CLINICAL PRACTICE GUIDELINE 10

Management of the Uncomplicated Pregnancy beyond 41+0 weeks' gestation

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The AOM is committed, through our statement on Gender Inclusivity and Human Rights, to reflect and include trans, genderqueer and intersex communities in all aspects of our work.

In this document, there are references to sources that use gendered language to refer to populations of pregnant and birthing parents. To accurately represent these sources, the AOM may have maintained gendered language.

The AOM supports research and knowledge translation that engages and reflects the entire childbearing population.

This guideline was approved by the AOM Board of Directors: February 17, 2010

An updated version of this guideline was approved by the AOM Board of Directors: DATE

This document replaces AOM Clinical Practice Guideline No. 10: Management of the Uncomplicated Pregnancy Beyond 41+0 Weeks' Gestation. February 2011.

About this CPG

This guideline reflects information consistent with the best evidence available as of the date issued and is subject to change. The information in this guideline is not intended to dictate a course of action, but to inform clinical decision-making. Local standards may cause practices to diverge from the suggestions within this guideline. If practice groups develop protocols that depart from a guideline, it is advisable to document the rationale for the departure.

Midwives recognize that client expectations, preferences and interests are an essential component in clinical decision-making. Clients may choose a course of action that differs from the recommendations in this guideline, within the context of informed choice. When clients choose a course of action that diverges from a clinical practice guideline and/or practice group protocol, this should be well documented in their charts.

AIM OF THE GUIDELINE

Statement of purpose

The goal of this document is to provide an evidence-based clinical practice guideline (CPG) on uncomplicated pregnancy at and beyond 41+0 weeks' gestation that is consistent with the midwifery philosophy and model of care. Midwives in Ontario are encouraged to use this CPG as a tool in clinical decision-making.

Objectives

The objective of this CPG is to provide a critical review of the research literature on uncomplicated pregnancy at and beyond 41+0 weeks' gestation, as well as to provide recommendations regarding prevention and management, within the context of midwifery care in Ontario. Evidence relating to the following will be discussed:

- Methods of pregnancy dating
- Interventions for reducing the rate of pregnancy beyond 41 weeks
- Management options for pregnancy beyond 41 weeks

Literature search

A search of MEDLINE and the Cochrane Library from 1994 to 2009 was conducted using a defined search strategy. In 2018, this search was rerun in Medline, CINAHL and Cochrane, from 2009 to 2019, and updated again in 2020. Reference lists of relevant systematic reviews and key papers were also reviewed. When synthesizing evidence, systematic reviews were prioritized; if no systematic reviews were found, randomized controlled trials and observational studies were retrieved.

Outcomes of interest

The following outcomes were rated as either "critical" or "important," following the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) process for each research question addressed in the guideline. Birthing parent outcomes included rate of caesarean section, instrumental delivery, morbidity and satisfaction with care; neonatal outcomes included perinatal mortality and perinatal morbidity.

Methods

This CPG uses the GRADE methodology for guideline development. The GRADE process determines the certainty of the evidence (how certain we should be of the results) as well as the strength of the recommendation. Certainty of evidence in this CPG is rated from very low to high, according to five GRADE domains: risk of bias, inconsistency, indirectness, imprecision and publication bias. Methodological concerns about the included studies, variability across results, applicability of the evidence to our context, precision of the results and completeness of the evidence base are considered as part of these domains. The CPG Committee's judgments about the certainty of evidence reflect the work group's confidence that available evidence correctly reflects the true effect of an intervention and is sufficient to support decision-making.

Results from low certainty of evidence are described using language such as "may"; results from moderate certainty of evidence are described using language such as "probably" or "likely"; and results from high certainty of evidence are described without using these qualifiers.

When randomized controlled trial (RCT) evidence was available, it was assessed using GRADE methodology. In instances where RCT evidence was not available, observational studies were assessed using GRADE.

CERTAINTY OF EVIDENCE	How certain we ought to be about an estimate of effect or association
High	Further research is very unlikely to change confidence in the estimate of effect. • This evidence provides a very good basis for decision-making.
Moderate	Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate. • This evidence provides a good basis for decision-making.
Low	Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate. • This evidence provides some basis for decision-making.
Very low	Any estimate of effect is very uncertain. • This evidence does not provide much of a basis for decision-making.
Based on: (1–3)	

Recommendations in this CPG are based on formal ratings of the certainty of evidence and are described as either strong or weak according to the GRADE approach. The strength of recommendation reflects the extent to which the CPG Committee is confident that the benefits of a recommended intervention outweigh its harms or vice versa. The strength of recommendation is influenced by the certainty of supporting evidence, the balance between desirable and undesirable effects and the perceived variability or uncertainty in clients' values and preferences with respect to the intervention. (1–5) It is for these reasons that weak recommendations use the terminology "may" and strong recommendations use the terminology "should" within this CPG.

Good practice statements in this CPG represent guidance that the CPG Committee deemed important but that were not appropriate for formal ratings of certainty of evidence. Good practice statements are made when the CPG Committee is confident that the action has net benefit to the client and that sensible alternatives do not exist. (6)

Complete GRADE evidence tables used to summarize research and inform the recommendations in this guideline are available on the AOM website. A full description of the AOM's approach to clinical practice guideline development using GRADE is also available on the AOM website.

Types of statements in this CPG

- **Recommendations:** Action statements about the intervention based on the certainty of the evidence, clinical considerations, preferences and values.
- **No recommendation:** The CPG Committee has deemed that there is insufficient evidence available to make a recommendation about the intervention.
- **Good practice statements:** Statements whereby the net benefit of the intervention is large and unequivocal and the CPG Committee has considered it useful to provide guidance to clinicians in this area. The evidence for good practice statements is typically difficult to collect and summarize, and therefore no formal rating of the certainty of evidence is undertaken.
- **Summary statements:** The CPG Committee has deemed a recommendation unnecessary according to standards of care.

STRENGTH OF RECOMMENDATION	The extent to which the CPG Committee is confident that the benefits of the recommended intervention outweigh its harms (or vice versa)
Strong	Benefits clearly outweigh risks and burdens (or vice versa). *Can be interpreted as:* • Most clients should be offered the intervention, assuming that they have been informed about and understand its benefits, harms and burdens. • Most clients would want the recommended course of action and only a small proportion would not.
Weak	Benefits, risks and burdens are closely balanced. *Can be interpreted as:* • The majority of clients would want the suggested course of action, but an appreciable proportion would not. • Values and preferences vary widely.
Based on: (1–4)	

Updating the CPG

In 2021, this CPG was partially updated to include more recent literature published from 2010 to 2020. Based on consultation with the AOM's Clinical Practice Guideline Committee and a preliminary review of emerging research, all sections of the guideline were selected for updating. Changes have been made to the current edition of this guideline to reflect this new research.

Recommendations and summary statements in updated CPGs will now be marked with one of the following labels: [new 2021], [2021] or [2010]. These labels will appear at the end of recommendations or summary statements. See the table below (Key to Partial Update Labelling for Recommendations and Summary Statements) for an explanation of these labels.

Table 1 in the Appendix provides a detailed list of the updated recommendations and summary statements (i.e., [new 2021] statements) in this guideline, along with an explanation for these changes.

Key to partial update labelling for recommendations and summary statements	
Recommendation or summary statement label	Meaning of label
[new 2021]	New recommendation or summary statement as of 2021 • Indicates that the recommendation or summary statement is new as of 2021. New evidence has prompted a change to or the addition of a recommendation or summary statement. • An explanation of this change is provided in the Appendix.
[2021]	Reaffirmed recommendation or summary statement as of 2021 • Indicates that the recommendation or summary statement is consistent with new evidence as of 2021. New evidence has not prompted a change to the original statement. • Small changes may have been made to the wording of this statement, but they do not affect the meaning.
[2010]	Unchanged recommendation or summary statement from 2010 • Indicates that the recommendation or summary statement has not been updated since 2010. New evidence has not been reviewed. • Small changes may have been made to the wording of this statement, but they do not affect the meaning.

Review

This CPG was reviewed using a modified version of the AGREE instrument, the AOM Values-Based Approach to CPG Development, as well as consensus of the CPG Committee; the Quality, Insurance and Risk Management Committee; and the AOM Board of Directors.

INTRODUCTION

Pregnancy at 41 weeks' gestation is often seen in midwifery practice. It is generally a healthy occurrence associated with good outcomes for clients and infants. However, midwives pay special attention to pregnancies beyond 41 weeks, as they have been associated with increased risks of caesarean section, postpartum hemorrhage, meconium stained amniotic fluid (MSAF), meconium aspiration syndrome (MAS), shoulder dystocia and stillbirth.

Important aspects of midwifery management of postdates include:

- Determining an accurate estimated date of birth (EDB) to eliminate the potential for unnecessary intervention for clients.
- Offering clients options to promote spontaneous labour before 41 weeks' gestation to prevent pregnancy beyond 41+0 weeks.
- Discussing if and when to offer induction of labour (IOL) for clients with postdates pregnancies.
- Establishing a plan with clients for optimal timing and frequency of fetal monitoring for clients with postdates pregnancies.

Midwives providing care for pregnancy at 41+0 weeks' gestation aim to avoid unnecessary intervention while facilitating the best possible outcomes for clients and their infants. Discussing and implementing a plan for management of pregnancy at 41+ weeks is part of the informed choice process.

Definitions

According to the internationally recommended definitions endorsed by the World Health Organization (WHO) and the International Federation of Gynecology and Obstetrics (FIGO), "postterm" pregnancy is defined as lasting 42+0 weeks (≥ 294 days) or more. (7)

"Postdates" pregnancy is defined as lasting 40+0 weeks plus one or more days (i.e., anytime past the estimated date of birth), and "prolonged" pregnancy is any pregnancy after 42+0 weeks (synonymous with "postterm").

Considerable confusion arises, as "postterm," "postdates" and "prolonged" tend to be used interchangeably in research literature and textbooks, as well as by health-care providers. Where possible, the gestational age upon which research studies based their results will be specified in this CPG. However, due to inconsistencies in the way data was collected, gathered or reported, this level of accuracy in reporting outcomes according to gestational age is not always possible. Using specific language when communicating with other health-care providers as well as helping clients to understand these terms will improve clarity when communicating management plans for postdates pregnancies.

Incidence of postdates pregnancies

Over the past 20 years, there has been a significant shift in gestational age at birth. In 2000, 46.5% of births in Canada occurred between 37 and 39 weeks, 44.8% occurred between 40 and

41 weeks, and 1.1% occurred at 42 weeks or more. In 2018, 58% of births in Canada occurred between 37 and 39 weeks, 34% occurred between 40 and 41 weeks, and 0.3% occurred at 42 weeks or more. (8) This trend, showing an increase in births at 37 to 39 weeks and a decrease in births at 40 or more weeks, has occurred in Ontario as well. In 2000, 46.4% of births occurred at 37 to 39 weeks, 45.2% occurred at 40 to 41 weeks, and 1.0% occurred at 42 or more weeks. By 2018-2019, 63.4% of births occurred at 37 to 39 weeks, 36.2% occurred during the 40th and 41st weeks, and 0.4% occurred at 42 weeks or more. (9) The percentage of births occurring beyond 40 weeks has significantly declined.

When examining trends in Ontario, it is clear that more infants are born at or beyond 40 weeks to midwifery clients compared with non-midwifery clients. In 2018-2019 for Ontario midwifery clients, 49% of term births occurred between 37 and 39 weeks, 31.2% during the 40th week, 18.4% during the 41st week and 1.3% at 42 weeks or more. (9) For non-midwifery clients, these numbers were 66.9%, 23.4%, 9.6% and 0.2%, respectively.

It is difficult to determine the true prevalence of pregnancies that progress beyond 41 weeks, because inaccurate pregnancy dating tends to overestimate the incidence, and induction of labour reduces the number of pregnancies that progress beyond 41 weeks.

Contributing factors

A number of factors have been linked to the incidence of pregnancy beyond 41 weeks, including: previous postterm pregnancy, parental or sibling history of postterm pregnancy, male fetal sex, higher body mass index (BMI), advanced maternal age, lower parity and depression/anxiety (see Table 1).

TABLE 1: Contributing factors to pregnancies ≥ 41 weeks

Contributing factor	Pregnancy ≥ 41 weeks	Pregnancy ≥ 42 weeks
BMI (27.5 kg/m²–47.5 kg/m²)	OR 1.13-1.75 (10)	OR 1.19-1.95 (10)
Previous postterm pregnancy	–	OR 1.8-4.2 (11,12) RR 1.3 (13)
Previous postterm pregnancy (same partner for both pregnancies)	AOR 3.2 (14)	AOR 4.4 (14)
Previous postterm pregnancy (different partner with subsequent pregnancy)	AOR 2.5 (14)	AOR 3.4 (14)
Family history	Birthing person born postterm: RR 1.29 (15) Partner born postterm: RR 1.14 (15) Both parents born postterm: RR 1.43 (15)	Birthing person born postterm: RR 1.3-1.49 (15,16) Partner born postterm: RR 1.23 (15) Both parents born postterm: RR 1.76 (15)

	Sister with history of postterm pregnancy: AOR 1.5 (14)	Sister with history of postterm pregnancy: AOR 1.8 (14)
Maternal age	> 30 years: OR 1.63 (14)	> 35 years: OR 1.67 (17)
Lower parity	–	OR 1.65 (17)
Male fetal sex	OR 1.14-1.17 (14,18)	OR 1.29-1.41 (14,18,19)
Depression and/or anxiety during index pregnancy	RR 4.08 (20)	–

OR: odds ratio; AOR: adjusted odds ratio; RR: risk ratio

Birthing parent complications

A 2014 international comparison study of 17 high-income countries showed higher rates of caesarean section (CS), ranging from 18.1% to 37.9% in pregnancies ≥ 42 weeks compared with 11.2% to 28% in term pregnancies (39+0-41+6 weeks). This analysis demonstrates an association between postterm pregnancies and CS, rather than demonstrating causation; simply being aware that an individual is past their due date may cause health-care providers to intervene more readily (due to labelling). Current evidence from Israel also suggests that there may be an increased risk of uterine rupture, postpartum hemorrhage and hysterectomy for postterm pregnancies (21); however, these outcomes are rare, and the absolute risk continues to be low for postterm pregnancies. (21–24)

One study from the Netherlands (n = 371 021) compared the risk of uterine rupture ≥ 42 weeks to the overall absolute risk of uterine rupture in all pregnancies. This study found an absolute risk of 1.24 per 1000 in births ≥ 42 weeks, compared with 0.59 per 1000 births. (23)

Perinatal complications

Evidence suggests that as gestational age increases past 40 weeks, the risk of meconium aspiration syndrome (MAS), meconium stained amniotic fluid (MSAF) and macrosomia increases. (There is conflicting evidence about the risk of shoulder dystocia in postterm deliveries (OR 0.84-1.39). (Two of the three studies identified found an increased risk of shoulder dystocia for postterm births, however, they did not adjust for confounders. (21,25) The third study (n = 2 014 956) found no association between postterm deliveries and shoulder dystocia; this study adjusted for multiple confounders such as birth weight, induction of labour, instrumental delivery, parity and maternal age. (26)

TABLE 2: Perinatal complications associated with postterm pregnancies

Complication	Country	Total sample size	Absolute risk (per 1000 births) 37/38-41.6 weeks	Absolute risk (per 1000 births) > 42 weeks

Meconium aspiration syndrome	Norway (27) and Finland (28)	n = 1 156 995	1.5-5.1	4.7-4.8
Meconium stained amniotic fluid	Israel (25)	n = 202 462	112-197	264
Shoulder dystocia	Israel (21,25) and Netherlands (26)	n = 2 295 775	1.5-7	2.6-9.65
Macrosomia	Israel (21)	n = 226 918	47	114.7

A 2019 systematic review that included five cohort studies (n = 2 359 848), found stillbirth rates of 0.5, 0.8 and 1.3 per 1000 low-risk pregnancies in between 40+0 to 40+6 weeks, 41+0 to 41+6 weeks and 42+0 to 42+6 weeks, respectively. (29) The same systematic review found that combined neonatal mortality rates from five studies (n = 2 197 643) suggest that rates rise with gestational age, with rates per 1000 deliveries of 0.3, 0.31 and 0.63 in the between 40+0 to 40+6 weeks, 41+0 to 41+6 weeks and 42+0 to 42+6 weeks; the risk of neonatal death rises between 41 and 42 weeks (RR 1.87, 95% CI 1.07-2.86, p = 0.012). There is some conflicting evidence from Finland (n = 1 138 109) that suggests a reduced risk of stillbirth in postterm compared with full-term pregnancies (RR 0.67, 95% CI 0.46-0.98). The study authors suggest that this finding might be linked to Finland's high quality monitoring of postterm pregnancies. For pregnancies > 41 weeks, stillbirths occur more frequently intrapartum than antepartum compared with term pregnancies (19.3% of all stillbirths and neonatal deaths for those > 41 weeks, compared with 7.2% for those 37+0 to 40+6 weeks). (29) The study authors have suggested this may be due to higher rates of fetal and intrapartum asphyxia in pregnancies > 41 weeks or due to weight and size or postterm infants, increasing the risk of injury due to prolonged labour, cephalopelvic disproportion or shoulder dystocia. (21,30)

TABLE 3: Absolute risk of stillbirth and neonatal death by gestational age (weeks)

Complication	Studies	Number of events	Number of pregnancies	Absolute risk (per 1000 births)
Stillbirth				
38+0-6	12	3516	8 032 865	0.4
39+0-6	12	3620	6 784 040	0.5
40+0-6	12	3426	4 687 330	0.7
41+0-6	12	2407	2 273 471	1.1
42+0-6	12	1335	700 610	1.9
≥ 43	6	276	82 039	3.3

Stillbirth (low-risk population only*)				
38+0-6	5	1520	4 689 811	0.3
39+0-6	5	1511	3 763 774	0.4
40+0-6	5	1266	2 359 848	0.5
41+0-6	5	821	1 009 544	0.8
42+0-6	5	307	243 823	1.3
≥ 43	2	13	3 212	4.0
Neonatal mortality**				
38+0-6	5	428	1 210 730	0.4
39+0-6	5	560	2 029 277	0.3
40+0-6	5	669	2 197 643	0.3
41+0-6	5	347	1 127 117	0.3
42+0-6	4	44	70 322	0.6
≥ 43	4	4	6 370	0.6

*Low-risk pregnancies were defined as those "in which a healthy woman with apparently uncomplicated pregnancy enters labour with a low risk of developing intrapartum complications."(29)
** Any newborn death before 28 days of age was classed as a neonatal death. (29)

WHAT ARE EFFECTIVE WAYS TO DETERMINE GESTATIONAL AGE?

Determining gestational age

Determining the length of gestation and an accurate estimated date of birth (EDB) can have "profound personal, social, and medical implications." (31) Accurate pregnancy dating reduces the risk of a pregnancy being misclassified as postdates, which in turn can reduce the risk of unnecessary intervention. Research examining methods of establishing EDB have studied differences in the accuracy of menstrual dating and ultrasound dating.

Pregnancy dating using last menstrual period (LMP) estimates gestational age based on length of pregnancy. The duration of human gestation, as calculated from the first day of the last menstrual period, is often quoted as 280 days or 40+0 weeks. This method assumes a 28-day cycle, with a 14-day interval between menstruation and ovulation. However, research shows that cycle length, follicular phase and luteal phase vary across individuals, and some studies suggest that counting 281 or 282 days may be more accurate. (32–36) Inaccurate recall of the date on which the last menstrual cycle began also complicates the accuracy of this method. (37) Accuracy improves if EDB is calculated using date of ovulation, implantation or conception, although these dates are not known by all clients, and are more commonly noted with use of assisted reproductive technologies. When calculating EDB, an electronic gestational age calculator (via an electronic medical record or a mobile device application) is preferable to paper gestational age wheels, which are prone to error. (38,39)

Unlike menstrual dating, ultrasound (US) for pregnancy dating is based on the premise that there is very little variation in the growth rate of the fetus, particularly in early pregnancy.

Ascertaining the size of the fetus by ultrasound is thought to be equivalent to knowing the gestational age, with a margin of error of 8%. (40) The assumption that growth is consistent for all fetuses has been challenged, particularly when considering size differences related to fetal sex, as well as cases of early growth restriction, small-for-gestational-age and large-for-gestational-age fetuses. (41) Depending on when the ultrasound takes place (first, second or third trimester), different ultrasound parameters (crown-rump length, biparietal diameter, head circumference, abdominal circumference), or a combination of these parameters, may provide optimal estimates.

Pregnancy dating using ultrasound vs. last menstrual period

When comparing ultrasound and menstrual dating, which provides a more accurate estimate of gestational age, and how does this impact postterm pregnancies?

A 2015 Cochrane review investigated the use of routine ultrasound at < 24 weeks vs. selective ultrasound at < 24 weeks, and reported on the rate of induction for postterm pregnancies, rather than simply the rate of postterm pregnancies. (42) The rate of induction for postterm pregnancies was used as a proxy outcome. The meta-analysis included moderate certainty of evidence from eight RCTs; it found that routine ultrasound < 24 weeks' gestation likely reduces the risk of postdates inductions (RR 0.59, 95% CI 0.42-0.83, p = 0.003) compared with selective use of ultrasound < 24 weeks. Observational studies support these findings, suggesting that fewer pregnancies are classified as postdates when early ultrasound is used for pregnancy dating compared with LMP alone. (37,43–50) EDBs by LMP were 0.2 to 2.5 days later than US estimates (44,45,51), with the majority (65.1%-80.8%) falling within seven days (±) of the US estimate of gestational age. (47,50)

Optimal timing of ultrasound

At what point is an ultrasound estimate of gestational age most accurate?

There were no RCTs that directly reported on optimal timing of ultrasound for gestational age estimation (nor for the number of pregnancies going beyond 41 weeks, when gestational age was estimated at different time points). However, moderate certainty of evidence from one RCT (n = 196) was identified that reported on a proxy outcome: change in the rate of postterm inductions. Results from this study show that a first-trimester ultrasound likely reduces the rate of postterm inductions compared with a second-trimester ultrasound (RR 0.37, 95% CI 0.13-1.01, p = 0.05). (52) This could result in approximately 82 fewer postterm inductions per 1000 clients (ranging from 113 fewer to one more).

Observational studies support this finding, showing an increase in postterm pregnancies when later ultrasounds (> 24 weeks, 21-28 weeks or ≥29 weeks) are used for gestational dating. (55,(53) A study by Pereira et al. describes an increase in pregnancies ≥ 42 weeks with later ultrasounds (a rate of 1.3% with US at seven to 20 weeks, 2.6% in US at 21 to 28 weeks, and 3.5% in US at 29+ weeks). Another observational study suggests that with later US, the absolute difference between estimated and actual date of delivery increases, concluding that US performs best before 20 weeks (median difference between estimated and actual date of delivery of six days,

95% CI 0-19). (53) When comparing LMP to US at seven to 20 weeks, 21 to 28 weeks and 29+ weeks, US at 21 to 28 weeks and 29+ weeks tended to overestimate postterm pregnancies, but not by as much as LMP alone.

Recommendation

1. Midwives should offer clients an ultrasound before 24 weeks, optimally in the first trimester, to obtain the most accurate estimate of gestational age. Review the following as part of an informed choice discussion with clients:

   - Ultrasound dating will not prevent a pregnancy from progressing beyond its due date, but it decreases the chance that the pregnancy will be inaccurately classified as postdates.
   - First-trimester ultrasound provides the most accurate estimate of gestational age.
   - For clients who are late to care, an ultrasound estimate of gestational age during the second or third trimester may still be more accurate than an estimate of gestational age determined by LMP alone. [2021]

   Strong recommendation; moderate certainty of evidence

   This recommendation recognizes that an accurate estimate of gestational age allows for optimal decision-making on managing a postdates pregnancy, and it may reduce the need for unnecessary intervention.

Good Practice Statement

2. For clients who choose not to have an ultrasound, take the most accurate menstrual history possible to obtain a more precise estimate of pregnancy length. Corroborate or reassess estimated dates based on physical assessments. Review the following with clients:

   - First day of last menstrual period
   - Average cycle length
   - Ovulation date, implantation date or conception date, if known [2021]

   Good practice statement

   This good practice statement recognizes the client as the primary decision-maker and acknowledges that some clients may prefer not to have an ultrasound.

WHICH INTERVENTIONS PREVENT POSTDATES PREGNANCIES?

Promoting spontaneous labour

Various methods are used later in pregnancy to avoid a pregnancy progressing past 41 weeks and the potential subsequent need for induction, including: sweeping the membranes,

acupuncture, acupressure, evening primrose oil and other homeopathic remedies. These methods are believed to support the natural changes at the end of pregnancy, rather than to initiate labour. Some of the methods discussed may be self-administered, while others require the aid of a health-care practitioner.

There are many reasons why a birthing parent may prefer to hasten the onset of labour with alternatives to induction. Westfall and Benoit conducted a qualitative study to explore views on prolonged pregnancy in 27 participants in British Columbia. Nine out of 10 participants whose pregnancies lasted beyond 40 weeks' gestation reported using self-administered proactive measures to hasten labour, and none requested medical induction. Participants who progressed beyond 40 weeks described the influence of family, friends or medical professionals; logistical concerns around timing of birth; and the feeling of being "done" with pregnancy as reasons for choosing proactive measures. (54) Westfall and Benoit concluded that home remedies to hasten labour enabled study participants to "guide their own care rather than follow their caregiver's order," and were seen as a way of exercising agency and retaining control over the childbearing experience.

Membrane sweeping

How effective is membrane sweeping (sometimes referred to as a "stretch and sweep") when used to promote spontaneous labour?

Between 2014 and 2019, on average 3.7% of midwifery clients elected to have had membrane sweeping, compared with 0.8% of non-midwifery clients. (55) We conducted six meta-analyses (including 17 RCTs) to determine the effectiveness of membrane sweeping on time to spontaneous labour, rates of spontaneous labour, incidence of pregnancies > 41 and > 42 weeks, gestational age at birth, prelabour rupture of membranes and chorioamnionitis. Data on bleeding related to membrane sweeping could not be pooled. Meta-analyses show membrane sweeping:

- Probably results in a slight reduction in **time to spontaneous onset of labour** (MD –0.97 days, 95% CI –1.47 to –0.46, p = 0.01) [five RCTs: *moderate certainty of evidence*] (56–60)
- Probably increases **rates of spontaneous labour** (RR 1.18, 95% CI 1.04-1.34, p = 0.01) [nine RCTs; *moderate certainty of evidence*] (59,61–68)
- Reduces the **number of pregnancies that go beyond 41 weeks** (RR 0.53, 95% CI 0.40-0.69, p < 0.00001) [four RCTs; *high certainty of evidence*] (61,64,66,69)
- Probably slightly increases the risk of **prelabour rupture of membranes** (RR 1.21, 95% CI 0.96-1.51, p = 0.10) [11 RCTs; *moderate certainty of evidence*] (56,57,61–65,67,69–71)
- Probably increases the risk of **chorioamnionitis** (RR 1.49, 95% CI 0.74-3.00, p = 0.27) [five RCTs; *moderate certainty of evidence*] (57,59,64,69,71)
- May result in **bleeding:** Four studies reported no significant bleeding, no complications related to bleeding or no bleeding requiring hospital admission; one study reported one case of significant bleeding warranting observation, and three studies reported slight or mild bleeding or spotting. (56,58,61,63,65,67,69,71,72)

TABLE 4: Outcomes of membrane sweeping

Outcomes	Membrane sweeping	Findings
Time to spontaneous onset of labour	Probably slightly reduces rates	MD –0.97 days, 95% CI –1.47 to –0.46, p = 0.01
Rate of spontaneous labour	Probably increases rates	RR 1.18, 95% CI 1.04-1.34, p = 0.01
Pregnancies ≥ 41 weeks	Reduces rates	RR 0.53, 95% CI 0.40-0.69, p < 0.00001
Prelabour rupture of membranes	Probably slightly increases rates	RR 1.21, 95% CI 0.96-1.51, p = 0.10
Chorioamnionitis	Probably increases rates	RR 1.49, 95% CI 0.74-3.00, p = 0.27
Bleeding	May result in bleeding	

Research Gap

Researchers have yet to identify the optimal timing for membrane sweeping between 38 and 41 weeks to promote spontaneous labour. Further research is required to understand the optimal timing of membrane sweeping to promote spontaneous labour.

Recommendation

3. Midwives should discuss the risks and benefits of membrane sweeping and offer it between 38 and 41 weeks' gestation to promote the spontaneous onset of labour and reduce the risk of pregnancy progressing beyond 41 weeks. [2021]

   Strong recommendation; moderate certainty of evidence
   This recommendation recognizes midwives' commitment to physiologic birth and low-intervention approaches to promote spontaneous labour.

Acupuncture

As a natural means of promoting spontaneous labour, acupuncture involves the insertion of sterile needles into various points on the body to soften the cervix and induce uterine contractions. Two RCTs and one observational study compared acupuncture with usual care to promote spontaneous labour in participants < 41 weeks' gestation. (73–75) Results show that acupuncture:

- May result in slightly lower **mean gestational age at delivery** (mean difference [MD] –2.00 days, 95% CI
  –2.56 to –1.44, p < 0.00001) [one observational study; *low certainty of evidence*] (73)
- Probably makes little to no difference in **time to birth (**MD 0.43 days, 95% CI –1.85-1.00, p = 0.56) [two RCTs; *moderate certainty of evidence*] (74,75)

- Probably makes little to no difference in **rates of spontaneous labour** (RR 0.91, 95% CI 0.65-1.27, p = 0.57) [one RCT; *moderate certainty of evidence*] (75), although observational data suggests that it may increase rates of spontaneous labour (RR 1.42, 95% CI 1.21-1.66, p < 0.0001). (73)

No harms from acupuncture were noted.

Acupressure

Acupressure involves the application of manual pressure to points on the body as a natural method to initiate labour. Two RCTs were identified that compared the use of acupressure vs. usual care to promote spontaneous labour in participants < 41 weeks' gestation. (76,77) Results show that acupressure:

- Likely makes little to no difference in **gestational age at birth** (MD 0.2 days, 95% CI –0.97-1.37, p = 0.74) [one RCT; *moderate certainty of evidence*] (76)
- Likely makes little to no difference in **time to birth** (MD 10.72 hours, 95% CI –14.89-36.33, p = 0.41) [one RCT; *moderate certainty of evidence*] (77)
- Likely makes little to no difference in **rates of spontaneous labour** (RR 1.22, 95% CI 0.64-2.35, p = 0.55) [one RCT; *moderate certainty of evidence*] (76)

No harms from acupressure were noted.

Evening primrose oil

Evening primrose oil is also used as a natural method of cervical ripening, as the plant's omega-6 essential fatty acids may affect the synthesis of prostaglandins and cytokines. (78) One RCT and one observational study were identified that compared the use of oral evening primrose oil to a placebo or no treatment in participants < 41 weeks' gestation. (78,79) Results show that oral evening primrose oil:

- Likely makes little to no difference in **time to birth** (MD –0.06, 95% CI –0.71-0.59, p = 0.86) [one RCT; *moderate certainty of evidence*] (78)
- Likely makes little to no difference in **Bishop score** (MD –0.75, 95% CI –1.66-0.16, p = 0.10) [one RCT; *moderate certainty of evidence*] (78)
- Likely has no cases of **side effects** [one RCT; *moderate certainty of evidence*] (78)

However, data from one observational study finds that evening primrose oil may make a statistically significant improvement on Bishop score in nulliparous clients (p = 0.001). (80) One observational study also shows that evening primrose oil makes little to no difference in **gestational age at birth.** (79) No harms from using evening primrose oil were noted.

Homeopathy

One systematic review was identified that reported on the effects of homeopathic remedies as a means of labour induction; however, the included studies did not report on outcomes related to the promotion of spontaneous labour in clients under 41 weeks' gestation. (81) There is insufficient evidence on the use of homeopathy for the prevention of postdates pregnancies.

No Recommendation

4. There is insufficient evidence to support the use of acupuncture, acupressure, evening primrose oil or homeopathy for the prevention of postdates pregnancies.

    - Research evidence on these interventions is limited, although no harms have been noted. [2021]

    No recommendation: very low certainty to moderate certainty of evidence

Research Gap

Studies are lacking on the efficacy of acupuncture, acupressure, evening primrose oil or homeopathy for the promotion of spontaneous labour.

WHICH INTERVENTIONS EFFECTIVELY MANAGE POSTDATES PREGNANCIES?

Managing postdates pregnancies

In 2014-2015, 24% of all births in Ontario were induced, compared with 29% of all births in 2018-2019, indicating that inductions are increasing. (55) Among birthing parents who were induced in 2018-2019, 21.5% had a caesarean section compared with 11.7% of those who had spontaneous labour. Postdates was indicated as the primary reason for induction in 85% of inductions during the 41st week and 87% of inductions at ≥ 42 weeks. Inductions where postdates is the primary indication account for 21% of all inductions at or beyond term. (82)

As clients reach and pass their due dates, decisions about whether or not to induce labour in the postdate pregnancy need to be made. Is intervention necessary? Risks associated with induction must be weighed against the risks of prolonged pregnancy. In Ontario, these decisions are being made in a context where commitment to physiologic birth is continually challenged. (83) Community standards where induction of labour in uncomplicated pregnancies is offered and encouraged at 41 weeks or earlier have increasingly become obstacles to the expectant management approach to uncomplicated postdates pregnancy. Furthermore, there has been a growing acceptance of routine induction as early as 39 weeks. Please see the AOM's statement on the ARRIVE trial for more information.

A postdates induction may require a shift in expectations. For some clients, an induction may end feelings of impatience, anxiety or discomfort with waiting for birth, potentially giving them a sense of control over the process. For others, an induction may incite feelings of disappointment, resignation or passivity and reflect the larger medicalization of birth. (84) A 2018 systematic review of qualitative studies on clients' experiences of postterm IOL found that

it required a shift in their expectations; that they considered an IOL decision as a recommendation from health-care professionals; that they experienced it as a non-decision; and finally that they experienced the induction process as a sequential set of steps where they were expected to adapt to existing hospital structure and processes. (84)

Weighing the risks and benefits of induction for postdates management is part of an informed discussion with clients.

Induction during the 41st week vs. expectant management

If a client with a postdates pregnancy opts for an induction, when is the optimal time to induce?

Are outcomes different if clients are induced between 41+0 and 41+6 weeks vs. being expectantly managed until induction during 42+0 to 42+6 weeks? Six RCTs were identified that examined the effects of induction of labour between 41+0 and 41+6 weeks vs. expectant management until 42+0 to 42+6 weeks. (85–90) Meta-analyses show that induction during the 41st week:

- Likely reduces rates of **perinatal death** (RR 0.26, 95% CI 0.08-0.88, p = 0.03) [six RCTs; *moderate certainty of evidence*]; two fewer (from three fewer to zero fewer) perinatal deaths per 1000 (85–90)
- Probably reduces rates of **admission to the NICU** (RR 0.83, 95% CI 0.71-0.97, p = 0.02) [five RCTs; *moderate certainty of evidence*] (85–89)
- Probably reduces rates of **meconium aspiration syndrome** (RR 0.71, 95% CI 0.47-1.07, p = 0.10) [six RCTs; *moderate certainty of evidence*] (85–90)
- Probably reduces rates of **caesarean section** (RR 0.90, 95% CI 0.82-0.99, p = 0.02) [six RCTs; *moderate certainty of evidence*] (85–90)
- May make little to no difference in rates of **operative vaginal birth** (RR 1.02, 95% CI 0.93-1.12, p = 0.63) [four RCTs; *low certainty of evidence]* (85,86,88,89)
- Slightly increases **epidural use** (RR 1.10, 95% CI 0.03-1.17, p = 0.005) [two RCTs; *high certainty of evidence*] (85,86)
- Makes little to no difference to **postpartum hemorrhage** (RR 1.00, 95% CI 0.85-1.18, p = 0.98) [three RCTs; *high certainty of evidence*] (85,86,89)

Data from observational studies on induction during the 41st week vs. expectant management supports these RCT findings, except in the case of caesarean section, where data from four observational studies shows little to no difference in caesarean section rates; and in the case of operative vaginal birth, where data from two observational studies suggests an increased risk of operative vaginal birth. (91–94)

TABLE 6: Outcomes of induction at 41+0 to 41+6 weeks compared with expectant management until 42+6 weeks

Outcome	Induction in 41st week	Findings
Perinatal death	Likely reduces rates	RR 0.26, 95% CI 0.08-0.88, p = 0.03)

Admission to the NICU	Probably reduces rates	RR 0.83, 95% CI 0.71-0.97, p = 0.02
Meconium aspiration syndrome	Probably reduces rates	RR 0.71, 95% CI 0.47-1.07, p = 0.10
Caesarean section	Probably reduces rates	RR 0.90, 95% CI 0.82-0.99, p = 0.02
Operative vaginal birth	May make little to no difference in rates	RR 1.02, 95% CI 0.93-1.12, p = 0.63
Epidural use	Slightly increases rates	RR 1.10 (95% CI 0.03-1.17, p = 0.00
Postpartum haemorrhage	Makes little to no difference	RR 1.00, 95% CI 0.85-1.18, p = 0.98

Induction during the 42nd week vs. expectant management

Are outcomes different if clients are induced between 42+0 and 42+6 weeks vs. being expectantly managed beyond? Five RCTs were identified that examined the effects of induction of labour ≥ 42 weeks vs. expectant management until ≥ 43 weeks. (95–99) Meta-analyses show that induction during the 42nd week:

- Probably reduces rates of **perinatal death** (RR 0.42, 95% CI 0.05-2.80, p = 0.38) [two RCTs; *moderate certainty of evidence*] (95,100)
- May reduce rates of **NICU admission** (RR 0.72, 95% CI 0.16-3.35, p = 0.68) [three RCTs; *low certainty of evidence*] (97,99,100)
- Likely reduces rates of **meconium aspiration syndrome** (RR 0.61, 95% CI 0.18-2.04, p = 0.43) [two RCTs; *moderate certainty of evidence*] (97,98)
- Likely makes little to no difference to **caesarean section rates** (RR 0.97, 95% CI 0.72-1.31, p = 0.84) [five RCTs; *moderate certainty of evidence]* (95–99)
- Likely makes little to no difference to **operative vaginal delivery** (RR 0.94, 95% CI 0.65-1.38, p = 0.76) [three RCTs; *moderate certainty of evidence*] (95,99,100)

Data from observational studies is more conflicting, indicating that there may be an increased risk of perinatal death, caesarean section and operative vaginal delivery with induction between 42+0 to 42+6 weeks vs. expectant management. (101–103)

TABLE 5: Outcomes of induction at 42+0 to 42+6 weeks vs. expectant management

Outcomes	Induction in 42nd week vs. EM	Findings
Perinatal death	Probably reduces rates	RR 0.42, 95% CI 0.05-2.80, p = 0.38
NICU admission	May reduce rates	RR 0.72, 95% CI 0.16-3.35, p = 0.68
Meconium aspiration syndrome	Likely reduces rates	RR 0.61, 95% CI 0.18-2.04, p = 0.43

Caesarean section	Likely makes little to no difference	RR 0.97, 95% CI 0.72-1.31, p = 0.84
Operative vaginal delivery	Likely makes little to no difference	RR 0.94, 95% CI 0.65-1.38, p = 0.76

Recommendation

5. For pregnancies at 41 weeks' gestation, midwives should offer IOL between 41+0 and 42+0 weeks.

    - Prior to 41 weeks, discuss the risks and benefits of IOL between 41 and 42 weeks.
    - Offer clients with uncomplicated postdates pregnancies full support in choices that allow them to maximize their chances of spontaneous labour, including supporting their decision to choose expectant management up to and beyond 41+0 weeks' gestation.
    - For clients who choose expectant management after 42 weeks, discuss that evidence suggests that perinatal morbidity and mortality increase with gestational age, although absolute risks remain low. [2021]

    Strong recommendation: moderate certainty of evidence
    This recommendation recognizes the client as the primary decision-maker, as well as the evidence that induction during the 41st week (41+0 to 41+6) reduces perinatal mortality, although the absolute risks of perinatal death during this time remain low.

Midwifery management of induction of labour

Ontario midwifery scope of practice includes managing induction of labour, provided a midwife has the requisite knowledge, skills, experience and community-based health infrastructure. A recent retrospective cohort study in Ontario examined the outcomes for low-risk, singleton cephalic pregnant people undergoing induction at 41 weeks or more for postdates, based on planned care provider at onset of induction. (104) The results showed no statistically significant difference in the odds of caesarean section (OR 0.94, 95% CI 0.75-1.71) or neonatal morbidity and mortality (OR 0.73, 95% CI 0.28-1.91) when postdates induction was managed by a midwife, compared with an obstetrician. The odds of other interventions, such as assisted vaginal delivery and episiotomy, were lower for nulliparous clients in midwifery care. Both multiparous and nulliparous clients were less likely to use pharmaceutical pain relief under midwifery management.

Unique aspects of midwifery care have been shown to result in lower rates of intervention during labour. Clients who received midwifery-led continuity models of care were less likely to receive interventions and experienced greater levels of satisfaction compared with other models

of care. (105) Continuous support during labour has also been shown to reduce intervention. (106) Both of these aspects are maintained with midwifery management of postdates induction.

Summary Statement

Midwifery management of postdates induction has excellent outcomes for clients. There is no difference in rates of caesarean section and neonatal morbidity and mortality when compared with obstetrical care, and there are lower rates of assisted vaginal delivery and episiotomy for nulliparous clients. Both multiparous and nulliparous clients are less likely to use pharmaceutical pain relief.

Provided that midwives have the knowledge, skills, experience and community-based health infrastructure to do so, midwifery management of postdates induction is appropriate. [new 2021]

Research Gap

There are currently no studies reporting on impact of birthplace (home, birth centre or hospital) on postdates pregnancies. Further research is required to understand whether any differences exist in outcomes of postdates pregnancies according to birthplace.

Fetal surveillance

For clients who choose expectant management, is there an optimal start time and frequency for fetal surveillance beyond term?

In the meta-analyses on induction vs. expectant management, all but two studies included some form of fetal monitoring for the expectant management groups, confirming that fetal monitoring in pregnancies beyond term is standard practice. (36,86) Fetal monitoring in these studies typically included a non-stress test (NST), a biophysical profile (BPP), daily fetal movement counting and/or amniotic fluid measurements (AFI) at varying intervals (one to three times per week). Across the six RCTs on induction during the 41st week (41+0-41+6) compared with the 42nd week (42+0-42+6), there were 13 perinatal deaths in the expectant management groups, six of which occurred in one study without fetal monitoring. Of the five RCTs comparing induction during the 42nd week to expectant management, two reported on perinatal death. There were three deaths in the expectant management groups in these studies, two of which occurred in the study with no fetal monitoring. There are low rates of perinatal mortality across the expectant management groups with fetal monitoring in RCT evidence.

Unfortunately, there is limited evidence on the optimal starting time and frequency for fetal surveillance beyond term, and there are no studies comparing the efficiencies of different methods. Beyond the RCT evidence, two new observational studies were identified that partially address timing. One retrospective cohort study (*very low certainty of evidence*) with 4094 participants investigated the effect of a routine ultrasound scan at 41 weeks, including

fetometry and AFI measurement, vs. only an indicated scan on the risk of severe adverse fetal outcomes (severe asphyxia, death or cerebral damage) in postdate pregnancies (> 293 days). (107) The study shows reduced rates of neonatal death in postterm pregnancies in birthing parents who received a routine scan at 41 weeks (RR 0.61, 95% CI 0.17-2.26, p = 0.46), although we are uncertain of these findings. Another retrospective cohort study (*very low certainty of evidence*) with 1071 participants looked at outcomes for those who received antenatal monitoring (NST and potentially AFI and BPP) at 40 weeks vs. those who received monitoring at ≥ 41 weeks. (108) The study showed little to no difference in NICU admissions in the groups that received antenatal testing at term vs. ≥ 41 weeks, although we are uncertain of these findings.

Despite limited evidence, it is clear that fetal surveillance for pregnancies that progress beyond term is standard practice. There are low perinatal mortality and morbidity rates in the RCTs where fetal surveillance is used during the 41st and 42nd weeks, and newer (*very low certainty of evidence*) observational evidence further suggests that routine monitoring during the 41st week may have good outcomes. Standard practice in Ontario may vary, but it typically includes:

- US (BPP), q 2-3 days, starting around 41+0 weeks until birth or IOL.
    - If clients choose expectant management beyond 42 weeks, fetal surveillance may include US q 2-3 days, daily fetal movement counting and/or NST. Visit client at least twice a week starting during the 42nd week until labour.
    - If US is not available, consider alternatives, including NST.

Recommendation

6. For those choosing expectant management, offer ultrasound twice weekly, starting between 41 and 42 weeks and continuing until birth to assess fetal well-being.

    - For ultrasound assessments, BPP, AFI or maximum fluid pool depth can be used according to the care provider and community standards.
    - In communities where ultrasound is unavailable, NST may be offered. [2021]

    Strong recommendation: very low certainty
    This recommendation recognizes the limited direct evidence on the optimal method and timing of fetal surveillance. It also recognizes indirect evidence showing that fetal surveillance is effective, as well as community standards of offering ultrasound twice weekly where available.

SUMMARY OF GOOD PRACTICE STATEMENTS & RECOMMENDATIONS

1. Midwives should offer clients an ultrasound before 24 weeks – optimally in the first trimester – to obtain the most accurate estimate of gestational age. Review the following as part of an

informed choice discussion with clients:

- Ultrasound dating will not prevent a pregnancy from progressing beyond its due date, but it decreases the chance that the pregnancy will be inaccurately classified as postdates.
- First-trimester ultrasound provides the most accurate estimate of gestational age.
- For clients who are late to care, an ultrasound estimate of gestational age during the second or third trimester may still be more accurate than an estimate of gestational age determined by LMP alone. [2021]

Strong recommendation; moderate certainty of evidence
This recommendation recognizes that an accurate estimate of gestational age allows for optimal decision-making on managing a postdates pregnancy, and may reduce the need for unnecessary intervention.

2. For clients who choose not to have an ultrasound, take the most accurate menstrual history possible to obtain a more precise estimate of pregnancy length. Corroborate or reassess estimated dates based on physical assessments. Review the following with clients:

   - First day of last menstrual period
   - Average cycle length
   - Ovulation date, implantation date or conception date, if known [2021]

Good practice statement
This good practice statement recognizes the client as the primary decision-maker and acknowledges that some clients may prefer not to have an ultrasound.

3. Midwives should discuss the risks and benefits and offer membrane sweeping between 38 and 41 weeks to promote the spontaneous onset of labour and reduce the risk of pregnancy progressing beyond 41 weeks. [2021]

Strong recommendation; moderate certainty of evidence
This recommendation recognizes midwives' commitment to physiologic birth and low-intervention approaches to promote spontaneous labour.

4. There is insufficient evidence to support the use of acupuncture, acupressure, evening primrose oil or homeopathy for the prevention of postdates pregnancies.

   - Research evidence on these interventions is limited, although no harms have been noted. [2021]

No recommendation: very low certainty to moderate certainty of evidence

5. For pregnancies at 41 weeks' gestation, midwives should offer IOL between 41+0 and 42+0 weeks.

    - Prior to 41 weeks, discuss the risks and benefits of IOL between 41 and 42 weeks.
    - Offer clients with uncomplicated postdates pregnancies full support in choices that enable them to maximize their chances of spontaneous labour, including supporting their decision to choose expectant management up to and beyond 41+0 weeks' gestation.
    - For birthing parents who choose expectant management after 42 weeks, discuss that evidence suggests that perinatal morbidity and mortality increase with gestational age, although absolute risks remain low. [2021]

Strong recommendation: moderate certainty of evidence
This recommendation recognizes the client as the primary decision-maker, as well as the evidence that induction during the 41st week (41+0-41+6) reduces perinatal mortality, although the absolute risks of perinatal death during this time remain low.

6. For birthing parents who choose expectant management, offer ultrasound twice weekly, starting between 41 and 42 weeks and continuing until birth to assess fetal well-being.

    - For ultrasound assessments, BPP, AFI or maximum fluid pool depth can be used according to the care provider and community standards.
    - In communities where ultrasound is unavailable, NST may be offered. [2021]

Strong recommendation: very low certainty of evidence
This recommendation recognizes the limited direct evidence on the optimal method and timing of fetal surveillance. It also recognizes indirect evidence showing that fetal surveillance is effective; as well as community standards of offering ultrasound twice weekly where available.

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