved with enhancements to meet the needs of the public health/hospital partnership and mothers in the program.
Infant feeding clinic services provided by PHNs at three locations by appointment or by walk-in.	The PHN Liaisons at the hospitals offer mothers with a clinic appointment before they are discharged. Hands-on support, baby weight checks, and an assessment of parental emotional status are part of the intervention.
Home visits, (with similar services as offered in clinics) are provided to women who experience challenges with breastfeeding and cannot attend a clinic.	Home visits support women and families who are feeling overwhelmed, have complicated deliveries, lack transportation, or for cultural reasons are unable to leave home after birth. In 2019, we conducted a breastfeeding home visit pilot, trialing a service delivery model for mothers in one part of the region where there was low uptake of clinic services. The new model included a PHN who managed a caseload of families for up to two weeks providing both home visits and telephone consultation. This model provided more intensive support than what is usually offered and is currently being evaluated.
Family Health Multichannel Call Centre provides access to PHNs by telephone, e-mail or the Parenting in Peel Facebook page.	PHNs address issues related to infant feeding, parental adjustment, postpartum mood disorder and other concerns of parents. PHNs provide counseling and referrals over the phone. Other channels of the Call Centre include Facebook where PHNs post daily parenting content and encourage parents to interact on a range of issues; the ParentinginPeel.ca website provides parenting information, infant feeding information related to formula preparation and cue-based feeding as well breastfeeding instructional videos in several languages.

BFI: Baby-Friendly Initiative; PHN: public health nurse.

Despite the investment in this broad range of interventions, there are some limitations. First, the interventions do not adequately address the unique needs of fathers or families of diverse sexualities and gender identities. Peel is currently undertaking a program-wide assessment to determine how fathers are engaged in programming and plans to adjust and develop programs to better meet fathers' needs. Diverse families also have specific needs and will be more thoughtfully considered as program enhancements are made in the future.

Second, engaging today's parents can be challenging. Families are bombarded with information from social media and other sources, they have many competing priorities and the structure of families and parental roles

continue to evolve. Gilmer et al. (2016) suggest that providing support when and where families need it and in a flexible and convenient manner will result in more parental engagement and less attrition from services. PHNs are continually trying new ways to engage families and to ensure all those who want services can gain access to them. A digital media advertising campaign was recently launched to promote awareness of infant feeding services to the community.

Finally, it is difficult to evaluate the effectiveness of the interventions to determine the extent to which they impact long-term health outcomes. However, the use of an evidence-informed framework (Shonkoff, 2010) combined with local research, data, and evidence from the literature provides public health with confidence that an

important contribution is being made to the well-being of infants and families in Peel.

### Importance for nursing

This clinical practice example demonstrates the critical role that nurses, prepared at the baccalaureate level and beyond, play to effectively plan and deliver evidence-informed public health interventions that support the needs of Peel families. The role and competencies of PHNs are well described in the Public Health Nursing Discipline Specific Competencies (Community Health Nurses of Canada, 2009). They include the application of public health and nursing sciences; assessment and analysis; policy and program planning, implementation and evaluation; policy development; partnerships, collaboration, and advocacy; and diversity and inclusiveness. PHNs used their professional competencies to create a comprehensive public health program. PHNs were supported in a positive nursing practice environment to lead and participate in the development and delivery of the interventions. Specifically, PHNs partnered with researchers to find a relevant and useful framework that identified the environment of relationships and nutrition as important foundations of health. PHNs successfully partnered with nursing leaders, academics, and experts in early child development to secure a research grant to undertake the realist reviews. They participated in all facets of the research process including grant writing, data synthesis, recommendation development and knowledge translation, as well as contributing to peer-reviewed publications. PHNs participated in all the local research including study design, data collection, analyses, reporting, and the implementation of practice recommendations that influenced the development of programming. They used expert knowledge, experience, and research skills to synthesize many sources of evidence and ways of knowing to develop responsive interventions and programs for Peel families. And today, PHNs deliver and continuously improve the interventions and programs to meet the evolving needs of parents.

As described in this example, PHNs are well equipped to inform research, develop, implement and evaluate programs, and contribute to nursing scholarship within the context of supporting the transition to parenthood and promoting infant mental health.

### Conclusion

Providing public health nursing interventions during the transition to parenthood can help ease the transition of this significant life changing event. Moreover, PHNs are uniquely positioned in the community to bridge the gap from hospital to home by providing early and timely,

tailored infant feeding support to parents in the community. Through the provision of a multipronged approach, PHNs support parents to recognize their babies' cues, respond to those cues, and thereby support the development of parental competence and confidence. These responsive parenting behaviors promote the development of secure infant attachment and mental health which lay the foundation for children's healthy social and mental development.


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