Centering Women and Newborns in Health Human Resources Planning:
A Needs-Based Approach to Inform Innovative Care Delivery in Primary Maternity Health Care

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Introduction/Background

• There are global health workforce shortages.[1,2,3]

• HHR planning continues to be based solely on the use of services or workforce supply. [4,5]

• Direct consideration of the health needs of populations is required.[6]

• HHR shortages in all clinical settings, including primary maternity care.[7,8]

• No needs-based HHR analyses specifically in maternity care.

• Increasing maternal and newborn morbidity.[9,10,11,12]

• HHR planning must focus on aligning the type, mix and competencies of the health care team with the health needs of women and newborns,[13] based on a broader understanding of health.[14]
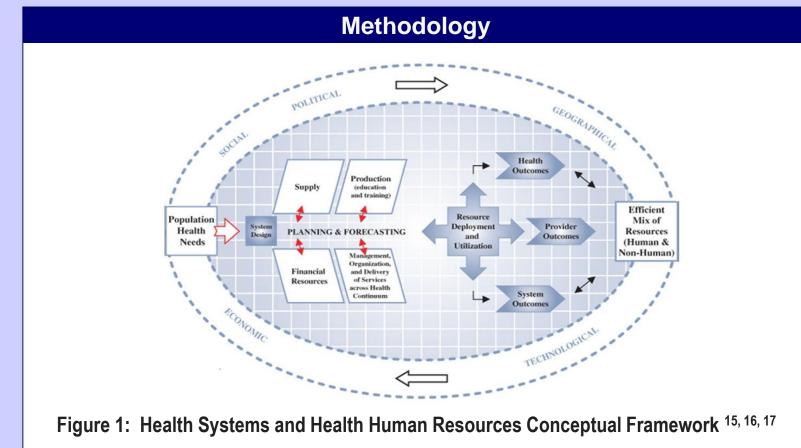
Purpose

The purpose of this sequential mixed methods study was to identify the primary maternity health care needs of women and newborns in Nova Scotia.

Research Questions

1. What were the primary maternity care needs of women and newborns in Nova Scotia?

2. Were there differences in the identified primary maternity care needs between women, care providers and health leaders, and those needs identified using the needs-based HHR frameworks?

3. Were there differences between the identified needs of the general perinatal population and sub-populations of the maternal-newborn population based on income, area of residence, race/ethnicity, education and self-assessed health status?

4. Did women, care providers and/or health leaders identify gaps in services in the current models of primary maternity care? If so, what service delivery approaches can be used to address the gaps in service?
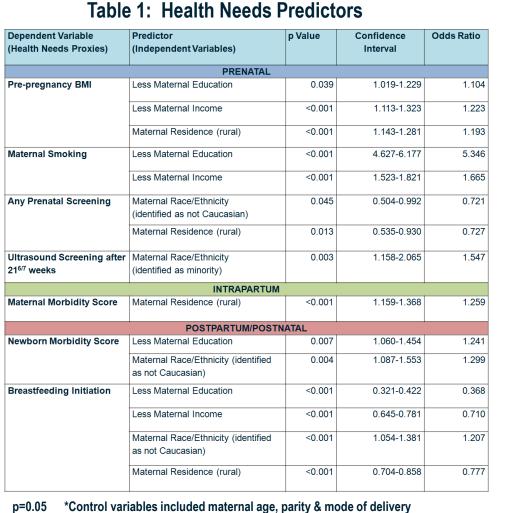
Hypothesis

Null hypothesis (H0): There was no difference in the needs identified by women in particular sub-populations (e.g. women living in rural vs. urban settings, women from different cultures, women in different income quintiles, women with different levels of education) versus those in the general perinatal population.

Methodology

Figure 1: Health Systems and Health Human Resources Conceptual Framework [15, 16, 17]

Methods/Design

Quantitative
-Nova Scotia Atlee Perinatal Database (NSAPD) n=10,812
-Canadian Community Health Survey (CCHS) n=378
Univariate & Multiple Logistic Regression Analyses

Qualitative
-Focus groups/interviews with women (n=22)
-Interviews with health leaders (n=18) and nurses, physicians and midwives (n=16)
Thematic Analysis

Preliminary quantitative analysis informed qualitative data collection

Integration of Results

Figure 2: Quantitative (dominant)-qualitative explanatory sequential design[18,19]

Quantitative Results (NSAPD)

Table 1: Health Needs Predictors

Dependent Variable (Health Needs Proxies)	Predictor (Independent Variables)	p Value	Confidence Interval	Odds Ratio
PRENATAL				
Pre-pregnancy BMI	Less Maternal Education	0.039	1.019-1.229	1.104
	Less Maternal Income	<0.001	1.113-1.323	1.223
	Maternal Residence (rural)	<0.001	1.143-1.281	1.193
Maternal Smoking	Less Maternal Education	<0.001	4.627-6.177	5.346
	Less Maternal Income	<0.001	1.523-1.821	1.665
Any Prenatal Screening	Maternal Race/Ethnicity (identified as not Caucasian)	0.045	0.504-0.992	0.721
	Maternal Race/Ethnicity (identified as minority)	0.013	0.535-0.930	0.727
Ultrasound Screening after 21st weeks	Maternal Race/Ethnicity (identified as minority)	0.003	1.158-2.065	1.547
INTRAPARTUM				
Maternal Morbidity Score	Maternal Residence (rural)	<0.001	1.159-1.368	1.259
POSTPARTUM/POSTNATAL				
Newborn Morbidity Score	Maternal Residence (rural)	0.007	1.060-1.454	1.241
	Maternal Race/Ethnicity (identified as not Caucasian)	<0.001	1.087-1.553	1.299
Breastfeeding Initiation	Less Maternal Education	<0.001	0.321-0.422	0.368
	Less Maternal Income	<0.001	0.645-0.781	0.710
	Maternal Race/Ethnicity (identified as not Caucasian)	<0.001	1.054-1.381	1.207
	Maternal Residence (rural)	<0.001	0.704-0.858	0.777

p=0.05   *Control variables included maternal age, parity & mode of delivery

Using multiple logistic regression, rurality, maternal education, maternal income and race/ethnicity were significant predictors for various maternal-newborn primary health care needs indicators (Table 1). Therefore, the null hypothesis was rejected.

Quantitative Results (CCHS)

Table 2: Dependent Variables: CCHS
Self-Reported Health Status
Self-Reported Mental Health
Self-Reported Unmet Health Needs
Breastfeeding Duration

Table 3: Independent Variables: CCHS
Income
Education
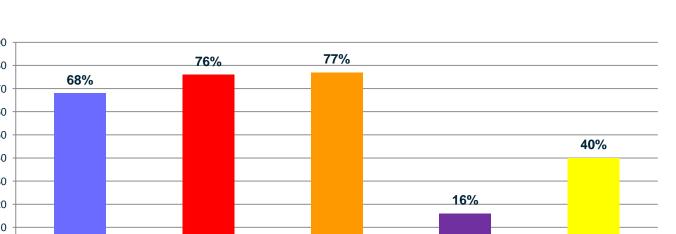Identify as Visible Minority
Health Region of Residence

Figure 3: Descriptive Results from CCHS

• There was a statistically significant association between women's education and breastfeeding duration (p=0.033) as well as women's education and self-reported health (p=0.051).

• Women with less education reported shorter breastfeeding duration

• 70% of women with high school or less than high school reported poor, fair or good self-reported health status compared to 38% of women with some post-secondary or completed post-secondary education.

Qualitative Results

TABLE 4: META-THEME: SYSTEM AND SERVICE DELIVERY

Sub-Themes	
	The need for a paradigm shift
	Fiscal matters
	The 'wicked' social determinants of health
	Lack of patient/people centeredness
	Interprofessional & intersectoral collaboration

Figure 3: Word Frequency Cloud for System and Service Delivery

TABLE 5: META-THEME: INDIVIDUAL CARE ENCOUNTERS

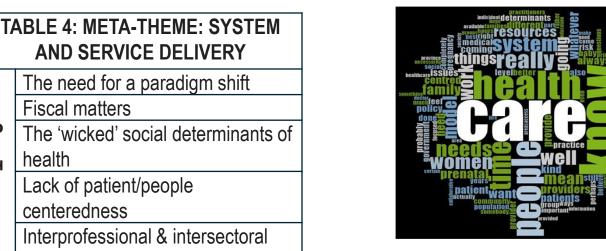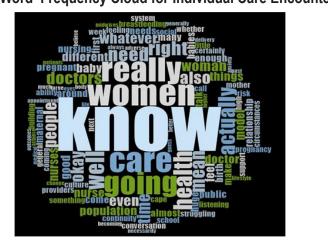| Sub-Themes	
	Relational care
	Culturally safe and appropriate
	Know me, know my story
	Cookie-cutter approach

Figure 4: Word Frequency Cloud for Individual Care Encounters

Integrated Findings

• This research advances what is known in primary maternity health care planning and needs-based health human resources planning using a broad definition of health

• Although the impact of the social determinants is complex, both system/organizational-level and care encounter strategies are required to impact health needs.
   • At the care encounter level, this includes improving relational, culturally-competent and individualized care.
   • At the system and organizational levels, changes include improvements to interprofessional and intersectoral collaboration, improved funding and policies focused on patient and family centered care

• Diverse health workforces would maximize the potential for meeting women's and newborns' health needs; particularly the social determinants of health

Strengths

• Mixed methods design

• Informed by established conceptual frameworks and theory

• Rigour in each phase

• Extends thinking about measuring needs

Limitations

• Sample sizes for CCHS limited analysis

• Missingness in NSAPD

• More focus groups with women would provide additional perspectives

Implications for Policy, Practice & Education

• Informs policy and decision making for health human resources planning in primary maternity health care at the system, organizational and care-delivery levels

• Supports the need for collaborative practice models with full scope practice for all primary maternity care providers, including nurses and midwives. Practicing to full scope and being engaged with their health colleagues, increases nurses' autonomy, improves nurses' satisfaction with practice and has the potential to increase nursing recruitment and retention.

• Supports the need for interprofessional health care provider education focused on the social determinants of health and a broader definition of health

Knowledge Translation

• Integrated and end-of-grant knowledge translation strategies

• Use of social media

Future Research

• Linkage study between NSAPD and CCHS

• Determining the gaps in competencies and services for HHR in primary maternity health care

Acknowledgements & Contact Information

References attached