PREGNANCY *beyond* 40 years

A clinical backgrounder for midwives

Background

The average age of birthing parents is rising in Canada: in 2022-2023, approximately 28% of Ontario midwifery clients were age 35 years and older, and 5% were 40 years and older. With this population, concerns exist regarding the higher risk of stillbirth at term. As a result, induction has become routinely offered at 39 to 40 weeks. This updated document is intended to help midwives assess and interpret the growing body of evidence regarding the management of birthing people 40 years and older within the Ontario context. As well, it aims to support midwives in providing informed choice and high-quality care.

What complications are associated with childbearing over age 40?

Birthing parents 40 years and older are more likely to have comorbid conditions, such as hypertension, gestational diabetes, pre-eclampsia and/or placental complications. (1–3) They also experience higher rates of such interventions as induction, caesarean section, and assisted delivery. (1,2,4,5) The risks of these conditions are higher in racialized clients, along with corresponding interventions; and although many researchers incorrectly attribute inequities to biological differences, there is increasing recognition that racism and discrimination constitute root causes of harm. (4–7)

Implementation Tip

This updated document includes evidence related to birthing parents > 35 years as well as > 40 years, although evidence for those > 40 years is prioritized. It focuses on the risk of stillbirth and associated management considerations for term pregnancy. It does not discuss the use of assisted reproductive technologies in this population, nor the risk of chromosomal difference, nor the use of prenatal genetic testing.

Unlike a clinical practice guideline (CPG), this document does not offer recommendations for care. Instead, it is designed as a reference to help midwives incorporate clinical research into informed choice discussions with clients, as appropriate. This document considers available research from a midwifery perspective, interpreting the evidence to support birth, pregnancy and the postpartum as normal physiological processes.

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What is the risk of stillbirth associated with childbearing over age 40?

In 2006 and 2008, two US studies were published that significantly influenced the management of pregnant people 40 years and older, due to the increased risk of stillbirth they reported. The first study, by Reddy et al., analyzed more than five million singleton pregnancies and reported that the risk of stillbirth increases with age. (8) Pregnant people 40 years and older had an almost twofold higher risk of stillbirth, RR 1.88 (95% CI 1.64-2.16), compared with those under 35 years. The role of parity was explored, and the authors found that at 40 years and older the risk of stillbirth was 2.63 times greater for a nulliparous person compared with a multiparous person. However, nulliparous people in all age groups had a greater risk of stillbirth than multiparous people.

Table 1: Absolute risk of stillbirth by birthing parent age and parity (8)

Approximate risk of stillbirth at any point between 37 and 41 weeks of pregnancy		
	Age	Approximate risk
During a first pregnancy	< 35 years	4 in 1000
	35-39 years	6.5 in 1000
	> 40 years	9 in 1000
During a second, third, fourth (or later) pregnancy	< 35 years	1 in 1000
	35-39 years	2 in 1000
	> 40 years	3 in 1000

The results suggested that the risk of stillbirth also increases with gestational age, although the absolute risk of stillbirth remained low across age groups.

Table 2: Absolute risk of stillbirth by gestational age (8)

Absolute risk of stillbirth per 1000 pregnancies			
Gestational age	< 35 years	35-39 years	> 40 years
37-38 weeks	0.61	0.82	1.12
39-40 weeks	0.98	1.36	1.99
41 weeks	0.75	1.29	2.48

The second study, by Bahtiyar et al., also reported a higher rate of stillbirth for individuals 40 to 44 years old (2.6 per 1000) compared with those aged 25 to 29 years (0.86 per 1000). (9) When examining rates according to gestational age, the authors concluded that the risk of stillbirth at 39 weeks' gestation for individuals 40 to 44 years old was similar to that of stillbirth at 42 weeks for those 25 to 29 years old (8 to 9 per 1000). (13) They argued that if the small but increased risk of stillbirth for pregnancies at 41 weeks and beyond justifies increased antenatal testing and intervention (14–16), then testing and/or intervention ought to be considered at the same risk threshold for those aged 40 to 44 years, which is 39 weeks. (13) In reviewing these two studies, the Society of Obstetricians and Gynecologists of Canada (SOGC), in its 2017 guidelines, wrote that individuals ≥ 40 years of age be considered "biologically 'post-term'" at 39 weeks' gestation. (10)

Newer, population-based research reinforces the above findings. (11,12) A 2010 Norwegian study of two million pregnant people to examine the risk of stillbirth over a 43-year period found that the risk for those 40 years and older doubles between 38 and 39 weeks and triples in weeks 40 to 41, compared with those aged 20 to 24 years. (12) This trend was also reported in two additional US studies (2013 and 2017), where risk of stillbirth appears to double at 39 or 40 weeks and triple at 41 weeks for those 40 years and older. (13,14)

Table 3: Risk of stillbirth by gestational age, 1967-2010 (12)

Birthing parent age groups			
Gestational age	20-24 years	35-39 years	> 40 years
38-39 weeks	1.2 per 1000	1.5 per 1000	2.9 per 1000
40-41 weeks	1.6 per 1000	2.6 per 1000	4 per 1000

Interpreting the research evidence in the Ontario context

Data from BORN echoes findings in the research literature: an apparent increased risk of stillbirth for clients 40 years and older, although absolute risks of stillbirth in Ontario are low. The rate of stillbirth (at all gestational ages, in low- and high-risk populations) from 2012-2024 was eight in 1000 for those 40 years

and older, compared with four in 1000 for clients 34 years and younger. For midwifery clients, the rates were slightly lower: five in 1000 for clients 40 years and older and three in 1000 for clients 35 to 39 years and 34 years and younger. (15)

KEY POINTS

- Studies report that risk of stillbirth for ≥ 40 years is higher compared with younger cohorts, though absolute risks of stillbirth remain low for all (< 10 in 1000).
- In those ≥ 40 years, risk of stillbirth increases with gestational age, doubling at 38 to 39 weeks and tripling at 40 to 41 weeks, compared with younger cohorts.
- Risks of stillbirth are higher for nulliparous people, which is true for all age groups.
- Stillbirth rates in Ontario are higher for clients ≥ 40 years compared with younger cohorts, although absolute risks are low (eight vs. four in 1000) and lower still for midwifery clients (five vs. three in 1000).

What is the impact of induction for clients over 40 years of age?

To reduce the risk of stillbirth, two management approaches are used: induction at term and antenatal monitoring. Induction has been widely adopted and has become standard in many communities, despite a lack of robust evidence to demonstrate that it reduces stillbirth rates for pregnant people in this age group. For example, the American College of Obstetricians and Gynecologists (2022) makes the argument for induction at 39 to 40 weeks for clients over 35 years, and the Royal College of Obstetricians and Gynaecologists (2013) argues for induction of labour for clients over 40 years, despite acknowledging the limited evidence to inform these statements. (16,17) Examining this research can help midwives understand, contextualize and discuss options with their clients.

Research evidence: Impacts of induction for clients 40 years and older

One national cohort study from the UK (n = 77 327), published in 2017, examined the effects of induction vs. expectant management between 39 and 41 weeks' gestation on stillbirth rates in nulliparous people 35 years and older. (18) The study suggests that induction may reduce rates of stillbirth, although absolute rates were low, regardless of whether birthing parents underwent induction or were expectantly managed (<3 in 1000 for all groups). This study only examined stillbirth rates for nulliparous birthing parents greater than 35 years; therefore, the results only apply to nulliparous clients.

Table 4: Induction vs. expectant management for nulliparous pregnant people ≥ 35 years old (Knight 2018)

Gestational age	Induction	Expectant management*
	Stillbirth rates per 1000	
39 weeks	0.5 per 1000	1.8 per 1000
40 weeks	0.5 per 1000	2.2 per 1000
41 weeks	0.4 per 1000	2.4 per 1000

**delivery beyond week of induction*

In addition to the limited effects of induction on stillbirth rates, there are possible harms associated with routine inductions for birthing parents 40 years and older. Inductions may be associated with increased risk of infection and increased risk of PPH, and they may affect chest/breastfeeding success. (19–21) While a 2020 systematic review (n = 81 178) found no increased risk of caesarean section for pregnant people 35 years and older with term pregnancies who were induced at 39 weeks compared with those who were expectantly managed, OR 0.97 (95% CI 0.79–1.19) (22), a number of retrospective cohort studies in nulliparous people undergoing induction at term (37-41 weeks) have shown that being 35 years and older is associated with increased risk of caesarean section. (23–25) Furthermore, one large study that examined outcomes in five Nordic countries between 2000-2011 found that multiparous pregnant people 35 years and older and 40 years and older had a greater risk of caesarean section than nulliparous pregnant people who underwent induction. (26) It is not uncommon to see differing results between randomized controlled trials and cohort studies. The latter often reflect real world context, whereas RCTs take place in regulated trial environments that can influence results.

Interpreting the evidence in the Ontario context

BORN data shows that induction rates for pregnant people in Ontario have risen 10% over the past 10 years, from 22.9% in 2012-2013 to 32.4% in 2023/2024. For clients 40 years and older, the rate of induction has risen even more steeply, from 24.1% in 2012/2013 to 36.9% in 2023/2024, an increase of 12.8%. (27)

Given the rise in inductions, we would hope to see a decrease in the rate of stillbirths among pregnant people over 40 years. However, BORN data shows that stillbirth rates have remained consistent over the past 10 years.

Caesarean rates over the same time period have also remained relatively stable for this client population, despite the increases in inductions (caesarean section rate 25-28% between 2012-2024). Furthermore, the BORN data shows that the rate of caesarean section following induction, at 22%, is similar for all birthing parents regardless of age. This suggests that the increase in inductions has not resulted in an increase in caesarean section. (27)

Figure 1: Induction rates by age in Ontario 2012-2024, all populations

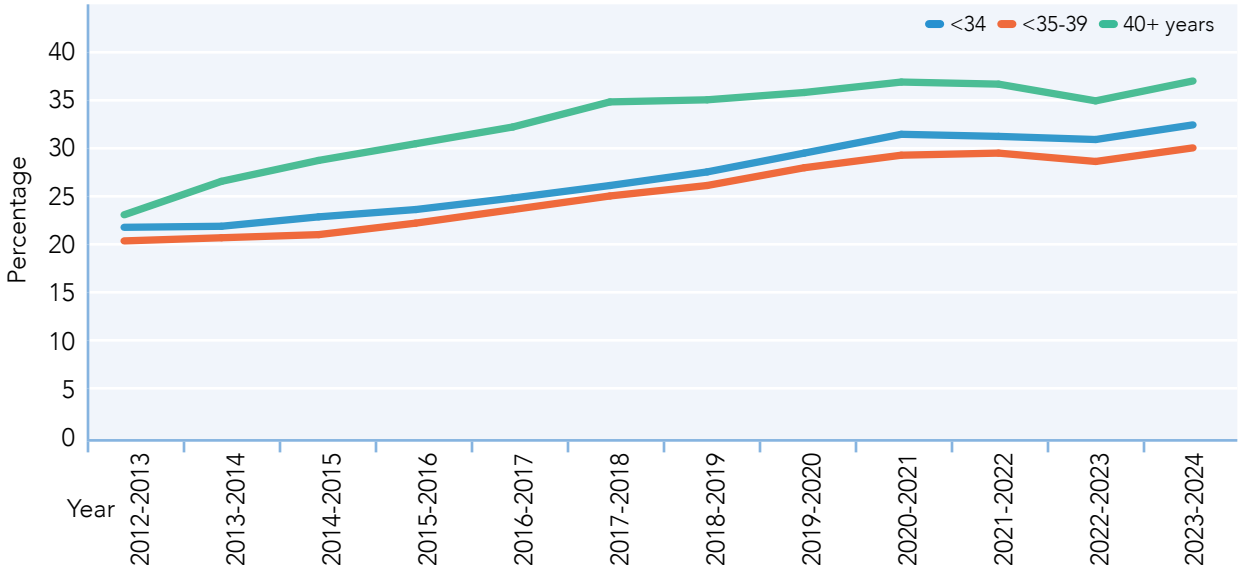


Figure 2: Stillbirth rates in Ontario 2012-2024, all populations

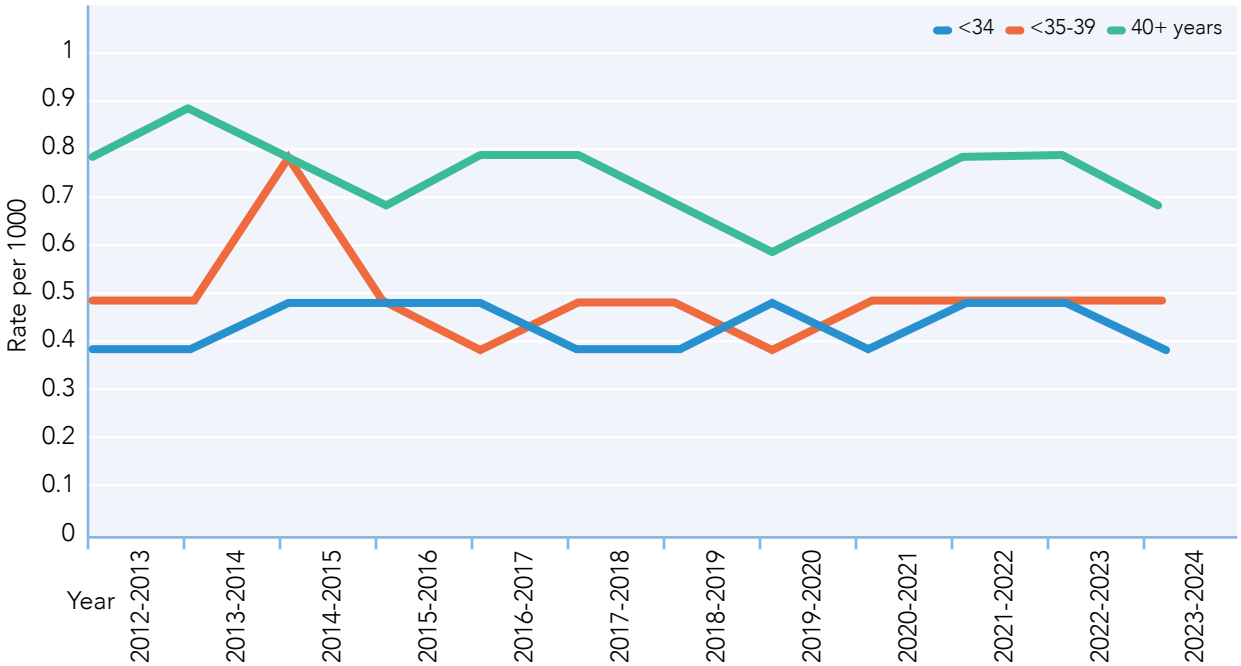
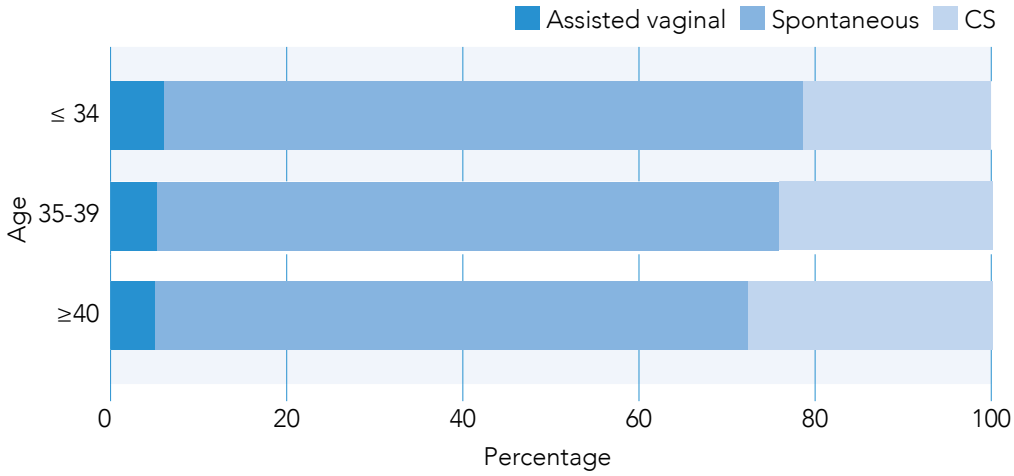


Figure 3: Ontario midwifery clients' type of birth by age in 2022



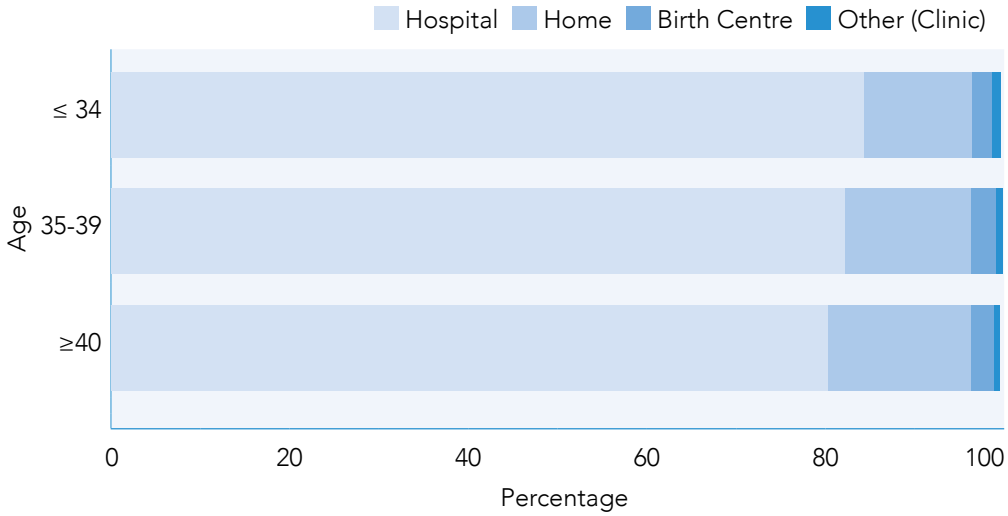
What are the implications for widespread adoption of induction of labour?

Widespread adoption of induction is of growing concern in Ontario, as it reflects the increased medicalization of childbirth, the devaluation of physiological birth and changing perspectives on risk. For midwifery clients over 40 years, widespread adoption of induction disrupts their choice of birthplace, as inductions are typically only offered in hospital settings, and disrupts continuity of carer, as some midwives are limited in their ability to perform inductions.

This is of particular importance, as Ontario midwifery clients 40 years and older have a higher percentage of out-of-hospital births than other age groups (Figure 5). Multiple factors may contribute to this finding, including that those 40 years and older who are multiparous generally choose out of hospital birth more often than nulliparas, as well as the desire to avoid unnecessary interventions in hospital settings. This trend speaks to the ongoing value midwifery clients place on choice of birthplace.

Given that stillbirth rates in Ontario are generally very low, particularly for midwifery clients, midwives are well positioned to support clients in less interventive ways of promoting spontaneous labour, such as membrane sweeping. Clients also benefit from continuous support in labour and continuity of carer as means to keep their risk of caesarean section low.

Figure 4: Ontario midwifery clients' place of birth by age, 2017-2023



KEY POINTS

- One UK population study (2017) shows that induction of labour at 39 weeks for people > 40 years suggests that induction may reduce stillbirth rates in nulliparous people > 35 years of age, though absolute risks of stillbirth across groups are low.
- Systematic review evidence suggests that induction makes little to no difference in caesarean section rates, while retrospective cohort studies suggest that induction may result in increased rates of caesarean section for people > 40 years.
- Other risks of induction may include infection, PPH and disrupting the chest/breastfeeding relationship.
- In Ontario, inductions have increased for people > 40 years, but this has not resulted in a reduction in stillbirth rates or a significant change in caesarean section rates.
- Widespread adoption of induction has the potential to disrupt choice for clients.

Is antenatal monitoring a reasonable alternative to induction?

Antenatal monitoring, including cardiotocography and sonography, may be reasonable tools to avoid early-term induction for those 40 years and older. Unfortunately, research on optimal timing, frequency and effectiveness in low-risk populations is limited.

Research evidence: Antenatal monitoring

One small US study looked at outcomes for individuals who received antenatal monitoring. One study examined outcomes for individudals 35 years and older who received a protocol of biophysical profiles (BPP) from 36 weeks' gestation, until induction at 41 weeks, and found that these individuals had no increased risk of stillbirth compared with younger cohorts. (28) Antenatal monitoring appears to offer benefits for pregnancies in these studies as it helps to avoid an induction until term gestation is reached.

Interpreting the research evidence in the Ontario context: antenatal monitoring

The SOGC guidance suggests that individuals ≥ 40 years be considered "biologically 'post-term' at 39 weeks' gestation, and fetal monitoring (twice-weekly fetal assessment) be initiated at 38 weeks in this age group." (10)

Despite limited evidence, antenatal monitoring is standard practice for clients 40 years and older who choose expectant management over induction. Standard practice in Ontario for clients who choose expectant management may vary, but it typically includes ultrasound q 2-3 days, daily fetal movement counting and/or non-stress test. In rural and remove settings, this may not be feasible.

KEY POINTS

- Limited evidence shows that antenatal monitoring may help avoid induction until term is reached.
- SOGC guidance suggests initiation of fetal monitoring at 38 weeks for clients ≥ 40 years.
- Antenatal monitoring is standard practice for clients over 40 years of age who choose expectant management over induction.

Conclusion

Research evidence continues to demonstrate an increased risk of stillbirth for pregnant people 40 years and older, affected by both parity and gestational age. Studies that provide guidance on the most effective strategies to manage this risk – induction or antenatal monitoring – are limited. BORN data suggests that risks of stillbirth in Ontario are low, and that an increase in induction has not resulted in a similar decline in stillbirth rates. Midwives can discuss the limits of the research evidence, in combination with the broader Ontario data that considers clients' community context, risk tolerance, individual preferences and values.

KEY POINTS

- Studies report that the risk of stillbirth for those ≥ 40 years is higher compared with younger cohorts, though absolute risks of stillbirth remain low for all (< 10 in 1000).
- In those ≥ 40 years, risk of stillbirth (all parity) increases with gestational age, doubling at 38 to 39 weeks and tripling at 40 to 41 weeks, compared with younger cohorts.
- Risks of stillbirth are higher for nulliparous people (eight in 1000 vs. four in 1000), which is true in all age groups.
- Stillbirth rates in Ontario are higher for clients ≥ 40 years and over compared with younger cohorts, although absolute risks are low (eight vs. four in 1000) and lower still for midwifery clients (five vs. three in 1000).
- One UK study suggests that induction may reduce stillbirth rates in nulliparous people ≥ 35 years , though absolute risks of stillbirth across groups are low.
- Systematic review evidence suggests that induction makes little to no difference in caesarean section rates, while retrospective cohort studies suggest that induction may result in increased rates of caesarean section for people ≥ 40 years.
- Other risks of induction may include infection, PPH and disrupting the chest/breastfeeding relationship.
- In Ontario, inductions have increased for people over 40, but this has not resulted in a reduction in stillbirth rates or a significant change in caesarean section rates.
- Widespread adoption of induction has the potential to disrupt choice for clients.
- Limited evidence shows that antenatal monitoring may help avoid induction until term is reached.
- SOGC guidance suggests initiation of fetal monitoring at 38 weeks for clients over 40 years of age.
- Antenatal monitoring is standard practice for clients 40 years of age and older who choose expectant management over induction.

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