

## **Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review**

### **Abstract**

**Problem:** Routine evacuation of pregnant Indigenous women from remote regions to urban centres for childbirth is a central strategy for addressing maternal health disparities in Canada. Maternal evacuation continues despite mounting evidence of its negative impacts on Indigenous women and families.

**Background:** Since the 1960s, pregnant Indigenous women living in remote regions in Canada have been transferred to urban hospitals for childbirth. In the following decades, evidence emerged linking maternal evacuation with negative impacts on Indigenous women, their families, and communities. In some communities, resistance to evacuation and the creation of local birthing facilities has resulted in highly diverse experiences of childbirth and evacuation.

**Aim:** A scoping review mapped the evidence on maternal evacuation of Indigenous women in Canada and its associated factors and outcomes from 1978 to 2019.

**Methods:** We searched MEDLINE, Embase, and CINAHL, and grey literature from governmental and Indigenous organizations. We collated the evidence on maternal evacuation into 12 themes.

**Results:** Factors related to evacuation include (a) evacuation policies (b) institutional coercion (c) remoteness and (d) maternal-fetal health status. Evacuation-related outcomes include (e) maternal-child health impacts (f) women's experience of evacuation (g) financial hardships (h) family disruption (i) cultural continuity and community wellness (ij) engagement with health services (k) self-determination, and (l) quality of health services.

**Discussion:** Numerous emotional, social and cultural harms are associated with evacuation of Indigenous women in Canada. Little is known about the long-term impacts of evacuation on Indigenous maternal-infant health. Evidence on evacuation from remote Métis communities remains a critical knowledge gap.

**Statement of significance**

### **Problem**

Despite more than 50 years of research on maternal evacuation of remote Indigenous women in Canada, no review of the evidence used systematic methods.

### **What is already known**

Existing literature links evacuation with numerous emotional, social and cultural harms to Indigenous women, families, and communities.

### **What this paper adds**

Policy remoteness, institutional coercion and maternal-fetal health status are associated with maternal evacuation of Indigenous women. Evacuation-related outcomes include maternal-child health impacts,

POST PRINT: Silver, H., Sarmiento, I., Budgell, R., Cockcroft, A., Vang, Z. & Andersson, N. (2022). Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review. *Women and Birth*, 35 (1), 11-22. DOI: 10.1016/j.wombi.2021.03.003.

women's experience of evacuation, financial hardships, family disruption, impacts to cultural and community wellness, engagement with health services, self-determination, and quality of health services. These findings demonstrate a critical need to re-evaluate evacuation practices.

## **1. Introduction**

Indigenous women living in Canada bear a disproportionate burden of poor maternal health, including adverse birth outcomes and maternal mortality [1,2]. The perinatal health disparities between Indigenous and non-Indigenous women in Canada have been linked to historical and contemporary policies that systematically disadvantage Indigenous women in particular ways [3]. Closing the gap in perinatal health disparities is complicated by the fact that 48% of Indigenous women live in rural or remote regions where access to specialized care is limited [4].

The Canadian governments' strategies for addressing rural and remote Indigenous women's poorer perinatal health profile has historically involved evacuating them to urban centers for childbirth. Beginning in the 1960s, many Indigenous women were forced to leave their communities in their final trimester, and travel to regional or southern hospitals to give birth, in a process known as maternal evacuation [5]. Over subsequent decades, in an effort to address high maternal-infant mortality rates, growing governmental control over Indigenous childbirth led to increased evacuation and medicalization of Indigenous childbirth. By the early 1980s, almost all births took place outside most remote Indigenous communities [5].

Scholars have documented the challenges and adverse health outcomes associated with evacuation for childbirth since the 1970s [5]. Evacuation has received heavy criticisms from Indigenous communities and medical providers as a colonial policy that disrupts Indigenous cultural practices and eradicates traditional knowledges [6]. Since its inception, many Indigenous communities have resisted and challenged evacuation, working to return childbirth back to the land and revive traditional midwifery practices.

Efforts to return childbirth back to remote communities has contributed to considerable variation in rates and experience of maternal evacuation across Canada today. In some communities, local midwifery-run birthing facilities offer Indigenous women with medically low-risk pregnancies the opportunity to give birth surrounded by family, language and culture [7], while in other villages, all women are systematically sent out for childbirth regardless of their medical profile [8]. The timing of evacuation varies widely as well, with some mothers leaving their home communities for 1–2 weeks, while others spend months away from home awaiting childbirth [5].

### **1.1. Rationale**

Indigenous communities that have succeeded in repatriating childbirth have been significantly aided by research on the effects of maternal evacuation. To the best of our knowledge, no previous literature review using systematic methods has explored the evidence on maternal evacuation among rural and remote Indigenous communities in Canada. As increasing numbers of communities strive to repatriate childbirth, a synthesis of the literature on evacuation can provide evidence for Indigenous-led research and policy change.

### **1.2. Objectives**

POST PRINT: Silver, H., Sarmiento, I., Budgell, R., Cockcroft, A., Vang, Z. & Andersson, N. (2022). Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review. *Women and Birth*, 35 (1), 11-22. DOI: 10.1016/j.wombi.2021.03.003.

Following the indications for scoping reviews outlined by Munn [9], the aims of this scoping review are threefold: 1) to map the existing knowledge of maternal evacuation among rural and remote First Nation, Inuit and Métis communities in Canada; 2) to identify and analyze the gaps in the knowledge base and 3) to identify and evaluate the key factors and outcomes associated with maternal evacuation.

## **2. Methods**

Our review followed the five-stage design developed by Arksey and O'Malley [10], and refined by Levac et al., [11] and the Joanna Briggs Institute [12]. The review sought to answer the questions “what research exists on maternal evacuation among rural and remote Indigenous communities in Canada?” and “what factors and outcomes are associated with maternal evacuation?”. For this review, evacuation included both planned and emergency transfers of Indigenous women from their home communities to regional and/or urban hospitals during the perinatal period. We reported our review based on the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist (see appendix A) [13]. The protocol of our study is available from the authors upon request.

### **2.1. Inclusion criteria**

We included all English language empirical studies conducted among rural and remote Indigenous communities in Canada (Inuit, Métis or First Nations) that investigate maternal evacuation, and its associated factors or outcomes. We did not limit publication dates due to the small number of publications. We excluded studies conducted among Indigenous communities outside Canada, or among urban Indigenous populations in Canada.

### **2.2. Information sources**

We developed in consultation with a librarian specializing in Indigenous health, using MEDLINE, CINAHL, and EMBASE. The electronic database search was supplemented by our hand searches of specific scientific journals, and online archives of recognized Canadian health and Indigenous organizations (see Fig. 1 for our search strategy). We screened all empirical studies, published and unpublished, including dissertations, book chapters and organizational reports.

### **2.3. Study selection and data extraction**

Our search identified 663 papers. Three non-Indigenous independent reviewers (HS, JP, IS) worked in pairs with a third independent reviewer throughout the selection and extraction phases. Using EndNote X9.0, we screened article titles and abstracts and eliminated duplicates. We subsequently screened 113 full-text articles for reporting on factors and outcomes associated with maternal evacuation. Paired reviewers resolved disagreements by consensus or discussion with the third reviewer. We used an eligibility form based on the inclusion criteria and calibrated it on 10% of the full text articles. A PRISMA diagram (Fig. 2) provides an overview of the process.

We developed a data extraction form and piloted it on 10% of the included documents. Two independent reviewers extracted the data separately, charting standard study information (author name, year of publication, journal, title of the document, study design, and population), and the factors and outcomes associated with maternal evacuation. Factors included any feature reported to be associated with or have an effect - positive or negative - on evacuation. Outcomes captured any reported consequences or results - positive or negative - attributed to evacuation.

## 2.4. Synthesis methods

We used theoretical thematic analysis to identify and synthesize themes related to our research questions [14,15]. Using Microsoft Excel, two reviewers independently separated data into factors or outcomes, and used line-by-line coding to collate them into descriptive sub-themes. All reviewers then refined the sub-themes through discussion and synthesized them into higher order analytical themes [15]. We did not conduct a quality appraisal of the included documents since this is not an objective of scoping reviews [13].

```

1. exp Inuits/
2. Inuit*.mp.
3. exp Indians, North American/
4. American Native Continental Ancestry Group/
5. "first nation"*.mp.
6.metis.tw.
7. Inuktitut.mp.
8. exp Nunavut/
9. nunavut.mp.
10. nunavik.mp.
11. cree.tw.
12. dene.tw.
13. halda.tw.
14. salish.tw.
15. mohawk.tw.
16. ojibway.tw.
17. yupik.tw.
18. eskimo*.mp.
19. "native american"*.ti,ab,kw.
20. "native canadian"*.ti,ab,kw.
21. "native people"*.ti,ab,kw.
22. "american indian"*.ti,ab,kw.
23. "Alaska" native"*.ti,ab,kw.
24. "canadian aboriginal"*.ti,ab,kw.
25. ontario.ti,ab,kw.
26. quebec.ti,ab,kw.
27. manitoba.ti,ab,kw.
28. saskatchewan.ti,ab,kw.
29. alberta.ti,ab,kw.
30. "british columbia".ti,ab,kw.
31. yukon.ti,ab,kw.
32. territory.ti,ab,kw.
33. 31 and 32
34. north?west.ti,ab,kw.
35. territories.ti,ab,kw.
36. 34 and 35
37. "newfoundland and labrador".ti,ab,kw.
38. newfoundland.ti,ab,kw.
39. labrador.ti,ab,kw.
40. 38 and 39
41. "nova scotia".ti,ab,kw.
42. "new brunswick".ti,ab,kw.
43. "prince edward island".ti,ab,kw.
44. canadian.jn.
45. canadian.ti,ab,kw.
46. exp Canada/
47. canada.ti,ab,kw.
48. aboriginal.mp.
49. "indigenous people"*.mp.
50. tribal.ti,ab,kw.
51. circumpolar.ti,ab,kw.
52. polar.ti,ab,kw.
53. exp Arctic Regions/
54. arctic.mp.
55. regions.mp.
56. 54 and 55
57. or/1-24
58. 25 or 26 or 27 or 28 or 29 or 30 or 31 or 33 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or
45 or 46 or 47
59. 48 or 49 or 50 or 51 or 52 or 53 or 56
60. 58 and 59
61. exp Maternal Health Services/ or exp Maternal-Child Health Services/ or exp Maternal Health/ or
exp Pregnancy/ or exp Gynecology/ or exp Obstetrics/
62. (maternal or maternity or pregnan* or gyn?ecolog* or obstetric*).tw,kf.
63. 61 or 62
64. (evacuat* or transfer* or medevac*).tw,kf.
65. exp Transportation of Patients/
66. 57 or 60
67. 61 or 62
68. 64 or 65
69. 66 and 67 and 68

```

Fig. 1. Example search strategy.

POST PRINT: Silver, H., Sarmiento, I., Budgell, R., Cockcroft, A., Vang, Z. & Andersson, N. (2022). Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review. *Women and Birth*, 35 (1), 11-22. DOI: 10.1016/j.wombi.2021.03.003.

### 3. Results

We examined 61 studies including 43 published papers, 6 book chapters, 7 reports and 5 dissertations covering more than 10,000 births between 1978 and 2019 (see Table 1). Studies reviewed employed qualitative, quantitative, and mixed methodologies.

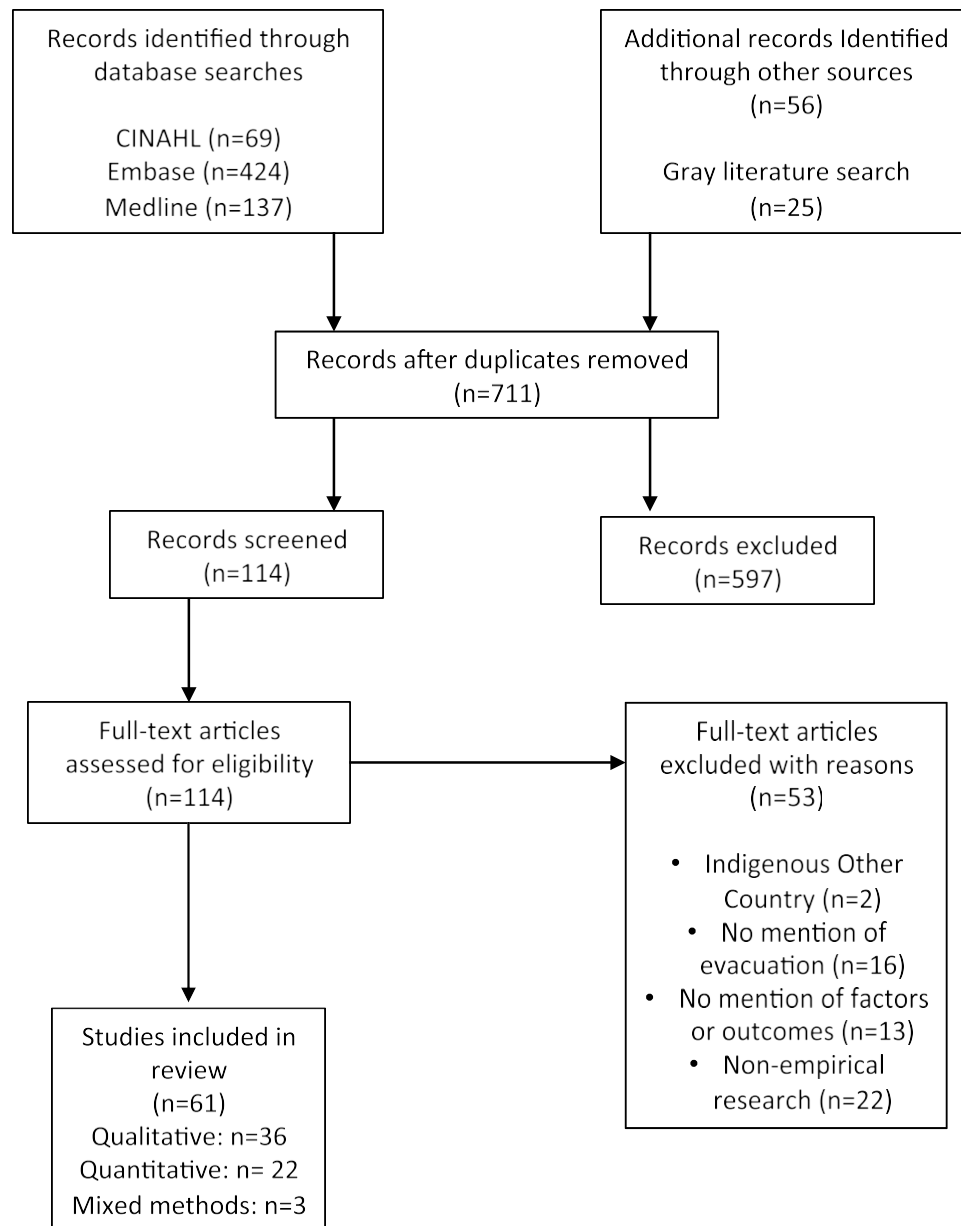


Fig. 2. PRISMA flow diagram.

Thirty-one percent of the studies were authored by at least one scholar who publicly identified as Indigenous. Among the three officially recognized Indigenous groups in Canada most studies examined maternal evacuation among the Inuit (54.8%) followed by First Nations (38.4%) and Métis (6.8%). Among those studies which reported on evacuation rates, these ranged from 12% to 100% of women being sent out from their communities.

We identified 12 themes related to maternal evacuation for childbirth. Four factors related to evacuation include (1) evacuation policies (2) institutional coercion (3) remoteness and (4) maternal-fetal health status. Seven outcomes related to evacuation include (1) maternal-child health impacts (2), women's experience of evacuation (3) financial hardships (4) family disruption (5) cultural continuity and community wellness (6) engagement with health services (7) self-determination, and (8) quality of health services.

### 3.1. Factors related to evacuation.

#### 3.1.1. Evacuation policies

Scholars of evacuation frequently point to the Health Canada policy requiring routine evacuation of pregnant women and its regional and provincial iterations, to explain the high rates of evacuation in Indigenous communities [16–24]. Backed by government and medical institutions, and facilitated by advances in transportation and communication, these policies are often cited as a conventional and self-explanatory cause. That is, Indigenous women are evacuated because it is policy. The view of evacuation policies as a taken-for-granted causes is illustrated by Spady [20] in one of the earliest studies of evacuation in the Northwestern Territories: “At the time of this study it was standard policy that mothers who had >5 pregnancies or who were outside the range of 17–34 years were routinely transferred from remote settlements to a hospital for delivery” (p.88). While many scholars share this view of policy as a reasonable explanation for evacuation, some have called into question its origins and purpose. Confronted with accounts of significant increases in evacuation long before an official policy was put in place [25–27], they have looked beyond policy to explain the disappearance of remote Indigenous birthing.

Countering the belief that the policies originated in concerns for maternal-infant wellbeing, Jasen [28] identifies governmental pressures for evacuation as stemming from preoccupation with their capability as a civilizing authority. Further evidence of evacuation as a strategy to assimilate and civilize Indigenous people in Canada, is given by Lawford and Giles [29]. Tracing evacuation back to 1892, they demonstrate how the government explicitly used evacuation as a colonial instrument to undermine traditional birth practices and pressure Indigenous communities into accepting the authority of biomedical institutions. The counter narratives offered by these scholars challenge the seemingly benign origins of evacuation policy and raise important questions about the ongoing effects these origins may have today.

Table 1

## Study characteristics.

No.	Year	Author	Study design	Study population (Inuit, Métis, First Nations)	Study participants (sample size)
1	1978	Baskett	Longitudinal	Inuit (NWT)	Women (n = 401) Births n = 622)
2	1982	Baskett et al.	Retrospective	Inuit (NWT)	Births (n = 869)
3	1990	Binns	Retrospective	Inuit (Nunavut)	Births (n = 1050)
4	2006	Bird	Qualitative Descriptive	First Nations Inuit	Women (n = 43) Medical Providers (n = 23)
5	1988	Bouchard	Retrospective	Inuit (Nunavik)	Births (n = 286)
6	2011	Brown et al.	Ethnography	First Nations (Nuxalk, Haida, and Kwakwaka'wakw)	Women (n = 102) Men (n = 3) Youth (n = 5) Elders (n = 11)
7	1993	Carignan	Retrospective	Inuit (Nunavik)	Births (n = 347)
8	1998	Chamberlain et al.	Prospective	Inuit (Keewatin)	Women (n = 114)
9	2000	Chamberlain & Barclay	Qualitative	Inuit (Nunavut)	Women (n = 20) Partners (n = 3) Community members (n = 5)
10	1998	Chatwood et al.	Descriptive Cross-sectional	Inuit (Nunavik)	Women (n = 411)
11	2017	Cidro et al.	Grounded Theory	First Nations (Cree)	Women (n = 31) Births (n = 127)
12	1990	Daviss-Putt	Ethnography	Inuit	Women (N/A)
13	1997	Daviss	Ethnography	Inuit (Nunavik) Inuit (Nunavut)	Women (N/A)
14	2017	Dawson	Ethnography	First Nations (Tlicho)	Women (n = 10)
15	1997	Earnshaw	Mixed Methods	Inuit (Nunavut)	Births (n = 350) Medical providers (n = 4) Other (n = 3)
16	1998	England	Retrospective	Inuit (Keewatin)	Births (n = 38)
17	2014	Eni et al.	Qualitative Descriptive	First Nations	Women (n = 65)
18	2007	Gold et al.	Qualitative Descriptive	Inuit (Nunavut)	Women (n = 25) Fathers (n = 6) Medical Providers (n = 40) Elders (n = 16) Community members (n = 5) Policy makers (n = 5)
19	1982	Guse	Qualitative Descriptive	First Nations & Inuit (Keewatin)	Women (n = 77)
20	1993	Hiebert	Mixed Methods	First Nations	Women (n = 239)
21	2003	Hiebert	Ethnography	First Nations (Cree)	Women (n = 60) Administrators, Medical Staff (n = 25)
22	2004	Houd et al.	Retrospective	Inuit (Nunavik)	Women (n = 182)
23	1997	Jasen	Document Analysis	N/A	N/A
24	1988	Kaufert et al.	Ethnography	Inuit (Keewatin)	N/A
25	1990 <sup>a</sup>	Kaufert et al.	Retrospective	Inuit (Keewatin)	Births (n = 1939)
26	1990 <sup>b</sup>	Kaufert & O'Neil	Retrospective	Inuit (NWT)	N/A
27	1993	Kaufert & O'Neil	Qualitative Descriptive	Inuit (NWT)	N/A
28	2004	Kornelsen & Grzybowski	Qualitative Descriptive	First Nations	Women (n = 11)
29	2010	Kornelsen et al.	Qualitative Descriptive	First Nations (Heiltsuk)	Women (n = 55)
30	2011	Kornelsen et al.	Qualitative Descriptive	First Nations (Heiltsuk)	Women (n = 67)
31	2012	Lawford & Giles	Document Analysis	First Nations	N/A
32	2018	Lawford et al.	Qualitative Descriptive	First Nations	Women (n = 7) Community members (n = 5)
33	2019	Lawford et al.	Ethnography	First Nations (Manitoba)	Women (n = 18) Politicians (n = 18) Medical Providers (n = 12)
34	1987	Lessard & Kinloch	Retrospective	Inuit (NWT)	Women (n = 512)
35	1991	Meyer & Belanger	Retrospective	Inuit (Nunavik)	Women (n = 1257) Births (n = 1270)
36	1979	Murdock	Retrospective	Inuit (NWT & Nunavut)	Births (n = 414)
37	2011	National Aboriginal Health Organization	Grounded Theory	Métis	Women (N/A) Community members (N/A)
38	2011	O'Driscoll et al.	Qualitative Descriptive	First Nations	Women (n = 13)
39	1988	O'Neil et al.	Qualitative Descriptive	Inuit (NWT)	Women (N/A) Community members (N/A)
40	1990	O'Neil & Kaufert	Qualitative Descriptive	Inuit	Women (N/A) Community members (N/A)
41	1990	O'Neil et al.	Qualitative Descriptive	Inuit (NWT)	Women (n = 71)
42	2017	Olson	Ethnography	First Nations	Women (n = 3)
43	1995	Pauktuutit Inuit Women's Association	Qualitative Descriptive	Inuit	Elders (n = 76)
44	1990	Paulette	Participatory Research	Indigenous (NWT)	Women (N/A) Community members (N/A)
45	1990	Paulette	Ethnography	First Nations	Women (N/A)
46	2010	Phillips-Beck	Ethnography	First Nations (Ojibway)	Women (n = 30) Fathers (n = 1)
47	1994	Rajsigl	Case-Control	Inuit (Nunavut)	Births (n = 724)
48	1990	Robinson	Ethnography	First Nations (Cree)	Women (N/A)
49	1991	Robinson	Mixed Methods	First Nations (Cree)	Women (N/A)
50	1991	Sennet & Dougherty	Methods	Inuit (NWT)	Women (n = 153)

POST PRINT: Silver, H., Sarmiento, I., Budgell, R., Cockcroft, A., Vang, Z. & Andersson, N. (2022). Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review. *Women and Birth*, 35 (1), 11-22. DOI: 10.1016/j.wombi.2021.03.003.

No.	Year	Author	Study design	Study population (Inuit, Métis, First Nations)	Study participants (sample size)
51	1982	Spady	Cross-sectional Prospective	Inuit, First Nations, Metis (NWT)	Inuit (n = 473) Metis (n = 94) First Nations (n = 215)
52	1988	Stevenson	Retrospective	Inuit (Labrador)	Women (N/A)
53	1990	Stonier	Retrospective	Inuit (Nunavik)	Women (n = 252)
54	2014	Struthers et al.	Qualitative Descriptive	Inuit (Nunavut) First Nations (Cree)	Women (n = 25) Medical Providers (n = 35)
55	1996	Tookalak et al.	Case Study	Inuit (Nunavik)	Women (n = 3)
56	1991	Tourigny et al.	Mixed Methods	Inuit (Nunavik)	Medical Providers (n = 88)
57	2007	Van Wagner et al.	Retrospective	Inuit (Nunavik)	Births (n = 374)
58	2012	Van Wagner et al.	Retrospective	Inuit (Nunavik) Cree (Nunavik)	Births (n = 1382)
59	2018	Vang et al.	Grounded Theory	Inuit (Nunavik) First Nations (Cree)	Women (n = 25) Medical Providers (n = 8)
60	1993	Webber & Wilson	Qualitative Descriptive	First Nations (Cree)	Women (n = 24)
61	1981	Wotton	Retrospective	First Nations (Cree) Métis	Births (n = 275)

### 3.1.2. Institutional coercion

For historians of maternal evacuation, governmental pressure was critical to ensuring the establishment of evacuation policy [26,30,31]. This pressure, alongside simultaneous advocacy by biomedical authorities in Canada for hospital births [32], generated considerable fear among medical staff working in remote Indigenous communities. The threat of legal repercussions, shortages of trained personnel and the absence of medical back-up during emergencies helped cement providers' beliefs in the danger of remote birthing, and secure their support for evacuation [19,27,32–37].

These sociopolitical forces help explain the accounts of medical providers coercing and threatening women into accepting evacuation [38]. Studies have documented an array of tactics medical personnel use to influence women who resist evacuation, including scaring women with stories of negative birth outcomes [27,38], and threatening involvement of local law enforcement [23,37], loss of access to medical care, or monetary fines [23].

### 3.1.3. Remoteness

Like policy, geographical remoteness is another seemingly self-evident explanation for maternal evacuation. Many rural and remote Indigenous communities are only accessible by roads for part of the year, while others are accessed solely by water or air transportation. Scholars point to poor infrastructure, unpredictable weather, and unreliable transportation in case of an emergency as central factors leading to the evacuation of Indigenous women, often well in advance of their expected date of delivery [8,16,39,40]. Although sporadically examined, remoteness cements evacuation as both a pragmatic and inevitable practice.

### 3.1.4. Maternal-fetal health status

Maternal-fetal health complications and risks figure predominantly as reasons for evacuation. Indigenous women are frequently evacuated for complications in pregnancy such as hemorrhage [6,19,20,41–43], hypertensive disorders [6,7,19,20,41–46], and preterm-labour [6,41,44,45,47]. Maternal risk factors also influence evacuation, including a history of previous caesarian section [6,7,43] or low birth weight [46,48],



advanced maternal age [20,41,46], adolescent pregnancy [20,41,45], primiparity [20,21,25–27,30,41,44,45,49], grand multiparity [20,27,30,44] and uncertain gestational age [36,43,50].

Although complex medical conditions and risks of complications are frequently cited as objective and undisputable grounds for evacuation, some scholars question their supposed neutrality [25,27,35] and scientific validity [20,48,49,51,52]. As biomedical authorities strove to establish control over Indigenous childbirth, several scholars have pointed to the inconsistent manner in which Indigenous women were labelled as ‘high-risk’ [48], and the steady rise of evacuation rates without parallel changes in formal definitions of obstetrical risk [25–27].

### 3.2. Outcomes related to evacuation

#### 3.2.1. Maternal-child health impacts

In contrast to the ample research on maternal-infant health status as cause of evacuation, few studies have examined the impacts of evacuation on the physical health of Indigenous mothers and children. Although limited in number and scope, those that have, found higher rates of substance use [6,20,27], gang- recruitment into sex work [24], sexually transmitted infections [20], and newborn infections [49]. Moreover, while the alarming rates of maternal and infant mortality have significantly decreased with routine evacuation, some question whether the declining rates can in fact be attributed to the policy of evacuation [48,49,53]. In a decades-long study of perinatal mortality in Nunavut, Rajsigl [48] points to the confounding effect of many social and public health developments such as housing, education and sanitation on perinatal mortality rates. Challenged by small samples, inconsistent collection of perinatal statistics, and confounding effects of large social and infrastructural transformations in northern and remote Indigenous communities [48,53,54], the long-term effects of evacuation on maternal-infant health and its contribution to reducing perinatal health disparities between Indigenous and non-Indigenous populations remain largely unknown. What is known, are the deleterious short-term psychosocial, cultural, and economic effects on evacuated mothers, their families, and communities, as demonstrated below.

#### 3.2.2. Women’s experience of evacuation

From the first published study of evacuation, researchers have consistently documented alarming levels of emotional distress among Indigenous evacuees. Accounts of loneliness, fear, boredom, and anxiety span over three decades of research among First Nation, Métis and Inuit communities [6,17,21,23,26,27,32,35,37,38,39,40,47,51,55–62]. Particularly acute among young first-time mothers [37,40,57,60,63], maternal emotional distress associated with evacuation can negatively impact breastfeeding [64] and maternal-infant bonding [23].

While the impacts of evacuation on maternal-infant physical health are limited in the literature, the effects of emotional distress on physical health are strikingly clear to Indigenous evacuees themselves. A young mother describes her experience of evacuation and the impact of stress on her diet:

“Actually, I did lose [weight] but I think that was the stress . . . I was eating, but I wasn't eating lots. I just kind of ate to keep myself going. I was just stressed out. I had a lot of anxiety about being there so I lost [weight] in my last month.” (p.78 (57)).

Women's distress is also amplified by awareness of its impacts on their unborn children [58]:

“I must have hurted [sic], like hurted my baby, because of my loneliness, and I didn't want to eat. Like I ate at times, but everybody must know how it feels when you are lonely for somebody, and you don't eat. “(p.43)

Above all else, women experienced great distress at being separated from their families, especially their children [16,21,32,33,37,38,41,55,57,60,65,66]. Worry for their children left behind and the loss of supportive family presence irrevocably marred women's experience of childbirth. The dire consequences of the distress are illustrated by a First Nation woman describing the birth of her first child [65]:

“Well, actually I was just crying most of the time . . . It was really hard . . . Like it was supposed to be a happy time in my life, like having my first baby. But it didn't seem that way because I was so lonely.” (p. 484)

The numerous stories of loneliness, fear and sadness, however, are interspersed with positive accounts of evacuation. Well- supplied southern cities give women access to affordable necessities for their families such as diapers and clothing [17,37,63], and specialized health services [17,58]. Women's loneliness is sometimes alleviated by forming friendships with other evacuated women [17,40], or the company of family members living in the city [38]. Some women even express happiness at being evacuated, for the temporary reprieve it provides from childcare and domestic labour [17,63]. These accounts, however, must be contextualised by evidence that positive experiences of evacuation are mediated by short stays in the south [18], the presence of accompanying family members [58], and extensive support for families and children remaining at home [18].

### 3.2.3. Financial hardships

Financial-related stress featured prominently in the studies reviewed. Already burdened by poverty, evacuated women worry about missed wages due to their prolonged absences from work, and job loss as fathers struggle with the demands of childcare and household tasks [23,37,57,60]. Time spent in the South leads many to incur significant debts, as women and escorting family members struggle to pay for transportation, lodging and meals [37,39]. Even those who are eligible for governmental travel allowance often find it insufficient for adequate accommodation and nutrition while in the South [39].

Limited finances are also the most frequently cited barrier to family presence during evacuation [21,23,37,38,39,47,55– 58,60,61,65]. In the context of widespread poverty and erratic governmental funding, families are frequently shut out of the experience of childbirth by the insurmountable costs of travelling and staying in the South. First documented by O'Neil in 1988 [57], inadequate funding for family presence during evacuation remains an ongoing problem three decades later [55,65].

#### 3.2.4. Family disruption

The impacts on family wellbeing are among the most poorly examined consequences of maternal evacuation, despite being the most frequently cited sources of distress for evacuated mothers [8,37,40,47,55–58]. Scholars have linked the prolonged absence of mothers to behavioural issues and emotional distress in children who are left behind [27,35,38,47,57,58,67]. Children's anxiety [27,38,57,58], behavioural outbursts [57], and premature discontinuation of breastfeeding [37] prefigure lasting consequences to family wellbeing, including compromised parent-child attachment [33,35,37,52,57] and difficult bonding with the newborn infant [8,23,32,35,37,51]. Concerns have also emerged about possible physical health impacts on children left behind, and those born in the south [35,51].

The compounding effects of evacuation on families are exacerbated by challenges in arranging childcare for children who remain behind. Faced with limited finances and overburdened relatives, families struggle to compensate for mother's prolonged absences [35,37]. Fathers in particular report significant distress as they struggle with worry for their partners in the south, managing household tasks, childrearing, and maintaining their jobs at the same time [21,35,57,58].

The lack of resources and supports for families of evacuees, can contribute to children living in unsafe environments [6,20,27,32, 35,39,57,58]. Some families resort to placing children in the care of Child and Family Services because they do not have other means to ensure the care and safety of their children while the mother is awaiting childbirth outside of the community [23,37,58,60]. Predictably, limited support for families, coupled with the emotional and financial stressors of evacuation, frequently lead to significant tensions and even family break-ups [20,27,35,37, 39,47,68,69].

#### 3.2.5. Cultural continuity and community wellness

Evacuation invariably limits family and community participation in childbirth. The absence of family support during evacuation has been directly linked to women's distress, and to their experience of childbirth as alienating and traumatic [8,17,24,40, 47,58,60,65,70]. As Phillips-Beck concluded in her study of evacuation in Berens River First Nation [58]:

"There was overwhelming agreement among those that left the community and their system of support behind that the experience was marred by negative emotions and symptoms as well as a great deal of internal suffering described in terms of loneliness and tears." (p. 41)

Authors point to the exclusion of family and community from childbirth as a critical consequence of evacuation. Many have documented how the removal of childbirth from the sphere of the family and community has significant impacts on collective wellbeing [8,17,30,33,37,38,47,51,59,60,69]. These include high rates of community-wide depression [39], declines in hunting and consumption of traditional foods [27,57], and disruption of community ties [30,51,60,69]. In Indigenous communities where childbirth is a collective event, evacuation interrupts important social roles. Recalling a time when babies were born at the local community hospital, a Helitsuk woman illustrates the impacts of evacuation [38]:

“There are several aspects of it . . . the celebration has been taken away . . . if a baby was being born there would be at least 50 people in this hospital, waiting. And as soon as the baby was born, people would be on the phone, on the radio, celebrating.” (p. 59)

In severing the bonds between community members, evacuation also leads to a breakdown in intergenerational knowledge sharing [30,31,35]. Scholars point to the prohibition of Indigenous midwifery as a critical strategy for disrupting traditional knowledge systems and establishing compliance with evacuation [27,29,33,35,51]. As authority over pregnancy and birth were wrested from Indigenous midwives, the intergenerational transmission of knowledge and skills from older to younger women was fractured, with devastating consequences to Indigenous midwifery and women’s traditional roles [27,30,31,34,51,57,59]. The impacts of evacuation on undermining elders’ authority and wisdom in childbirth are profound:

“Back then, the women had the knowledge to take care of a woman in labour . . . We were informed by our elders on what to do and what not to do. Today, an older woman complained that she could not even explain what hospital birth was going to be like to a girl with her first pregnancy: It's hard to try and explain what is going to be happening to them in the doctor's hands because (the older woman) doesn't really know what the doctor is going to be doing or asking them to do.” (p.486 in [57]).

In addition to eroding traditional roles and knowledge, evacuation poses a direct assault to Indigenous identities. In many communities, being born on the land is essential in forming one’s identity and ties to the collective [8,42]. Research among the Inuit documented a sense of loss of cultural identity, and a collective belief that children born in southern hospitals are somehow different [30,34,51,57]. Few studies have examined the evacuation-related erosion of Indigenous identity outside Inuit communities, but recent research suggest this also happens among First Nation communities [8,23]:

### 3.2.6. Engagement with health services

The negative short-term effects of childbirth evacuation on women also result in low utilization of health services. In an attempt to avoid the stressors and burdens of evacuation, many women resort to hiding their pregnancies or themselves from local medical providers in an effort to delay or prevent evacuation [17– 19,23,27,31,33,35,37]. Others who comply with evacuation will sometimes return home against medical advice out of loneliness [24] or worry for their children left at home [23,41,56].

Women’s resistance to evacuation invariably situates medical personnel, especially nurses, in an adversarial relationship with the women, as they must enforce the policy of evacuation. As Hiebert [23] explains, attempting to evade evacuation not only “undermines the autonomy of the woman and the role of the nurse, as a patient advocate” (p. 212), but can also lead to longer evacuation periods due to uncertain due dates [33,36] or complications arising from unplanned home births [6].

### 3.2.7. Self-Determination

Evacuation repeatedly challenges Indigenous women’s embodied sovereignty and self-determination. While some women resist evacuation through outright refusal or evasion [18,21,37,65] most describe feelings of disempowerment and lack of control over their experience of evacuation and childbirth

[6,21,24,26,31,33, 40,47,49,51,57,65,67,71]. These feelings stem from lack of information regarding the process of evacuation [24,65], lack of choice in the place of childbirth [21,38], or in the type of care received [47,49,51,65,67]. Evacuation fractures pregnancy and childbirth into a series of contestations over women's bodily integrity, dispossessing them of choice in birth position [21,33,49,50,57], medical interventions [21,47,65,67] and presence of family support [21,49].

Although many studies documented a deep-seated sense of disempowerment and desire for community-based birth [8,21,38,49,58,65], others described instances of women preferring to evacuate [6,7,42,53], frequently motivated by a desire for better care in case of an emergency or complication [8,21,36,37,46,61,63]. While this seemingly logical motivation often goes unquestioned, Kornelsen et al. [38] and Gold et al. [36] trace this preference to women's lack of confidence in local care providers and a general sense that their communities are no longer safe spaces for childbirth. Medicalization of pregnancy and maternal evacuation policies have thus worked in tandem to undermine local knowledge and trust in traditional birthing practices.

### 3.2.8. Quality of healthcare services

Scholars of evacuation occasionally explain the negative social impacts as unfortunate yet inevitable means to securing women's access to quality maternity care [16,20,44]. They point to the lack of community-based perinatal services as a necessary driver of evacuation, contrasting them with the opulence of technologically advanced southern hospitals. Community-based facilities are often staffed by an inexperienced and rapidly changing workforce [23,27,31,35,47,48,72], frequently lacking resources for even basic prenatal care [27,38,43,46,47,73]. Without midwifery services [19,25,35,42,46], and challenged by unpredictable weather and emergency transport [38,40], medical personnel are left with little choice but to evacuate women. Some scholars worry that such dependence on southern hospitals discourages investment in local perinatal services [27,57].

The benefits of technologically advanced care in the south, however, are increasingly questioned by mounting evidence of the poor quality of care Indigenous women receive during evacuation. Leaving home with little information and preparation, women are challenged by uncomfortable transportation on their long journeys south, and subpar accommodations in unfamiliar and intimidating cities [17,23,24,37,38,39,40,56,58,60]. They are subjected to interventions including episiotomy, narcotic analgesia, and induction of labour [27,35,37], on hospital units that actively discourage family presence [39].

Safe and responsive care is also hindered by language barriers and communication difficulties between women and staff [18,24,40,55], as well as discrimination and racism that pervades medical institutions [47]. Many Indigenous evacuees describe facing stereotypical and essentialist assumptions regarding substance use, and scrutiny of their parental capacities [37,47]. These realities have led scholars to question the proposed safety and benefits of maternal evacuation [39,67].

## 4. Discussion

POST PRINT: Silver, H., Sarmiento, I., Budgell, R., Cockcroft, A., Vang, Z. & Andersson, N. (2022). Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review. *Women and Birth*, 35 (1), 11-22. DOI: 10.1016/j.wombi.2021.03.003.

Three insights emerge from mapping the documented and mostly published evidence on maternal evacuation of Indigenous women in Canada. First, the emotional, social, and cultural harms associated with evacuation are persistent and pervasive, with surprisingly little variation across time, place, or Indigenous group. Evacuation sets up childbirth as an experience punctuated by loneliness, anxiety and sadness for women who must leave their families and supportive networks behind, instead of being a pivotal moment for healing and breaking the cycle of intergenerational trauma [74]. While local birthing facilities born of strong community mobilization afford some Indigenous mothers the comfort of birthing at home [49,70], for a majority of evacuated women pregnancy and childbirth remains an alienating and traumatic experience.

Evacuating women also leaves family management gaps that must be held together by family members who remain in the community. With limited supports, families struggle with childcare challenges, financial burdens, and the emotional and physical health consequences to children separated from their mothers. These accumulated stressors can in turn compromise parent-child bonding, and lead to family tensions and break-ups. Although adverse impacts on women and families have been well documented, scholars have yet to examine their intergenerational impacts, especially their role in intergenerational trauma and stress proliferation [75]. Given the history of residential schools and the Sixties Scoop, there is a critical need to examine the accounts of state apprehension of children in the context of evacuation (for a detailed analysis of Indigenous child welfare in Canada see Bennet et al. 2005 [76]).

The second insight relates to the stated objective of evacuation improving maternal and infant health. With the weight of its adverse impacts on women, families, and communities, paradoxically evacuation seems to defeat this goal. Examining the colonial origins of evacuation highlights the legacy of dispossession of Indigenous bodies, knowledge and land, and the consequences of this dispossession. Evacuation repeatedly assaults Indigenous women's embodiment and sovereignty, depriving them of fundamental rights in childbirth. Those who are willing to assert their desires in childbirth must stand against governmental and medical authorities, risking coercion, and policing.

Evacuation also disembodies Indigenous women by transferring social, political, historical, and geographical risks onto their bodies. Although remoteness, unpredictable weather, deficient infrastructure and inadequate medical services are frequently cited causes of evacuation, scholars have yet to examine how these factors are transposed onto Indigenous women's bodies as risks that they must bear. As Smith-Oka points out, reproductive risk is disproportionally attributed to poor and racialized women, who must assume responsibility for assuring a favourable birth in contexts where they have little control [77]. The definition, distribution and management of reproductive risk among Indigenous women needs to be further examined.

Removing childbirth from the land also fractures the ability of Indigenous children to inherit. It deprives children of land-based connections critical to their Indigenous identities, and of knowledge passed on by their elders. Nowhere are the impacts of dispossession more profound than among Indigenous women who have lost, or are at risk of losing their knowledge and legacy of Indigenous midwifery, motherhood,

pregnancy, and land-based birth. According to Leanne Betasamosake Simpson, dispossession under settler colonialism uniquely impacts Indigenous women due to its patriarchal origins [78]. The ways in which evacuation disproportionately dispossess and disciplines women seems to support this view.

Finally, evacuation continues in the face of decades of evidence on its associated emotional, social, and cultural harms, with little examination of its consequences to Indigenous maternal-infant health. The limited evidence on the benefits of evacuation is outdated and plagued by numerous socio-political and methodological confounders. In light the ample evidence on the negative impacts of perinatal stress on maternal-infant health [79,80], examining the health impacts of evacuation on Indigenous women and children is crucial. To our knowledge, no empirical evidence exists about the long-term impacts of evacuation on the health of Indigenous women and children. We also regard the limited research on evacuation among Métis communities as a critical knowledge gap.

## **5. Limitations**

It is important to contextualise the findings of this review over time. As previously noted, evacuation practices have varied across place and transformed over time, making extended analyses of maternal evacuation more complex. As material, cultural, political, and social conditions of remote Indigenous communities have changed, so have their experiences of evacuation. The survival of local birth in a community's living memory, technological advancements in communication and transportation, the recovery of traditional Indigenous midwifery, changing land agreements and treaties, all shape local realities and experiences of maternal evacuation. Local land-based analyses should therefore be carefully considered alongside persistent narratives of social, cultural, and emotional harms that appear to withstand the test of time.

We only considered studies in English, leaving out potentially relevant publications in French. Our study was restricted to Canada. A broader concern about evacuation would also consider other countries where maternal evacuation of Indigenous population is an issue, such as Australia, New Zealand, and the United States. We did not conduct a quality appraisal of the included publications. The scoping review covers only written knowledge, mostly published in the non-Indigenous media. It does not include unwritten knowledge, some of which predates written knowledge. Synthesis of written and unwritten knowledge is the subject of a separate exercise. Finally, given that the reviewers are non-Indigenous, it is possible that some factors and outcomes related to evacuation were missed as a result of different cultural standpoints, perspectives, and knowledges.

## **6. Conclusion**

Even based exclusively on the written and mostly published evidence, evacuating rural and remote Indigenous women for childbirth is fraught with challenges. The colonial origins of the practice persist to this day, shaping contemporary maternal- infant care of Indigenous women in Canada. Despite the most well-intentioned medical staff and institutional policies, evacuation frequently causes considerable distress and harm to Indigenous families and communities, cultivating a sense of loss, disempowerment, and alienation throughout one of the most profound human experiences. Mapping the evidence on maternal evacuation makes clear the need to re-think how we support Indigenous maternal-infant health

POST PRINT: Silver, H., Sarmiento, I., Budgell, R., Cockcroft, A., Vang, Z. & Andersson, N. (2022). Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review. *Women and Birth*, 35 (1), 11-22. DOI: 10.1016/j.wombi.2021.03.003.

and wellness in pregnancy and childbirth. This has implications for both research and policy. Critical knowledge gaps like those found in Métis communities should be bridged. The formal integration of Indigenous stakeholders' perspectives with the published evidence using participatory methods such as the Weight of Evidence method [81], and a systematic assessment of the methodological quality of the studies reviewed here are important precursors to clinical and policy changes. Moreover, such changes should be grounded in local contexts and informed by collaborative Indigenous-settler relationships. The question posed by Leanne Simpson [77] can help us on our path forward: How do we ensure every Indigenous body, honored and sacred, knows respect in their bones? (p.51)

#### **Author contributions**

HS, JPP and IS conducted the data extraction, analysis, and manuscript write-up. RB, AC, ZMV and NA assisted in data analysis and manuscript write-up.

#### **Ethical statement**

The research project received ethical approval by the McGill University Faculty of Medicine IRB.

#### **Conflict of Interest Statement**

The authors declare that they have no competing interests.

#### **Funding**

This work was supported by the Canadian Institutes of Health Research (CIHR) Project Grant (no. 426071).

#### **Acknowledgments**

We thank Martin Morris (McGill University) for his expertise and assistance in developing the search strategy.



## Appendix A. PRISMA Checklist

Section	Item	PRISMA-ScR checklist item	Reported on page #
<b>Title</b>			
Title	1	Identify the report as a scoping review.	1
<b>Abstract</b>			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1
<b>Introduction</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	4
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	4
<b>Methods</b>			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	4
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	4–5
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional	5

POST PRINT: Silver, H., Sarmiento, I., Budgell, R., Cockcroft, A., Vang, Z. & Andersson, N. (2022). Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review. *Women and Birth*, 35 (1), 11-22. DOI: 10.1016/j.wombi.2021.03.003.

Search	8	sources), as well as the date the most recent search was executed. Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	(see Fig. 1)
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	5
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	5
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	5
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	N/A
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	6
<b>Results</b>			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	6
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	See Table 1
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	N/A
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	See Table 1
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	5–15

<b>Discussion</b>			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	15–16
Limitations	20	Discuss the limitations of the scoping review process.	17
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	18
<b>Funding</b>			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	18

## References

- [1] Z.-C. Luo, R. Wilkins, M. Heaman, J. Smylie, P.J. Martens, N.G.L. McHugh, et al., Birth outcomes and infant mortality among First Nations Inuit, and non- Indigenous women by northern versus southern residence, Quebec, J. Epidemiol. Community Health (1979-) 66 (4) (2012) 328–333.
- [2] N. Auger, A.L. Park, H. Zoungrana, M.I. F. Sing, E. Lo, Z.-C. Luo, Widening inequality in extreme macrosomia between Indigenous and non-Indigenous populations of Que’bec, Canada, Aust. N. Z. J. Public Health 37 (1) (2013) 58–62.
- [3] C. Bourassa, K. McKay-McNabb, M. Hampton, Racism, sexism and colonialism: the impact on the health of Aboriginal women in Canada, Can. Woman Studies 24 (1) (2004).
- [4] S. Canada, Focus on Geography Series, Census. Statistics Canada Catalogue no. 98-404-X2016001 Ottawa, Ontario 2017 [cited 2020 August] Available from: (2016) . <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/fogs-spg/Facts-CAN-eng.cfm?Lang=Eng&GK=CAN&GC=01&TOPIC=9>.
- [5] V.K. Douglas, Childbirth among the Canadian Inuit: a review of the clinical and cultural literature, Int. J. Circumpolar Health 65 (2) (2006) 117–132.
- [6] V. Van Wagner, B. Epoo, J. Nastapoka, E. Harney, Reclaiming birth, health, and community: midwifery in the Inuit villages of Nunavik, Canada, J. Midwifery Womens Health 52 (4) (2007) 384–391 PubMed PMID: 106151142. Language: English. Entry Date: 20070914. Revision Date: 20170802. Publication Type: Journal Article.

POST PRINT: Silver, H., Sarmiento, I., Budgell, R., Cockcroft, A., Vang, Z. & Andersson, N. (2022). Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review. Women and Birth, 35 (1), 11-22. DOI: 10.1016/j.wombi.2021.03.003.

- [7] V. Van Wagner, C. Osepchook, E. Harney, C. Crosbie, M. Tulugak, Remote midwifery in Nunavik, Quebec, Canada: outcomes of perinatal care for the Inuulitsivik health centre, 2000-2007, *Birth* 39 (3) (2012) 230–237, doi:[http:// dx.doi.org/10.1111/j.1523-536X.2012.00552.x](http://dx.doi.org/10.1111/j.1523-536X.2012.00552.x) PubMed PMID: 23281905.
- [8] J. Kornelsen, A. Kotaska, P. Waterfall, L. Willie, D. Wilson, The geography of belonging: the experience of birthing at home for First Nations women, *Health Place* 16 (4) (2010) 638–645.
- [9] Z. Munn, M.D. Peters, C. Stern, C. Tufanaru, A. McArthur, E. Aromataris, Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach, *BMC Med. Res. Methodol.* 18 (1) (2018) 143.
- [10] H. Arksey, L. O'Malley, Scoping studies: towards a methodological framework, *Int. J. Soc. Res. Methodol.* 8 (1) (2005) 19–32.
- [11] D. Levac, H. Colquhoun, K.K. O'Brien, Scoping studies: advancing the methodology, *Implement. Sci.* 5 (1) (2010) 69.
- [12] M.D.J. Peters, C. Godfrey, P. McInerney, Z. Munn, A.C. Tricco, H. Khalil, Chapter 11: Scoping reviews (2020 version), in: E. Aromataris, Z. Munn (Eds.), *JBIMES-20-12*, JBI Manual for Evidence Synthesis, JBI, 2020, doi:<http://dx.doi.org/10.46658/JBIMES-20-12>. Available from <https://synthesismanual.jbi.global>.
- [13] A.C. Tricco, E. Lillie, W. Zarin, K.K. O'Brien, H. Colquhoun, D. Levac, et al., PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation, *Ann. Intern. Med.* 169 (7) (2018) 467–473.
- [14] V. Braun, V. Clarke, *Successful Qualitative Research: a Practical Guide for Beginners.*, SAGE, London, 2013.
- [15] T. James, H. Angela, Methods for the thematic synthesis of qualitative research in systematic reviews, *BMC Med. Res. Methodol.* [Internet] 8 (1) (2008) 45.
- [16] B. Binns, Obstetric care for northern women, *Arctic Med. Res.* 2 (3) (1990) 79– 84.
- [17] A. Tourigny, J. Ross, P. Joubert, *An Evaluation of Perinatal Care and Services in the Hudson Bay Region, The organization: DSC-CHUL*, 1991.
- [18] C. Earnshaw, *Obstetrical Care in the Baffin Region, Northwest Territories: Geographical, Medical and Cultural Perspectives*, National Library of Canada, Ottawa, 1997.
- [19] M.L. Stevenson, The provision of maternity services in northern Labrador 1984-1986, *Arctic Med. Res.* 47 (Suppl 1) (1988) 492–494.
- [20] D.W. Spady, *Between Two Worlds: the Report of the Northwest Territories Perinatal and Infant Mortality and Morbidity Study*, Boreal Institute for Northern Studies, University of Alberta, Edmonton, Alta., Canada, 1982.
- [21] M. Chamberlain, K. Barclay, Psychosocial costs of transferring indigenous women from their community for birth, *Midwifery* 16 (2) (2000) 116–122.

POST PRINT: Silver, H., Sarmiento, I., Budgell, R., Cockcroft, A., Vang, Z. & Andersson, N. (2022). Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review. *Women and Birth*, 35 (1), 11-22. DOI: 10.1016/j.wombi.2021.03.003.

- [22] J. O'Neil, P.A. Kaufert, *The Politics of Obstetric Care: the Inuit Experience*. Births and Power, Routledge, 1990, pp. 53–68.
- [23] S. Hiebert, *NCN Otinawasuwuk (receivers of Children): Taking Control of Birth in Nisichawayasihk Cree Nation*, University of Manitoba, Winnipeg, Manitoba, 2003.
- [24] K.M. Lawford, I.L. Bourgeault, A.R. Giles, "This policy sucks and it's stupid:" Mapping maternity care for First Nations women on reserves in Manitoba, Canada, *Health Care Women Int.* 40 (12) (2019) 1302–1335, doi:<http://dx.doi.org/10.1080/07399332.2019.1639706>.
- [25] P.A. Kaufert, E. Bowden, J. O'Neil, B. Postl, M.E. Moffatt, R. Brown, The delivery of prenatal care to women from the Keewatin: 1979-85, *Arctic Med. Res. (Suppl)* (1991) 577–580.
- [26] P.A. Kaufert, J.D. O'Neil, Cooptation and control: the reconstruction of Inuit birth, *Med. Anthropol. Q.* 4 (4) (1990) 427–442.
- [27] B.A. Daviss-Putt, Rights of passage in the North: from evacuation to the birth of a culture, in: M. Crnkovich (Ed.), "Gossip": a Spoken History of Women in the North, Canadian Arctic Resources Committee, Ottawa, Ontario, 1990, pp. 91.
- [28] P. Jasen, Race, culture, and the colonization of childbirth in Northern Canada, *Soc. Hist. Med.* 10 (3) (1997) 383–400.
- [29] K. Lawford, A. Giles, Marginalization and coercion: Canada's evacuation policy for pregnant First Nations women who live on reserves in rural and remote regions, *Pimatisiwin.* 10 (3) (2012) 327–340.
- [30] J. O'Neil, P. Kaufert, The politics of obstetric care: the Inuit experience, in: W.P. Handwerker (Ed.), *Births and Power: Social Change and the Politics of Reproduction*, Westview Press, Boulder, 1990.
- [31] P. Kaufert, J. O'Neil, Analysis of a dialogue on risks in childbirth: clinicians, epidemiologists and Inuit women, in: S. Lindenbaum, M.M. Lock (Eds.), *Knowledge, Power, and Practice: the Anthropology of Medicine and Everyday Life*, University of California Press, Berkeley, 1993, pp. 32–54.
- [32] J.I. England, Rankin Inlet Birthing Project: outcome of primipara deliveries, *Int. J. Circumpolar Health* 57 (Suppl 1) (1998) 113–115.
- [33] L. Paulette, *The Changing Experience of Childbirth in the Western NWT*. Childbirth in the Canadian North: Epidemiological, Clinical Cultural Perspectives, University of Manitoba Northern Health Research Unit, Winnipeg, Manitoba, 1990, pp. 45–50.
- [34] B.A. Daviss, Heeding warnings from the Canary, the whale, and the Inuit, in: R. Davis-Floyd, C.F. Sargent (Eds.), *Childbirth and Authoritative Knowledge: Cross-Cultural Perspectives*, University of California Press, Berkeley, 1997, pp. 441.
- [35] L. Paulette, The family centered maternity care project, in: M. Crnkovich (Ed.), "Gossip": a Spoken History of Women in the North, Canadian Arctic Resources Committee, Ottawa, Ontario, 1990, pp. 71–87.

POST PRINT: Silver, H., Sarmiento, I., Budgell, R., Cockcroft, A., Vang, Z. & Andersson, N. (2022). Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review. *Women and Birth*, 35 (1), 11-22. DOI: 10.1016/j.wombi.2021.03.003.

- [36] S.T. Gold, J. O'Neil, V. Van Wagner, The community as provider: collaboration and community ownership in Northern maternity care, *Can. J. Midwifery Res. Pract.* 6 (2) (2007) 5–17.
- [37] A. Struthers, S. Winters, C.J. Metge, Understanding the Strengths and Needs of Women Who Temporarily Relocate to Winnipeg for Birth: an Action Research Study Winnipeg, Manitoba, (2014) .
- [38] J. Kornelsen, A. Kotaska, P. Waterfall, L. Willie, D. Wilson, Alienation and resilience: the dynamics of birth outside their community for rural First Nations women, *Int. J. Indig. Health* 7 (1) (2011) 55.
- [39] H. Brown, C. Varcoe, B. Calam, The birthing experiences of rural Aboriginal women in context: implications for nursing, *Can. J. Nurs. Res.* 43 (4) (2011) 100–117.
- [40] L. Guse, Canada. Health Manpower D, University of Manitoba. Department of A. Maternal Evacuation: a Study of the Experiences of Northern Manitoba Native Women, Dept. of Anthropology, University College, University of Manitoba, Winnipeg, MB, 1982.
- [41] T.F. Baskett, Obstetric care in the central Canadian Arctic, *Br. Med. J.* 2 (6143) (1978) 1001–1004 PubMed PMID: 709174.
- [42] S. Houd, J. Qinuajuak, B. Epoo, The outcome of perinatal care in Inukjuak, Nunavik, Canada 1998-2002, *Int. J. Circumpolar Health* 63 (Suppl 2) (2004) 239–241 PubMed PMID: 15736659.
- [43] K. Wotton, Obstetrical Care in a Northern Indian Community, *Circumpolar Health 81: Proceedings of 5th International Symposium on Circumpolar Health; August 1981, Copenhagen. Oulu, Finland: Nordic Council for Arctic Medical Research, 1981, pp. 118–121.*
- [44] Obstetrical emergencies in the Canadian arctic, in: T. Baskett, R. Bradford, J. Hildes (Eds.), *Circumpolar Health 81: Proceedings of 5th International Symposium on Circumpolar Health, Copenhagen, 9-13 August 1981, Nordic Council for Arctic Medical Research, 1982.*
- [45] S. Chatwood-Affleck, A. Lippman, L. Joseph, G. Pেকেles, Indications for transfer for childbirth in Inuit women at the Innuulisivik Maternity, *Int. J. Circumpolar Health* 57 (1998) 121–126.
- [46] G. Carignan, Université' Laval, Centre Hospitalier. De'partement De sante' Communautaire. Projet N. Pregnancies and Births Among the Inuit Population of Hudson Bay, 1989-91, Projet Nord, University of Laval Hospital Centre, Sainte-Foy, Quebec, 1993.
- [47] P. Bird, Exploring Models for Quality Maternity Care in First Nations and Inuit Communities: a Preliminary Needs Assessment: Final Report of Inuit Women's Needs Assessment Available from:, Ajunnginiq Centre, National Aboriginal Health Organization, Ottawa, Ont, 2006. <https://www.deslibris.ca/ID/205421>.
- [48] D. Rajsigl, An Investigation Into Infant Mortality and the Health Care System in the Eastern Arctic Toronto, York University, Ontario, 1985.
- [49] N. Tookalak, A. Qumaluk, L. Qinuajuak, Inuit midwives: their stories, *Midwifery Today Childbirth Educ.* (40) (1996) 54–55.

POST PRINT: Silver, H., Sarmiento, I., Budgell, R., Cockcroft, A., Vang, Z. & Andersson, N. (2022). Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review. *Women and Birth*, 35 (1), 11-22. DOI: 10.1016/j.wombi.2021.03.003.

- [50] E.S. Sennett, G.E. Dougherty, Evacuation for childbirth in the Baffin Region, N. W.T.: factors associated with the length of family separation, *Arctic Med. Res. (Suppl)* (1991) 601–604.
- [51] Pauktuutit, Special report on traditional midwifery. Pauktuutit Inuit Women's Association of Canada, *Suvaguuq* 10 (1) (1995) 12.
- [52] A.I. Murdock, Factors associated with high-risk pregnancies in Canadian Inuit, *Can. Med. Assoc. J.* 120 (3) (1979) 291–294.
- [53] E. Robinson, Maternal health and obstetrical services: measuring health status and the quality of care in remote areas, *Arctic Med. Res. (Suppl)* (1991) 596–600.
- [54] P. Kaufert, M. Moffatt, J.D. O'Neil, B. Postl, The epidemiology of obstetric care in the Keewatin District: methodological issues, in: J.D. O'Neil, P. Gilbert (Eds.), *Childbirth in the Canadian North: Epidemiological, Clinical and Cultural Perspectives*, Northern Health Research Unit, University of Manitoba, Winnipeg, Manitoba, 1990, pp. 90.
- [55] Z.M. Vang, R. Gagnon, T. Lee, V. Jimenez, A. Navickas, J. Pelletier, et al., Interactions between indigenous women awaiting childbirth away from home and their southern, non-indigenous health care providers, *Qual. Health Res.* 28 (12) (2018) 1858–1870, doi:<http://dx.doi.org/10.1177/1049732318792500>.
- [56] J. Kornelsen, S. Grzybowski, The costs of separation: the birth experiences of women in isolated and remote communities in British Columbia, *Can. Woman Studies* 24 (1) (2004) 75–80.
- [57] J. O'Neil, P. Kaufert, P. Brown, E. Voisey, M. Moffatt, B. Postl, et al., Inuit concerns about obstetric policy in the Keewatin region NWT, *Arctic Med. Res.* 47 (Suppl. 1) (1988) 485–489.
- [58] W. Phillips-Beck, *Development of a Framework of Improved Childbirth Care for First Nation Women in Manitoba: a First Nation Family Centred Approach*, University of Manitoba, Winnipeg, Manitoba, 2010.
- [59] L. Qinuajuak, *Birth Is a Normal Part of Life. Midwifery Today: Childbirth Education*, (1996) , pp. 1 40.
- [60] J. Cidro, E. Dolin, C. Queskekapow, Bored broke and alone: experiences of pregnant and expectant first nations mothers birthing in and out of the Community, in: H. Tait Neufeld, J. Cidro (Eds.), *Indigenous Experiences of Pregnancy and Birth*, Demeter Press, Bradford, Ontario, 2017, pp. 73–90.
- [61] T. O'Driscoll, L. Kelly, L. Payne, N. St Pierre-Hansen, H. Cromarty, B. Minty, et al., Delivering away from home: the perinatal experiences of First Nations Women in Northwestern Ontario, *Can. J. Rural Med.* 16 (4) (2011) 126–130.
- [62] L. Dawson, Birth places, embodied spaces, in: H. Tait Neufeld, J. Cidro (Eds.), *Indigenous Experiences of Pregnancy and Birth*, Demeter Press, Bradford, Ontario, 2017, pp. 144–162.

- [63] G. Webber, R. Wilson, Childbirth in the north. A qualitative study in the Moose Factory zone, *Can. Fam. Phys.* 39 (1993) 781–788.
- [64] R. Eni, W. Phillips-Beck, P. Mehta, At the edges of embodiment: determinants of breastfeeding for first Nations women, *Breastfeed. Med.* 9 (4) (2014) 203–214, doi:<http://dx.doi.org/10.1089/bfm.2013.0129> PubMed PMID: 24606065.
- [65] K.M. Lawford, A.R. Giles, I.L. Bourgeault, Canada's evacuation policy for pregnant First Nations women: resignation, resilience, and resistance, *J. Women Birth* 31 (6) (2018) 479–488.
- [66] E. Robinson, Pregnancies, deliveries, and perinatal mortality in the James Bay Area, Quebec, 1975–1984, in: J. O'Neil, P. Gilbert (Eds.), *Childbirth in the Canadian North: Epidemiological, Clinical, Cultural Perspectives* Winnipeg, Northern Health Research Unit, University of Manitoba, Manitoba, 1990, pp. 13–15.
- [67] R. Olson, Bearing witness: rural indigenous women's experiences of childbirth in an urban hospital, in: H. Tait Neufeld, J. Cidro (Eds.), *Indigenous Experiences of Pregnancy and Birth*, Demeter Press, Bradford, Ontario, 2017, pp. 91–110.
- [68] P. Lessard, D. Kinloch, Northern obstetrics: a 5-year review of delivery among Inuit women, *CMAJ* 137 (11) (1987) 1017–1021.
- [69] NAHO, Me'tis Maternal and Child Health: a Discussion Paper Available from: National Aboriginal Health Organization, Ottawa, Ontario, 2011. <https://www.deslibris.ca/ID/230146>.
- [70] J. Stonier, The Innulitsivik Maternity. *Childbirth in the Canadian North: Epidemiological, Clinical, Cultural Perspectives*, Northern Health Research Unit, Winnipeg, Manitoba, 1990, pp. 61–74.
- [71] M. Chamberlain, R. Nair, C. Nimrod, A. Moyer, J. England, Evaluation of a midwifery birthing center in the Canadian north, *Int. J. Circumpolar Health* 57 (Suppl 1) (1998) 116–120.
- [72] D. Be'langer, J. Gagne', F.O. Meyer, Evaluation of Perinatal Care and Services, Hudson Bay and Ungava Bay: Epidemiological Phase: Pregnancies and Births in Two Inuit Populations of Northern Que'bec, Dept. of Community Health, Centre hospitalier de l'Universite' Laval, Que'bec, Canada, 1991.
- [73] F. Bouchard, Having a baby in northern Quebec. Lessons for the future, *Arctic Med. Res.* 47 (Suppl 1) (1988) 495–497.
- [74] A. Roy, Intergenerational trauma and Aboriginal women: implications for mental health during pregnancy, *First Peoples Child Fam. Rev.* 9 (1) (2014) 7–21.
- [75] A. Bombay, K. Matheson, H. Anisman, The intergenerational effects of Indian Residential Schools: implications for the concept of historical trauma, *Transcult. Psychiatry* 51 (3) (2014) 320–338.
- [76] M. Bennett, C. Blackstock, R. De La Ronde, C. First Nations, Family Caring Society of C, Centre of Excellence for Child W. A Literature Review and Annotated Bibliography on Aspects of Aboriginal Child Welfare in Canada, First Nations Child & Family Caring Society of Canada, Ottawa, Ontario, 2005.

POST PRINT: Silver, H., Sarmiento, I., Budgell, R., Cockcroft, A., Vang, Z. & Andersson, N. (2022). Childbirth evacuation among rural and remote Indigenous communities in Canada: A scoping review. *Women and Birth*, 35 (1), 11–22. DOI: 10.1016/j.wombi.2021.03.003.



- [77] V. Smith-Oka, Bodies of risk: constructing motherhood in a Mexican public hospital, *Soc. Sci. Med.* 75 (12) (2012) 2275–2282, doi:<http://dx.doi.org/10.1016/j.socscimed.2012.08.029>.
- [78] L.B. Simpson, *As We Have Always Done: Indigenous Freedom Through Radical Resistance* Available from:, University of Minnesota Press, Minneapolis, 2017. <https://www.jstor.org/stable/10.5749/j.ctt1pwt77c>.
- [79] E.J. Mulder, P.G. Robles de Medina, A.C. Huizink, B.R. Van den Bergh, J.K. Buitelaar, G.H. Visser, Prenatal maternal stress: effects on pregnancy and the (unborn) child, *Early Hum. Dev.* 70 (1–2) (2002) 3–14.
- [80] S.H. Goodman, M.H. Rouse, A.M. Connell, M.R. Broth, C.M. Hall, D. Heyward, Maternal depression and child psychopathology: a meta-analytic review, *Clin. Child Fam. Psychol. Rev.* 14 (1) (2011) 1–27.
- [81] A. Dion, L. Joseph, V. Jimenez, et al., Grounding evidence in experience to support people-centered health services, *Int. J. Public Health* 64 (5) (2019) 797–802, doi:<http://dx.doi.org/10.1007/s00038-018-1180-9>.