

# Adolescent Pregnancy Guidelines

This Clinical Practice Guideline has been prepared by the Canadian Paediatric and Adolescent Gynaecology and Obstetricians (CANPAGO) committee, reviewed by the Family Physician Advisory, Aboriginal Health Initiative, Maternal Fetal Medicine, and the Clinical Practice—Obstetrics Committees, and approved by the Executive and Board of the Society of Obstetricians and Gynaecologists of Canada.

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**Key Words:** Pregnancy, adolescent, teen, teenager, youth

## Abstract

**Objective:** To describe the needs and evidence-based practice specific to care of the pregnant adolescent in Canada, including special populations.

**Outcomes:** Healthy pregnancies for adolescent women in Canada, with culturally sensitive and age-appropriate care to ensure the best possible outcomes for these young women and their infants and young families, and to reduce repeat pregnancy rates.

**Evidence:** Published literature was retrieved through searches of PubMed and The Cochrane Library on May 23, 2012 using appropriate controlled vocabulary (e.g., Pregnancy in Adolescence) and key words (e.g., pregnancy, teen, youth). Results were restricted to systematic reviews, randomized control trials/controlled clinical trials, and observational studies. Results were limited to English or French language materials published in or after 1990. Searches were updated on a regular basis and incorporated in the guideline to July 6, 2013. Grey (unpublished) literature was identified through searching the websites of health technology assessment and health technology-related agencies, national and international medical specialty societies, and clinical practice guideline collections.

**Values:** The quality of evidence in this document was rated using the criteria described in the Report of the Canadian Task Force on Preventive Health Care (Table 1).

**Benefits/Harms/Costs:** These guidelines are designed to help practitioners caring for adolescent women during pregnancy in Canada and allow them to take the best care of these young women in a manner appropriate for their age, cultural backgrounds, and risk profiles.

## Recommendations

1. Health care providers should adapt their prenatal care for adolescents and offer multidisciplinary care that is easily accessible to the adolescent early in the pregnancy, recognizing that adolescents often present to care later than their adult counterparts. A model that provides an opportunity to address all of these needs at one site may be the preferred model of care for pregnant adolescents. (II-1A)
2. Health care providers should be sensitive to the unique developmental needs of adolescents through all stages of pregnancy and during intrapartum and postpartum care. (III-B)
3. Adolescents have high-risk pregnancies and should be managed accordingly within programs that have the capacity to manage their care. The unique physical risks of adolescent pregnancy should be recognized and the care provided must address these. (II-1A)

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**Table 1. Key to evidence statements and grading of recommendations, using the ranking of the Canadian Task Force on Preventive Health Care**

Quality of evidence assessment*	Classification of recommendations†
I: Evidence obtained from at least one properly randomized controlled trial	A. There is good evidence to recommend the clinical preventive action
II-1: Evidence from well-designed controlled trials without randomization	B. There is fair evidence to recommend the clinical preventive action
II-2: Evidence from well-designed cohort (prospective or retrospective) or case-control studies, preferably from more than one centre or research group	C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making
II-3: Evidence obtained from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be included in this category	D. There is fair evidence to recommend against the clinical preventive action
III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees	E. There is good evidence to recommend against the clinical preventive action
	L. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making

\*The quality of evidence reported in these guidelines has been adapted from The Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.<sup>119</sup>

†Recommendations included in these guidelines have been adapted from the Classification of Recommendations criteria described in the Canadian Task Force on Preventive Health Care.<sup>119</sup>

4. Fathers and partners should be included as much as possible in pregnancy care and prenatal/infant care education. (II-B)
5. A first-trimester ultrasound is recommended not only for the usual reasons for properly dating the pregnancy, but also for assessing the increased risks of preterm birth. (I-A)
6. Counselling about all available pregnancy outcome options (abortion, adoption, and parenting) should be provided to any adolescent with a confirmed intrauterine gestation. (III-A)
7. Testing for sexually transmitted infections (STI) (II-2A) and bacterial vaginosis (III-B) should be performed routinely upon presentation for pregnancy care and again in the third trimester; STI testing should also be performed postpartum and when needed symptomatically.
  - a. Because pregnant adolescents are inherently at increased risk for preterm labour, preterm birth, and preterm pre-labour rupture of membranes, screening and management of bacterial vaginosis is recommended. (III-B)
  - b. After treatment for a positive test, a test of cure is needed 3 to 4 weeks after completion of treatment. Refer partner for screening and treatment. Take the opportunity to discuss condom use. (III-A)
8. Routine and repeated screening for alcohol use, substance abuse, and violence in pregnancy is recommended because of their increased rates in this population. (II-2A)
9. Routine and repeated screening for and treatment of mood disorders in pregnancy is recommended because of their increased rates in this population. The Edinburgh Postnatal Depression Scale administered in each trimester and postpartum, and more frequently if deemed necessary, is one option for such screening. (II-2A)
10. Pregnant adolescents should have a nutritional assessment, vitamins and food supplementation if needed, and access to a strategy to reduce anemia and low birth weight and to optimize weight gain in pregnancy. (II-2A)
11. Conflicting evidence supports and refutes differences in gestational hypertension in the adolescent population; therefore, the care usual for adult populations is supported for pregnant adolescents at this time. (II-2A)
12. Practitioners should consult gestational diabetes mellitus (GDM) guidelines. In theory, testing all patients is appropriate, although rates of GDM are generally lower in adolescent populations. Practitioners should be aware, however, that certain ethnic groups including Aboriginal populations are at high risk of GDM. (II-2A)
13. An ultrasound anatomical assessment at 16 to 20 weeks is recommended because of increased rates of congenital anomalies in this population. (II-2A)
14. As in other populations at risk of intrauterine growth restriction (IUGR) and low birth weight, an ultrasound to assess fetal well-being and estimated fetal weight at 32 to 34 weeks gestational age is suggested to screen for IUGR. (III-A)
15. Visits in the second or third trimester should be more frequent to address the increased risk of preterm labour and preterm birth and to assess fetal well-being. All caregivers should be aware of the signs and symptoms of preterm labour and should educate their patients to recognize them. (III-A)
16. It should be recognized that adolescents have improved vaginal delivery rates and a concomitantly lower Caesarean section rate than their adult counterparts. (II-2A) As with antenatal care, peripartum care in hospital should be multidisciplinary, involving social care, support for breastfeeding and lactation, and the involvement of children's aid services when warranted. (III-B)
17. Postpartum care should include a focus on contraceptive methods, especially long-acting reversible contraception methods, as a means to decrease the high rates of repeat pregnancy in this population; discussion of contraception should begin before delivery. (III-A)
18. Breastfeeding should be recommended and sufficient support given to this population at high risk for discontinuation. (II-2A)
19. Postpartum care programs should be available to support adolescent parents and their children, to improve the mothers' knowledge of parenting, to increase breastfeeding rates, to screen for and manage postpartum depression, to increase birth intervals, and to decrease repeated unintended pregnancy rates. (III-B)

20. Adolescent women in rural, remote, northern, and Aboriginal communities should be supported to give birth as close to home as possible. (II-2A)
21. Adolescent pregnant women who need to be evacuated from a remote community should be able to have a family member or other person accompany them to provide support and encouragement. (II-2A)
22. Culturally safe prenatal care including emotional, educational, and clinical support to assist adolescent parents in leading healthier lives should be available, especially in northern and Aboriginal communities. (II-3A)
23. Cultural beliefs around miscarriage and pregnancy issues, and special considerations in the handling of fetal remains, placental tissue, and the umbilical cord, must be respected. (III)

## INTRODUCTION

Adolescence is a distinct and unique physical and developmental stage in a woman's life. Consequently, the diagnosis and management of pregnancy during this time, before the age of 20, deserves acknowledgement of its distinctive inherent risks and an understanding of the relevant elements of care required for successful outcomes for the mother, the infant, and their surrounding social circle. The SOGC represents a wide variety of practitioners and disciplines involved in maternity care and is therefore well placed to present guidelines on the care of the pregnant adolescent, of which multidisciplinary care is a key feature.

Adolescent pregnancy is a subject relevant to practices in Canada and around the world, and it bears mentioning that not all adolescent pregnancies are unplanned or unwanted. Annually, 14 million 14- to 19-year-olds deliver babies globally. Births to adolescent mothers represent 10% of

births worldwide, but 23% of maternal morbidity and mortality.<sup>1</sup> Adolescent pregnancy is the leading cause of mortality in girls aged 15 to 19 worldwide; 90% of these deaths occur in resource-poor countries and most of them are preventable.<sup>1,2</sup> Adolescent pregnancy is also a cause for concern worldwide because of high rates of unsafe abortion and poor knowledge-seeking behaviours, prenatal care, and support.<sup>1</sup>

In Canada, the fertility rate for adolescents aged 15 to 19 in 2009 was 14.2 births per 1000 women; 15 638 babies were born to women under 20 that year, up slightly from the all-time low reached in 2005 (13.4), though still significantly lower than the rates seen in the 1980s.<sup>3</sup> Across the country, adolescent pregnancy rates are highest in Nunavut and the Northwest Territories and lowest in Prince Edward Island and Ontario. Between 1996 and 2006, adolescent birth rates in Canada decreased in a continuous downward trend from 22.1/1000 to 13.7/1000 and abortion rates decreased from 22.1/1000 to 14.2/1000. The birth rate is higher in older adolescents (23.3, age 18–19) than in younger (6.5, age 15–17). In Canada, younger adolescents are more likely to have an induced abortion than to give birth, whereas the majority of pregnancies among older adolescents end in a live birth. In 2010, abortion was the most common outcome of adolescent pregnancies in Canada.<sup>4</sup>

Worldwide, poverty and lower educational attainment are risk factors for adolescent pregnancy.<sup>1</sup> Once pregnant, an adolescent becomes more likely than her non-pregnant peers to have lower educational attainment, to drop out of school, and to have lower socioeconomic status and lower social capital. Children of an adolescent parent are similarly more likely than their peers to have lower educational achievement, grow up in a single-mother household, be involved in alcohol and drugs, and to become a single adolescent parent themselves.<sup>5–7</sup>

Adolescent pregnancies worldwide are noted to have higher maternal, obstetrical, and neonatal risks, with those in women aged  $\leq 15$  having risks noted to be even higher than those in adolescents aged  $\geq 16$ . Adolescent pregnancies should therefore be managed as high risk in programs that can accommodate their unique risks and concerns.<sup>8–10</sup>

## Consent and Confidentiality in Caring for Adolescent Patients in Canada

In caring for pregnant adolescents, their ability to consent within their relationship should be considered, as should the possible need to report the relationship to child protection authorities if it violates or violated the law. In Canada, by law, the general age of consent for sexual activity is 16, with

## ABBREVIATIONS

aRR	adjusted relative risk
BV	bacterial vaginosis
CS	Caesarean section
DMPA	depot medroxyprogesterone acetate
GA	gestational age
GDM	gestational diabetes mellitus
IPV	intimate partner violence
IUD	intrauterine device
IUGR	intrauterine growth restriction
LARC	long-acting reversible contraception
LBW	low birth weight
NICU	neonatal intensive care unit
PPROM	preterm pre-labour rupture of membranes
PTB	preterm birth
PTL	preterm labour
SGA	small for gestational age
STI	sexually transmitted infection
SVD	spontaneous vaginal delivery

age-related exceptions for adolescents aged 12 to 16 with partners ranging from up to 2 years older to 5 years older depending on their own age. For exploitive sexual activity, the age of consent is 18. See Appendix A for a detailed outline of consent for different ages and the definition of exploitive sex.<sup>11</sup>

Respecting the autonomy and confidentiality of the adolescent patient may at times be complicated by the care setting and the surrounding environment. Issues of confidentiality are likely to arise with care of very young adolescents, care in a small community, and care of other family members in the clinic and potentially even within team care. Child protection agencies, although not actively involved and part of the circle of care until after the birth of the baby in cases of newborn apprehension, may be able to provide support for counselling, parenting, and financial assistance.

When considering options for pregnant adolescents in our country, it is important to remember that there is no specific age of consent for medical treatment in Canada. As long as individuals are deemed to have the capacity to provide consent (i.e. to understand the nature of the procedure as well as its risks and alternatives), they do not need to have reached a particular age in order to provide consent. (By law in Quebec, however, parents have the right to access the medical records of children under the age of 14).<sup>12</sup>

## ANTEPARTUM CARE

### Prenatal Care and Multidisciplinary Care Programs

Unfortunately, adolescents have a significantly lower attendance of prenatal classes (aRR 0.87, 95% CI 0.85 to 0.91) and first-trimester antenatal visits (aRR 0.53, 95% CI 0.51 to 0.55) than adult women.<sup>6,13,14</sup> Reasons for delay in seeking care are multifactorial: lack of knowledge about the importance of prenatal care and lack of understanding of the consequences of its absence; history as a victim of violence, desire to hide pregnancy, fear of potential apprehension of the baby, contemplation of abortion services; concerns about lack of privacy or judgemental attitudes from health care providers or adults; and financial barriers.<sup>14</sup> Lack of, or delayed, adolescent prenatal care is associated with adverse maternal, obstetrical, and neonatal outcomes.<sup>9,13,15–17</sup>

Standard prenatal care improves outcomes in adolescent pregnancy<sup>18–21</sup>; adequate prenatal care has been shown to be protective against fetal and infant mortality in this population.<sup>9</sup> However, studies suggest that standard care misses psychosocial vulnerabilities, STI screening,<sup>22</sup> and

postpartum issues such as breastfeeding, contraception, and school return.<sup>23</sup>

Multidisciplinary adolescent-focused prenatal care leads to better outcomes than standard prenatal care in adolescents,<sup>8,10,24</sup> including reductions in PTB,<sup>8,10</sup> LBW,<sup>10,25</sup> and NICU admissions,<sup>26</sup> increased SVD,<sup>10,26</sup> and reduction in operative delivery.<sup>8,10</sup> Major cost savings related to infant and paediatric health could be realized by preventing preterm births.

Adolescent-centred multidisciplinary comprehensive care with a goal to improving outcomes for mothers and their infants is considered the gold standard for management of the myriad problems that present in an adolescent pregnancy (Appendix B).<sup>8</sup> Elements of care are aimed at reducing adverse maternal and neonatal outcomes. Teaching strategies and topics are important considerations when providing health information for pregnant adolescents. The adolescent should have easy access to care based on a philosophy of providing care in a welcoming environment with multidisciplinary teams to meet the many health care needs of the adolescent. It is also important to encourage early enrollment into prenatal care and participation in community support programs.<sup>8</sup>

Two cohort studies demonstrated a significant reduction in PTB and LBW when adolescents attended specialized multidisciplinary antenatal care. An Australian cohort showed that screening for and treating STIs resulted in a significant reduction in PTB in a general antenatal clinic (OR 0.4; 95% CI 0.25 to 0.62),<sup>27</sup> and the Canadian cohort demonstrated that dedicated multidisciplinary care provided in an adolescent-friendly community outreach program led to a 53% reduction in PTB (OR 0.47, 95% CI 0.22 to 1.00).<sup>10</sup> This Canadian study observed a 59% reduction in LBW babies (95% CI 0.18 to 0.95).<sup>10</sup> It is important to address nutritional requirements and maternal weight gain when caring for pregnant adolescents; useful strategies may include dietary assessments, a comprehensive prenatal nutrition program, and a community food donation program in addition to access to prenatal care.<sup>10</sup> Multidisciplinary adolescent-focused antenatal care therefore has tremendous potential to reduce the significant health care costs associated with PTB and LBW infants.

A number of models of multidisciplinary care have been described that achieve the aforementioned desired objectives. Successful models have been implemented in hospitals, schools, clinics, and community facilities.<sup>10</sup> Multidisciplinary care is usually provided in one place at one time,<sup>10</sup> and further study should continue to evaluate this mode of



care. Where possible “one-stop shopping” and easy visits work best for the adolescent.<sup>10</sup> Home visiting programs by health care professionals and trained lay visitors have also been assessed; though this model may impact a particular outcome, it does not appear to contribute to the overall desired outcomes.<sup>28–31</sup> Helping the pregnant adolescent to navigate the system is an important function for all team members to be aware of and participate in, including being aware of the roles of other team members, the services available, and in particular client-centred issues, to assist patients to access needed services.<sup>32</sup>

Antenatal opportunities to develop parenting skills that continue in the postpartum period are likely to improve birth outcomes, increase maternal school attendance, and reduce rapid repeat pregnancy.<sup>33</sup> Assistance with varied parenting structures to reduce parenting stress and child dysfunction can also be helpful. The family system and the intergenerational dynamics within a multigenerational caregiving structure are critical to the health and well-being of both mothers and their children.<sup>34</sup> Decisions about including families of origin and fathers when appropriate in the parenting process are often complex and require special consideration of their risks and benefits. Many fathers struggle to stay involved in the lives of their children, and prenatal and young family support programs seek to find opportunities to engage young fathers in the programs and ultimately in their children’s lives.<sup>35</sup> Adolescents who participate in such support and education in adolescent-centred care models are more likely to continue their education during the pregnancy and the postpartum year than peers who do not participate in such programs.

## Recommendations

1. Health care professionals should adapt their prenatal care for adolescents and offer multidisciplinary care that is easily accessible to the adolescent early in the pregnancy, recognizing that adolescents often present to care later than their adult counterparts. A model that provides an opportunity to address all of these needs at one site may be the preferred model of care for pregnant adolescents. (II-1A)
2. Health care providers should be sensitive to the unique developmental needs of adolescents through all stages of pregnancy and during intrapartum and postpartum care. (III-B)
3. Adolescents are high-risk pregnancies and should be managed accordingly within programs that have the capacity to manage their care. The unique physical risks of adolescent pregnancy should be recognized and the care provided must address these. (II-1A)

4. Fathers and partners should be included as much as possible in pregnancy care and prenatal/infant care education. (III-B)
5. A first-trimester ultrasound is recommended not only for the usual reasons for properly dating the pregnancy, but also for assessing the increased risks of preterm birth. (III-A)

## Choice in Pregnancy

Upon diagnosis of intrauterine pregnancy, adolescents can and should be counselled, without specific consideration of their age, about their options for continuation with the intent to parent, adoption, or termination. They should be offered support with the participation of the support person(s) of their choice. Canada has no abortion law, and thus abortion remains an option for the patient so long as access permits. Access to abortion, however, varies greatly in different jurisdictions and provinces across the country.<sup>36</sup>

## Recommendation

6. Counselling about all available pregnancy outcome options (abortion, adoption, and parenting) should be provided to any adolescent with a confirmed intrauterine gestation. (III-A)

## Sexually Transmitted Infections

Adolescents are at greater risk for STIs because they frequently have multiple partners, have unprotected intercourse, are biologically more vulnerable to sexually acquired infections and face multiple obstacles to utilization of health care.<sup>37</sup> Pregnant adolescents may be at further risk because they are less likely to use condoms with intercourse during their pregnancy than non-pregnant adolescents.<sup>21,38</sup> In pregnancy, STIs have been associated with preterm delivery, chorioamnionitis, and postpartum infections.<sup>39</sup> Adolescents with an STI have a higher risk of PPROM leading to PTB.<sup>10,27,40</sup> Vertical transmission of chlamydia during vaginal delivery ranges from 30% to 50% and may result in pneumonia and ophthalmia neonatorum.<sup>39</sup> Screening and treatment is associated with a significant decrease in the incidence of newborn febrile morbidity (10% vs. 25%,  $P = 0.02$ ).<sup>41</sup> These infections can also increase the risk of HIV acquisition and transmission.<sup>41</sup> Adolescent women are at heightened risk because of the physiologic immaturity of their cervix and the consequent susceptibility of the tissues to infection.<sup>42</sup>

Prevalence of chlamydia in adolescent pregnancy is high. At initial prenatal visit, infection rates range from 11.8% to 31%.<sup>41,43–47</sup>

The recurrence rate throughout the pregnancy is also high among adolescents. A Canadian retrospective study reported

an infection rate of 22.1% in routine third trimester screening.<sup>44</sup> A prospective cohort of 125 adolescents with chlamydia or gonorrhoea in pregnancy who were retested in third trimester reported a reinfection rate of 11%; 7% had a new infection, while 3% had recurrent gonorrhoea.<sup>45</sup> Repeated testing between 3 and 4 weeks later to ensure treatment success and lack of reinfection is recommended in this population.<sup>48</sup>

BV in pregnancy has also been associated with adverse outcomes including PPRM, PTL, PTB, and postpartum endometritis. There is evidence to support screening and treatment at 12 to 16 weeks in high-risk (those with previous PTL, PTB, or PPRM) or symptomatic pregnancies, although it is not recommended in low-risk or asymptomatic pregnancies.<sup>48</sup> Because of their inherently increased risks of PPRM, PTL, and PTB, adolescent pregnancies are all considered to be high-risk.

### Recommendation

7. Testing for sexually transmitted infection (II-2A) and bacterial vaginosis (III-B) should be performed routinely upon presentation for pregnancy care and again in the third trimester; testing for sexually transmitted infection should also be performed postpartum and when needed symptomatically.
  - a. Because pregnant adolescents are inherently at increased risk for preterm labour, preterm birth, and preterm pre-labour rupture of membranes, they are a high-risk group and therefore screening and management of bacterial vaginosis is recommended. (III-B)
  - b. After treatment for a positive test, a test of cure is needed 3 to 4 weeks after completion of treatment. Refer partner for screening and treatment. Take the opportunity to discuss condom use. (III-A)

### Smoking, Substance Abuse, and Alcohol Abuse

Adolescents who are pregnant have higher rates of smoking (38.8% vs. 11.9%,  $P < 0.001$ ) and substance abuse (11.7% vs. 5.1%,  $P < 0.0001$ ) than their adult counterparts.<sup>13</sup> An Australian retrospective study revealed 20.3% of adolescents used marijuana during pregnancy, of which 33.5% were multidrug users. Of adolescents who were non-users, 50% were previous users who ceased drug use immediately before or early during pregnancy. Illegal drug use was associated with concomitant cigarette and alcohol use.<sup>49</sup> However, pregnancy is a powerful incentive for many adolescents to reduce tobacco, alcohol, and drug use; previous studies have shown cessation rates of up to 60% to 75%.<sup>49</sup> A critical component of the care of this pregnant population should therefore be aimed at reducing the effects of smoking and substance abuse, including

alcohol. For general recommendations concerning alcohol and substance use in pregnancy, see the SOGC Alcohol Use and Pregnancy Consensus Clinical Guidelines<sup>50</sup> and Substance Use in Pregnancy.<sup>51</sup>

### Violence and Coercion

Violence in adolescent pregnancy is unfortunately quite common, with an odds ratio of 1.8 in one study.<sup>52</sup> Violence in pregnancy is associated with late engagement in prenatal care and an increased risk of adverse perinatal outcomes such as LBW, PTB, and fetal death,<sup>53</sup> and postpartum depression.<sup>54,55</sup> Rates of IPV in pregnant adolescents, at 26% to 31%, are higher than in their adult counterparts. Violence often begins in the first trimester and is usually committed by the partner. A history of abuse within the last year is predictive of violence in pregnancy.<sup>56</sup> In addition, 26% of pregnant adolescents known to be victims of IPV also reported sexual coercion from their partner.<sup>57</sup> A history of past physical abuse at any point is strongly associated with adolescent pregnancy.<sup>58</sup> See the SOGC Intimate Partner Violence Consensus Statement<sup>59</sup> for recommendations concerning IPV in pregnancy and Appendix C<sup>60</sup> for a short screening tool for IPV.

Exploring pregnancy intentions and the behaviours of partners of sexually active adolescents may help to identify youth experiencing IPV<sup>57</sup>; questions about all types of abuse should routinely be asked of adolescent patients.<sup>59</sup>

### Recommendation

8. Routine and repeated screening for alcohol use, substance abuse, and violence in pregnancy is recommended because of their increased rates in this population. (II-2A)

### Mood Disorders

Depression is diagnosed in 4% to 8% of adolescents. In pregnancy, the rate varies from 16% to 44%, almost twice as high as among adult pregnant women and non-pregnant adolescents. Depressive symptoms among pregnant adolescents become more severe between the second and third trimesters,<sup>61</sup> and half of adolescent mothers experience symptoms of depression in the early postpartum period.<sup>62</sup> Adolescent mothers are twice as likely to experience depression than adult mothers.<sup>16</sup>

Factors significantly associated with depressive symptoms in pregnancy include antenatal depressive symptoms and IPV.<sup>55,63</sup>

Untreated maternal depression is associated with adverse maternal, neonatal, and childhood outcomes, as well as with postpartum depression<sup>16,61</sup> and increased frequency of subsequent pregnancies. Untreated maternal depression

is also associated with preterm delivery and SGA infants. Finally, untreated depression is associated with unresponsive mothering and behavioural and cognitive problems in children.<sup>64</sup>

The risk of postpartum depression is significant in adolescent mothers. Indeed, 47% of adolescent mothers had significant symptoms of depression at 4 to 6 weeks postpartum, and the depressive symptoms continued at 12 months postpartum.<sup>62</sup> Of particular concern, by 12 months postpartum, none of the adolescent mothers in this study with symptoms of depression had pursued referrals for mental health evaluation and treatment.<sup>62</sup>

It is therefore crucial to promote improved maternal mental health in the adolescent population including early recognition and management of psychiatric disorders and treatment of depression and suicidal ideation and intent.<sup>61,62,64</sup> The Edinburgh Postnatal Depression Scale is one option for routine screening.<sup>65</sup>

#### Recommendation

9. Routine and repeated screening for and treatment of mood disorders in pregnancy is recommended because of their increased rates in this population. The Edinburgh Postnatal Depression Scale administered in each trimester and postpartum, and more frequently if deemed necessary, is one option for such screening. (II-2A)

### Anemia and Nutritional Care

Anemia (hemoglobin < 105 g/L) is a very common complication in pregnant adolescents, with a reported prevalence of from 50% to 66%<sup>27,66</sup> and an increased relative risk of 1.27 (95% CI 1.15 to 1.4),<sup>67</sup> usually attributed to inadequate replacement or nutrition. In addition, a prospective study demonstrated that low body iron stores and low ferritin were significantly more common in pregnant adolescents than in pregnant adults.<sup>68</sup> Smoking status was an important risk factor for LBW and anemia.<sup>69</sup> Care for the pregnant adolescent should therefore incorporate nutritional care to both optimize weight gain and manage potential nutritional deficiencies.

#### Recommendation

10. Pregnant adolescents should have a nutritional assessment, vitamin and food supplementation if needed, and access to a strategy to reduce anemia and low birth weight and to optimize weight gain in pregnancy. (II-2A)

### Hypertensive Disorders of Pregnancy

There is conflicting evidence regarding the risk of preeclampsia and gestational hypertension in adolescents.

Some studies demonstrate a higher rate of hypertensive disorders in adolescent pregnancies than in adults.<sup>70,71</sup> Other studies, however, do not demonstrate a difference in gestational hypertension between adolescents and adults of the same parity.<sup>6,13</sup> While the methodologies of the studies differ, it is also important to control for potential confounders such as parity, smoking, and substance use. When adjusted for these factors, a decreased risk of gestational hypertension was seen in a Canadian cohort (aRR 0.73, 95% CI 0.68 to 0.79).<sup>13</sup>

#### Recommendation

11. Conflicting evidence supports and refutes differences in gestational hypertension in the adolescent population; therefore, the care usual for adult populations is supported for pregnant adolescents at this time. (II-2A)

### Gestational Diabetes

In Canada, the prevalence of GDM in all pregnancies is higher than previously thought, varying from 3.7% in the non-Aboriginal population to 8% to 18% in Aboriginal populations.<sup>72</sup> However, recent retrospective studies indicate that non-Aboriginal adolescents have lower rates of GDM (OR 0.04; 95% CI 0.01 to 0.29),<sup>73</sup> (aRR 0.34; 95% CI 0.30 to 0.39)<sup>13</sup> than adult women. However, at this time, screening of pregnant adolescents should follow the same guidelines and management for GDM as for adult women.<sup>71</sup>

#### Recommendation

12. Practitioners should consult gestational diabetes mellitus (GDM) guidelines. In theory, testing all patients is appropriate, although rates of GDM are generally lower in adolescent populations. Practitioners should be aware, however, that certain ethnic groups including Aboriginal populations are at high risk of GDM. (II-2A)

### Prevention of Adverse Maternal and Neonatal Outcomes: PTB, LBW, and IUGR

Adolescent pregnancies have a higher risk of adverse outcomes such as PTB (< 37 weeks),<sup>9,15,18,66,74,75</sup> very PTB, (< 32 weeks),<sup>9,13,18,74,75</sup> and extremely PTB (< 28 weeks),<sup>9,76</sup> LBW (< 2500 g),<sup>9,15,66,74,75</sup> very LBW (< 1500 g),<sup>9,74</sup> IUGR (< 3rd centile for GA) and stillbirths,<sup>9,67,70,76</sup> and NICU admissions and neonatal deaths.<sup>9,13,17,74–77</sup> In addition, congenital anomalies are more common in adolescent pregnancies. These include central nervous system anomalies (anencephaly, spina bifida, hydrocephaly, microcephaly), gastrointestinal anomalies (gastroschisis, omphalocele), and musculoskeletal anomalies (cleft lip, cleft palate, polydactyly, syndactyly).<sup>74,75,78</sup>



Since a significant proportion of pregnant adolescents have a low socioeconomic status, it has been assumed that the high risk nature of these pregnancies is due to their environment.<sup>79,80</sup> However, 2 large retrospective cohort studies challenge this assumption.

The first is a retrospective cohort study of almost 2 million adolescent births in the United States adjusted for potential confounders such as state, race, marital status, smoking, alcohol use, and prenatal care.<sup>74</sup> In this cohort, even after adjusting for those confounders, adolescent pregnancy was independently associated with increased risk of PTB (RR = 1.2), very PTB (RR = 1.26), LBW (RR = 1.14), very LBW (RR = 1.11), SGA (RR = 1.07), and neonatal mortality (RR = 1.15). The effect of adolescent pregnancy on neonatal mortality disappeared after adjustment of birth weight and gestational age; this suggests that neonatal mortality may be explained by the higher rate of PTB and LBW infants in adolescent mothers.<sup>74</sup> Other studies have found similar results, proposing that increased NICU admission rates are likely a result of increased preterm deliveries.<sup>9,17,75</sup>

The second study is a recent retrospective cohort study with data adjusted for race, twins, and number of prior births in 37 million births in the United States, of which over 300 000 were to adolescent mothers  $\leq 15$  years of age. These young adolescents were at significantly increased risk of PTB (OR = 1.76), very PTB (OR = 2.4), extremely PTB (OR = 2.48), LBW (OR = 1.37), very LBW (OR = 1.47), SGA (OR = 1.14), IUGR (OR = 1.21), stillbirth (OR = 1.31), and infant death (OR = 1.87). Adequate prenatal care was protective against fetal and infant mortality.<sup>9</sup>

When reviewing the fetal and infant outcomes of Canadian adolescent pregnancies, similar adverse outcomes are seen. A recent retrospective study comparing almost 24 000 adolescents with adults in Ontario revealed that neonates born to adolescent mothers have a significantly higher risk of admission to NICU (aRR = 1.08) and very PTB (aRR = 1.16). The risk of having a large for gestational age infant was significantly lower in the adolescent group (aRR = 0.92). There were no significant differences in SGA (aRR = 1.00), LBW (aRR = 1.05), PTB (aRR = 1.04), and fetal death (aRR = 1.02).<sup>13</sup> In another study, Canadian adolescents had a 3-fold increase in the risk of delivery before 34 weeks, with a subsequent increase in NICU admissions.<sup>75</sup> This is a concerning finding, because preterm birth is an important indicator of neonatal well-being that has been associated with severe morbidity and mortality.<sup>80–83</sup>

### Recommendation

13. An ultrasound anatomical assessment at 16 to 20 weeks is recommended because of increased rates of congenital anomalies in this population. (II-2A)

14. As in other populations at risk of intrauterine growth restriction (IUGR) and low birth weight, an ultrasound to assess fetal well-being and estimated fetal weight at 32 to 34 weeks' gestational age is suggested to screen for IUGR. (III-A)
15. Visits in the second or third trimester should be more frequent to address the increased risks of preterm labour and preterm birth and to assess fetal well-being. All caregivers should be aware of the signs and symptoms of preterm labour and should educate their patients to recognize them. (III-A)

## INTRAPARTUM CARE

Many retrospective studies in high income countries have demonstrated a higher rate of vaginal deliveries in adolescents than in adults, along with a shorter active phase of labour, similar length of second stage, and a lower rate of assisted vaginal delivery and CS varying from 2% to 14%.<sup>6,10,18,67,74,84,85</sup>

Two large retrospective studies found a higher rate of vaginal deliveries in adolescents than in adult women (aRR 1.76; 95% CI 1.70 to 1.82),<sup>13</sup> while their rates of assisted vaginal deliveries (aRR = 0.62 to 0.76) and CS (aRR 0.57 to 0.79) were lower.<sup>13,18,84</sup> The adolescent group also had lower epidural use.<sup>13,86</sup> However, when adolescents required a CS, unlike adult women, it was most often in an emergency.<sup>13,84</sup> The most common indications for emergency CS in the adolescent group in one study were non-reassuring fetal status and labour dystocia.<sup>13</sup>

### Recommendation

16. It should be recognized that adolescents have improved vaginal delivery rates and a concomitantly lower Caesarean section rate than their adult counterparts. (II-2A). As with antenatal care, peripartum care in hospital should be multidisciplinary, involving social care, support for breastfeeding and lactation, and the involvement of children's aid services when warranted. (III-B)

## POSTPARTUM CARE

### Contraception

Adolescent mothers are at significant risk for repeat pregnancy, with 25% becoming pregnant again within 2 years of delivery.<sup>87</sup> However, not all adolescent pregnancies are undesired, and a significant number of them are in fact planned. A prospective cohort study of adolescents in a multidisciplinary care setting demonstrated that over 50% of adolescents idealized pregnancy as the "single most exciting and positive event to have occurred."<sup>230</sup> In a Canadian



retrospective study, one third desired their pregnancy. Efforts to promote awareness and the availability of contraception would not have prevented these pregnancies.<sup>88</sup> Protective factors against repeat pregnancy include use of LARC, school attendance, and living alone or with a parent as opposed to with a partner.<sup>89</sup> Postpartum care and the provision of options for contraception are therefore crucial elements of pregnancy care for the adolescent. Evidence in the postpartum adolescent population specifically suggests that LARCs such as DMPA and IUDs are far better at preventing repeat pregnancies than are shorter-term methods such as oral contraception, contraceptive patch, or barrier methods.<sup>90</sup> In one study, 14.2% of adolescents on DMPA were pregnant again one year later compared with 29.7% and 31.8% of oral contraception and patch users.<sup>91</sup> LARCs are specifically endorsed for adolescents by the American Congress of Obstetricians and Gynecologists.<sup>92</sup> Educational encounters with health care providers and education + contraception programs have shown protective outcomes,<sup>93</sup> while behavioural interventions alone have not shown consistent results.<sup>94</sup> Provision of emergency contraception in addition to the usual contraceptive methods has been associated with a higher likelihood of its use, although these adolescents may also be more likely to engage in unprotected intercourse.<sup>95</sup> Immediate postpartum contraception, with initiation of DMPA postpartum, placement of IUD at the time of delivery, or placement of contraceptive implant before hospital discharge have also shown significantly decreased repeat pregnancy rates.<sup>96</sup> However, expulsion rates of IUDs are noted to be higher with immediate postpartum placement.<sup>97</sup> Other novel techniques to decrease repeat pregnancy rates include peer-led educational models, varied educational modalities, and the use of cell phones and social media to promote participation and follow-up. More investigation of such options is required. Pregnancy prevention and contraception counselling in this population require extra time and energy to improve knowledge,<sup>33,98,99</sup> uptake, and management of sociodemographic risk factors.

### Recommendation

17. Postpartum care should include a focus on contraceptive methods, especially long-acting reversible contraception methods, as a means to decrease the high rates of repeat pregnancy in this population; discussion of contraception should begin before delivery.

### Breastfeeding and Postpartum Support

The joint WHO/UNICEF global recommendations for optimal infant feeding is exclusive breastfeeding during the first 6 months.<sup>100</sup> In Canada, a joint statement by Health Canada, the Canadian Paediatric Society, Dieticians of

Canada, and the Breastfeeding Committee for Canada also states that exclusive breastfeeding for the first 6 months is important for the nutrition, immunologic protection, growth, and development of infants and toddlers.<sup>101</sup>

In Canada, breastfeeding initiation rates have increased significantly in the last decades. In 1965, fewer than 25% of mothers breastfed compared with 88.4% in 2011.<sup>101</sup> However, in 2011 only 27.8% continued to breastfeed their infants to 6 months.<sup>2,3</sup> Adolescent mothers have an even lower initiation and continuation rate of breastfeeding than adult women.<sup>102–105</sup> Published data for breastfeeding rates among adolescent mothers is sparse.<sup>102</sup> An American study indicated that 42.8% of adolescent women initiated breastfeeding, but only 9.1% continued to breastfeed to 6 months compared with 15% to 34% of mothers from all other age groups.<sup>102</sup>

Adolescent mothers and their infants are at greater risk for many health and socioeconomic issues such as anemia and depressive disorders in the mother; LBW, PTB, developmental problems, and learning difficulties in the infants, and rapid repeat pregnancy. Breastfeeding could greatly benefit these young mothers and their infants by ameliorating some of these outcomes.

Studies in the adolescent population have suggested multiple sociodemographic factors are associated with lower rates of breastfeeding including age, race, educational level, marital status, and socioeconomic status.<sup>102,103,105</sup> Other studies have suggested that lack of knowledge, a negative opinion about pregnancy, and lack of breastfeeding support from family, friends, and partner could affect breastfeeding rates.<sup>102,103</sup>

Programs should be available during pregnancy and postpartum to support breastfeeding, enhance parenting skills, reduce rapid repeat pregnancies and improve continuation of maternal education. These may be continuations of an adolescent pregnancy program or specific early-years parenting programs provided through public health agencies and other locally available supports. Increased breastfeeding rates can be achieved and supported by adolescent mothers' involvement in antenatal classes and proactive breastfeeding support from a lactation consultant, physician, midwife, or nurse with consideration of specific adolescent concerns such as privacy, body image, and pumping.

### Recommendation

18. Breastfeeding should be recommended and sufficient support given to this population at high risk for discontinuation. (II-2A)

19. Postpartum care programs should be available to support adolescent parents and their children, to improve the mothers' knowledge of parenting, to increase breastfeeding rates, to screen for and manage postpartum depression, to increase birth intervals, and to decrease repeated unintended pregnancy rates. (III-B)

## **SPECIAL CONSIDERATIONS IN ABORIGINAL ADOLESCENT POPULATIONS**

Culturally, adolescent pregnancies have been accepted in most Aboriginal communities. By tradition, babies are regarded as a gift from the Creator and children are welcomed into the families regardless of the mother's age. Most of the young mothers keep their babies and are well supported by their own mothers, extended families, and communities.<sup>106</sup> At the same time it appears that there is some stigma attached to adolescent childbearing in Aboriginal communities, especially when the mother is very young.<sup>107</sup>

Currently, concerns about adolescent pregnancies in Aboriginal communities are growing for a number of reasons. While recent Canadian statistics show a steady decline in adolescent pregnancy and birth rates since the 1990s, adolescent pregnancy rates in Aboriginal and northern communities continue to be up to 4 times higher than the national average.<sup>108</sup> Among women who reported an Aboriginal background, 24% were adolescent mothers compared with just 10% of non-Aboriginal women.

The prevalence of current smoking among Aboriginal youth is more than double that among non-Aboriginal youth (24.9% vs. 10.4%).<sup>109</sup> Aboriginal youth also had a higher prevalence of regular exposure to second-hand smoke at home (37.3% vs. 19.7%) and in cars (51.0% vs. 30.3%). Aboriginal youth were more likely than non-Aboriginal youth to have tried marijuana and other illicit drugs and to engage in binge drinking; it is also suggested that fetal alcohol spectrum disorder rates are higher in this population than in other populations in Canada.<sup>110</sup> Aboriginal youth were less likely than non-Aboriginal youth to have tried to quit smoking.<sup>109</sup> Although alcohol and substance abuse have been frequently reported as influencing factors in becoming pregnant, they are generally not an ongoing lifestyle choice for most Aboriginal adolescents. The responsibility of motherhood is a powerful motivator for many of the young women to stop harmful behaviours and to start planning for their futures.<sup>111</sup> Access to culturally safe maternity care for adolescents may not always be available in Aboriginal and

northern communities. Young mothers and fathers require emotional, educational, medical, and potentially financial support to lead healthier lives without drugs and alcohol and to become positive role models for their children, younger siblings, and the community.

Management of diabetes, including GDM, in Aboriginal people should follow the same clinical practice guidelines as those for the general population with recognition of, respect for, and sensitivity to the unique language, cultural, and geographic issues relating to diabetes care and education in Aboriginal communities across Canada and the increased rates of diabetes mellitus in this population.<sup>72</sup>

Aboriginal adolescent mothers in remote northern communities face additional challenges around birthplace choices and locations. Local maternity care programs do not exist in many communities and frequently young mothers are required to travel weeks in advance to a regional centre to give birth. This practice leads to separation and isolation from family members and the home community and has an even greater impact on adolescent mothers who require additional support during the labour and birth process.<sup>112</sup>

The loss of indigenous knowledge and medicine in Aboriginal cultures has been described by many leaders and Elders as the root of many contemporary health and well-being issues faced by Aboriginal peoples today.<sup>113</sup> Supporting existing traditional practices (such as the inclusion of Elders in prenatal care, the use of herbal medicines, specific diet recommendations, the young woman's desire to give birth on traditional territory) and the use of traditional birthing practices (such as Aboriginal midwifery, smudging, naming ceremony, and retention of placental tissue, and umbilical cord remnants) are important when caring for adolescent pregnant women in northern and Aboriginal communities.<sup>113,114</sup> Recognizing and acknowledging the importance and the wide variety of community-specific practices both across the country and within a region are important, as is the acceptance of those practices by the pregnant adolescent.<sup>115,116</sup>

Custom adoption, the cultural practices of Aboriginal peoples to raise a child by a person who is not the child's parent, according to the custom of the First Nations and/or Aboriginal community of the child, is a common form of adoption in Aboriginal communities; it is recognized in the Indian Act of 1985<sup>117</sup> and in most Canadian jurisdictions, for example in the 1990 *Aboriginal Custom Adoption Recognition Act* of the Northwest Territories.<sup>118</sup> Custom adoption ensures that Aboriginal children maintain their cultural, linguistic, and spiritual identity.

Aboriginal custom adoption takes place usually between 2 families who know each other or have connected with one another through word of mouth in the community and often includes a custom adoption ceremony. Statistics on custom adoptions are difficult to obtain.

## Recommendations

20. Adolescent women in rural, remote, northern, and Aboriginal communities should be supported to give birth as close to home as possible. (II-2A)  
Adolescent women in rural, remote, northern, and Aboriginal communities should be supported to give birth as close to home as possible. (II-2A)
21. Adolescent pregnant women who need to be evacuated from a remote community should be able to have a family member or other person accompany them to provide support and encouragement. (II-2A)
22. Culturally safe prenatal care including emotional, educational, and clinical support to assist adolescent parents in leading healthier lives should be available, especially in northern and Aboriginal communities. (II-3A)
23. Cultural beliefs around miscarriage and pregnancy issues, and special considerations in the handling of fetal remains, placental tissue, and the umbilical cord, must be respected. (III)

## SUMMARY

Adolescence is a unique stage of the life cycle, and adolescent pregnancy, while perhaps slowly on a decline in North America, remains a uniquely high-risk pregnancy situation requiring multidisciplinary care adapted specifically to meet the physical and emotional needs of the adolescent. Special populations within the Canadian population with high rates of adolescent pregnancy, such as Aboriginal populations, demand culturally appropriate care. Appropriate contraception and education also needs to be provided to reduce rapid repeat pregnancy rates in this high risk population.

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*Appendix begins on next page*

## APPENDIX A

**What is Canada's age of consent?**

The age of consent for sexual activity is **16 years**. It was raised from 14 years on May 1, 2008 by the *Tackling Violent Crime Act*.

However, the age of consent is **18 years** where the sexual activity “exploits” the young person—when it involves prostitution, pornography, or occurs in a relationship of authority, trust, or dependency (e.g., with a teacher, coach, or babysitter). Sexual activity can also be considered exploitative based on the nature and circumstances of the relationship, e.g., the young person's age, the age difference between the young person and their partner, how the relationship developed (quickly, secretly, or over the Internet) and how the partner may have controlled or influenced the young person.

**Are there any exceptions to this?**

The *Criminal Code* provides “close-in-age” or “peer group” exceptions.

For example, a **14- or 15-year-old** can consent to sexual activity with a partner as long as the partner is *less than five years older* and there is no relationship of trust, authority or dependency or any other exploitation of the young person. This means that if the partner is 5 years or older than the 14- or 15-year-old, any sexual activity will be considered a criminal offence unless it occurs after they are married to each other (in accordance with the “solemnization” of marriage requirements that are established in each province and territory, governing how and when a marriage can be performed, including the minimum age at which someone may marry).

There is also a “close-in-age” exception for **12- and 13-year-olds**: a 12- or 13-year-old can consent to sexual activity with another young person who is *less than two years older* and with whom there is no relationship of trust, authority or dependency or other exploitation of the young person.

**Are 16 and 17 year olds also protected against sexual exploitation?**

The *Criminal Code* protects 16- and 17-year-olds against sexual exploitation, where the sexual activity occurs within a relationship of trust, authority, dependency, or where there is other exploitation. Whether a relationship is considered to be exploiting the 16- or 17-year-old will depend upon the nature and circumstances of the relationship, e.g., the age of the young person, the age difference between the young person and their partner, how the relationship developed and how the partner may have controlled or influenced the young person. As well, 16- and 17-year-olds cannot consent to sexual activity that involves prostitution or pornography.

Department of Justice, Canada<sup>11</sup>

## APPENDIX B

Risks	Interventions/solutions
<b>Socioeconomic</b>	
Financial/housing	Consult social work
Smoking	Smoking cessation program: Kick Butt for 2; harm reduction strategies
Substance use/alcohol	Addiction counselling
Violence	Screen for violence (see validated questionnaire)
Mood	Screen for depression, ± referral to psychiatry
Compliance with appointment	Adolescent-focused multidisciplinary care Provide assistance with transportation School curriculum, prenatal class
<b>Maternal</b>	
Anemia	Dietician, food donation, vitamins
Inadequate nutrition	Prenatal nutrition program, Buns in the Oven
STI	Screen/treat STI initial visit; each trimester, if symptomatic
<b>Neonatal</b>	
Prematurity	Accurate dating scan Screen/treat STI initial visit; each trimester, if symptomatic Frequent visits in 2nd and 3rd trimester
LBW, very LBW, IUGR, stillbirth	Screen for substance use and violence in pregnancy Frequent visits in 2nd and 3rd trimester 32 week ultrasound for growth Assessment of fetal well-being Nutritional assessment/support
<b>Postnatal</b>	
Repeat pregnancy	Assess desire Contraception counselling during pregnancy Follow-up at 1 to 2 weeks and 6 weeks postpartum and beyond Provide free contraception (CCAP)
Breastfeeding	Lactation consultant (pre- and post pregnancy) Breastfeeding class
Postpartum depression	Assess risk in pregnancy, refer to psychiatry if necessary Follow-up at 2 and 6 weeks postpartum
CCAP: Compassionate Contraceptive Assistance Program (available through Society of Obstetricians and Gynaecologists of Canada)	



Note: "Fig. 1. Screening questions on domestic violence and the coding of answers." *Journal of Pediatric and Adolescent Gynecology*.<sup>60</sup> Reproduced with permission of Elsevier Inc.