

Contemporary Topics in Early Antenatal Care

William Ehman, MD
May 23, 2019

Conflict of Interest

Relationship with financial sponsors:

- Grants/research support: *None*
- Speakers Bureau/Honoraria: *Salus Global (MORE^{OB}); facilitation of MORE^{OB} patient safety program*
- Consulting Fees: *None*
- Other: *None*

This program has not received financial support or in-kind support from any organizations.

Learning Objectives

By the end of this activity, participants will be able to:

1. Recommend the appropriate dose of folic acid
2. Review the management of substance use, particularly smoking and marijuana use
3. Describe how to estimate the due date
4. Offer screening for aneuploidy and neural tube defects
5. Recommend ASA for the prevention of pre-eclampsia and vaginal progesterone for the prevention of pre-term birth

What percentage of your time is spent providing prenatal care?

0%

0-25%

25-50%

50-75%

>75%

Where do you currently practice?

Alberta

British Columbia

Manitoba

Newfoundland and Labrador

New Brunswick

Ontario

Prince Edward Island

Quebec

Saskatchewan

Yukon, Northwest Territories, Nunavut

Contemporary Topics in Early Antenatal Care: A Practical Course for Providers

The newest e-learning
course available from the
College of Family
Physicians of Canada



- Comprehensive update on antenatal care best practices
- Interactive online learning experience available 24/7
- Accessible from desktop, laptop or mobile phone
- Up to 7 MainPro+ credits
- Free to all members

Contemporary Topics in Early Antenatal Care: A Practical Course for Providers

Written by Family Physicians
and OB/GYN Specialists for
Family Physicians practicing
any level of obstetrical care

<https://maternityelearning.cfpc.ca>

Practical, case-based learning:

- Genetic Screening
- Aneuploidy Screening
- Nutrition and Exercise
- Early Bleeding, Nausea and vomiting
- Diabetes, Thyroid Disorders, Hypertension
- Psychosocial Issues including intimate partner violence
- Mental health illnesses

1.

FOLIC ACID

A 24 year old G1P0 is seen by her family doctor to discuss pregnancy planning. She has a history of complex partial seizures and is taking valproic acid 500mg BID. What initial dose of folic acid should she be advised to take, starting 3 months prior to conception?

Folic acid 0.4mg

Folic acid 1.0mg

Folic acid 4.0mg

Folic Acid

- Important role in the prevention of neural tube defects (NTD)
- Prevents oral clefts and heart defects
- Diet in folate-rich foods recommended for all women
- Amount of folic acid recommended depends on risk of NTD

	RISK FACTORS	DAILY FOLIC ACID SUPPLEMENT
Low Risk for NTD	No personal history or family history of NTD or folic-acid sensitive birth defects* in either parent	Folic acid 0.4mg daily <ul style="list-style-type: none">• 2-3 months pre-conception• Throughout pregnancy• Continued for 6 weeks postpartum (or as long as breastfeeding)

* Heart defects, oral facial clefts, urinary tract anomalies

Folic Acid

	RISK FACTORS	DAILY FOLIC ACID SUPPLEMENT
Moderate Risk for NTD	<ul style="list-style-type: none">• Personal history of folate sensitive anomalies*• Family history of NTD in first- or second-degree relative• Maternal Type 1 or 2 diabetes• Teratogenic medications• GI malabsorption	<p>Folic acid 1.0mg daily</p> <ul style="list-style-type: none">• At least 3 months before conception• until 12 weeks gestation <p>Then, folic acid 0.4 to 1.0mg daily</p> <ul style="list-style-type: none">• For remainder of pregnancy• 6 weeks postpartum (or as long as breast-feeding)

* Heart defects, oral facial clefts, urinary tract anomalies

Folic Acid

	RISK FACTORS	DAILY FOLIC ACID SUPPLEMENT
High Risk for NTD	<ul style="list-style-type: none">• Personal NTD history• Previous pregnancy affected by NTD• Genetic father with a personal history of NTD or a previous pregnancy affected by NTD	<p>Folic acid 4.0mg daily</p> <ul style="list-style-type: none">• Minimum 3mo before conception until 12 weeks gestation <p>Then, folic acid 0.4 to 1.0mg daily</p> <ul style="list-style-type: none">• For remainder of pregnancy• Six weeks postpartum (or as long as breast-feeding)

2.

**SUBSTANCE
ABUSE**



Substance Use During Pregnancy

Past and current use of tobacco, alcohol, marijuana, illicit drugs and prescription drugs should be discussed with all pregnant patients, whether addiction is an issue or not.

More than 1 in 10 Canadian women report smoking or drinking alcohol during pregnancy.

1-2% report using marijuana but the rate of drug use may be higher

Circumstances to consider when offering comprehensive care:

- Mental health disorders
- History of trauma or current abuse
- Financial challenges
- Inadequate social support
- Concerns about child protective services

Substance Use During Pregnancy

Pregnancy may be a barrier to obtaining treatment:

- Stigma in relation to substance use in pregnancy
- Unable to access inpatient treatment due to family responsibilities
- Unable to attend counselling or treatment due to lack of childcare
- Fear of children taken by child protective services

Pregnancy can be a motivator to reduce or stop substance use because of the possible effects on the fetus.



Management of Substance Abuse

Society of Obstetricians and Gynaecologists of Canada

Harm-reduction:
reducing drug-
related harm without
complete cessation
of drug use

World Health Organization

Brief interventions:
short education &
counselling as part of
routine care

- Setting goals,
problem solving
triggers, information
about adverse
effects of substance

Other Techniques

SBIRT (Screening,
Brief Intervention,
and Referral to
Treatment)

*Motivational
Interviewing*

Smoking Cessation Alternatives

Counselling and advice can reduce smoking rates

Nicotine Replacement Therapy (gum or lozenge): recommend only if counselling unsuccessful; more effective with CBT

Bupropion and varenicline: limited safety data, not recommended

E-cigarettes: insufficient data to support recommendations; vapour potentially harmful

MARIJUANA

- Next to alcohol, the most commonly used drug during pregnancy
- Recreational or occasional use
- Patient should be made aware of the potential effects & advised to reduce or stop marijuana use during pregnancy
- Can be safely stopped
- Avoid use during breastfeeding as THC remains in breast milk for several days



EFFECTS OF MARIJUANA USE IN PREGNANCY

INFANTS

Reduced self quieting ability
Increased fine tremors
Altered sleep patterns
Easily startled

CHILDREN

Disturbed sleep
Behavioural problems including aggression, hyperactivity, inattention

OLDER CHILDREN & ADOLESCENTS

Reduced executive functioning

Advise pregnant patients that withdrawal from cannabis can cause irritability, insomnia, anxiety and anorexia

3.

ESTIMATING DUE DATE



Establishing Due Date

- Ultrasound is more accurate for dating than last menstrual period
- Offered at 8-13 weeks
- Confirms viability, gestational age, chorionicity of multiples, early anatomic assessment and nuchal translucency
- Should be offered to women, including those wishing to avoid screening for Down syndrome or other fetal conditions
- Ultrasound dating enables more accurate timing of maternal blood tests and pregnancy management

Establishing Due Date

- Crown rump length (CRL) should be used for gestational age when $\geq 10\text{mm}$
- Appropriate from 7 to 12-14 weeks, or 10mm-84mm
- If offered at 7 weeks and $\text{CRL} < 10\text{mm}$, scan is not considered accurate; repeat warranted
- If >14 weeks or $\text{CRL} > 84\text{mm}$, multiple biometric parameters are used to estimate gestational age
 - Biparietal diameter, head and abdominal circumference, femur length



Establishing Due Date – Other options

Second trimester anatomy scan

- 18-22 weeks (or 20-22 wks if obese)
- Used if previous ultrasound not available
- Recommended regardless of whether first trimester ultrasound performed

Maternal history

- When ultrasound declined, estimate due date using maternal history and symptoms
- Dating criteria may assume regular cycles, mid-cycle ovulation, and correct recall of LMP → accurate estimation of gestation age difficult

4.

SCREENING FOR ANEUPLOIDY AND NEURAL TUBE DEFECTS




Screening For Aneuploidy and Neural Tube Defects

All pregnant patients should be:

- Offered screening for aneuploidy and neural tube defects (NTD)
- Informed of the benefits and risks of screening
- Informed that screening cannot definitively diagnose fetal conditions
- Offered detailed screening for NTD at 18-20 week ultrasound if they have declined screening for aneuploidy

Nuchal Translucency (NT)

- Performed between 11 and 13+6 weeks
- Measurement $\geq 3.5\text{mm}$ associated with \uparrow risk of several fetal conditions
- Referral for genetic counselling and/or diagnostic testing and detailed second trimester ultrasound required
- SOGC supports use of NT even when not used for aneuploidy screening given its utility to screen for other anomalies 

Down's syndrome
Congenital heart disease
Fetal malformation
Anencephaly
Single gene disorders

Nuchal Translucency - Considerations

- Used in combination with biochemical markers and maternal age to estimate risk of fetal anomalies
- Not used as an independent test
- Not used when cell-free DNA testing (or NIPT) is used
- Must be performed by a certified sonographer or sonologist
- Not available in all areas because of limited access to sites with a certified sonographer or sonologist



Is nuchal translucency available to patients in your practice?

Yes

No

Not sure

Options for Aneuploidy Screening

- Most Canadian provinces had funded Aneuploidy screening
- It is important to be knowledgeable of your provincial program

Some options which include serum +/- NT testing:

- **First trimester biochemistry/first trimester serum screen**
- **First trimester screening (FTS)**
- **Enhanced first trimester screening (eFTS)**
- **Serum integrated prenatal screening (SIPS)**
- **Integrated prenatal screening (IPS)**
- **Maternal serum triple screen**
- **Quad screening**



Benefit and Risks of Screening for Aneuploidy and NTD

Test Interpretation

- Non-diagnostic
- Negative screens can provide reassurance
- Negative screen is not a guarantee that fetus is not affected
- Positive screen may cause anxiety and difficult emotions

Impact on Patient

- Positive screening can cause conflicting feelings about diagnostic tests
- Some pts may not wish to pursue diagnostic test after a positive screen



Benefits and Risks of Screening for Aneuploidy and NTD

After a positive screen

- Further screen with NIPT provides more accurate assessment of risk of fetal anomaly but not diagnostic
- Invasive testing can provide definitive diagnosis but carries risk*

Parent planning

- Prenatal diagnosis can allow for optimizing prenatal care and follow up
- Enables parents to plan and prepare; make informed decisions about terminating/continuing pregnancy

* Pregnancy loss associated with amniocentesis 0.5-1.0%; with chorionic villous sampling 0.5-1.0%



Non-Invasive Prenatal Testing (NIPT)

What is it?

- Blood test analyzes cell-free fetal DNA circulating in maternal blood
- Screens for chromosomal and genetic conditions, including aneuploidy
- Used from 10 weeks onward

Who to Screen?

- For women who request
- An option for women whose pregnancies are at increased risk of T21, 18 or 13
- Should be used with caution in twin pregnancies → less validation data for twin pregnancies

Do you have access to NIPT/cfDNA for your patients?

Provincially funded under certain circumstances

Not provincially funded but private coverage available to some patients

Not available in my area

Not sure

NIPT: A Screening Test

- Very effective screen from 10 weeks onward
- Considered a screening test, not a diagnostic test
 - cfDNA originates mainly from placenta which may have a chromosomal abnormality not shared with fetus
- Confirmation with diagnostic testing such as CVS or amniocentesis required
- SOCG recognizes that NIPT may become a diagnostic test in future, but stresses it is currently a screening test

No irrevocable obstetrical decision should be made based on NIPT alone without confirmatory invasive diagnostic testing such as amniocentesis.

NIPT - Availability

Availability varies across the country

- BC, ON, NS, PEI, Yukon and Nunavut
 - fund NIPT under specific circumstances based on results of other screening tests or maternal history
- Most other provinces are considering, requesting or planning NIPT funding
- May be available as a private service
- Availability is/will be changing rapidly.

NIPT – Product Considerations

In some cases, the test produces no result because the blood sample did not contain enough cfDNA.

- more common in obese patients, or when the test is done too early.

NIPT is offered by different companies and vary:

- Some offer detection of microdeletions
- SOGC: lack of peer-reviewed validation and low incidence makes the positive predictive value of microdeletion tests very low

Second Trimester Ultrasound

- Should be offered to all pregnant women at 18-22 weeks
- Maternal anatomy to be screened include cervix, uterus, and adnexa.
- Abnormal maternal anatomy can affect the pregnancy and delivery (i.e. short cervical length indicates increased risk of preterm labour)

Second Trimester Ultrasound

Detailed second trimester ultrasound scan is now the primary screening test for open neural tube defects and other fetal structural abnormalities

Ultrasound results also include:

- gestational age
- fetal number
- position of placenta
- amniotic fluid volume
- fetal anatomy, including detailed fetal intracranial and spinal assessment for open NTD

Anatomy Scan Interpretation

With the exception of increased nuchal translucency, **detection of soft markers for aneuploidy risk on a second trimester scan is not considered clinically relevant** and does not warrant further testing in patients whose first trimester screening indicated low risk for aneuploidy.

When should fetal anatomy scan be offered earlier in pregnancy?

Early fetal anatomy scan at 13 to 16 weeks can be considered for women at high risk for fetal anomalies:

- previous pregnancy affected by an anomaly
- family history of hereditary disorders
- high risk based on markers or nuchal translucency scan
- exposure to teratogens
- infection with risk of fetal transmission.

How does obesity affect ultrasound scan?

- Obesity may affect visualization of fetal anatomy on ultrasound scan.
- Visualization may be improved if second trimester scan is performed/repeated later.
- Obese women in whom a transabdominal scan might be technically challenging may also have an anatomy scan at 13 to 16 weeks.
 - Routine scan at 18 to 22 weeks still warranted

5.

VAGINAL PROGESTERONE and ASA IN PREGNANCY

Acetylsalicylic acid may be recommended to selected pregnant patients to prevent which of the following?

Intrauterine growth restriction

Miscarriage

Pre-eclampsia

Preterm birth

Aspirin may be recommended to selected pregnant patients to prevent which of the following?

- Intrauterine growth restriction yes
- Miscarriage no
- Pre-eclampsia Yes
- Preterm birth perhaps



Acetylsalicylic Acid (ASA) in Pregnancy

Indication for ASA

When started before 16 weeks gestation, ASA reduces the incidence of preeclampsia and intrauterine growth restriction in women at high risk

Which patients?

- History of pregnancy-induced HTN
- Preeclampsia in previous pregnancy
- Multi-fetal gestation
- IVF pregnancy
- Chronic hypertension
- Type 1 or 2 diabetes
- Chronic kidney disease
- Autoimmune disease (e.g. SLE, antiphospholipid syndrome)

ASA is also recommended for women with any combination (2 or more) of the following risk factors:

- Nulliparity
- Interpregnancy interval of more than 10 years
- Obesity (BMI over 35 at first visit)
- Older maternal age (over 35y)
- Family history of preeclampsia
- Personal history factors (e.g. low birth weight, small for gestational age)

Start ASA 162mg PO QHS at 12-16 weeks gestation and continue until term.

Vaginal Progesterone

- May be used to prevent preterm birth (PTB) in women:
 - with previous preterm birth, without a shortened cervix, or
 - with short cervix of $\leq 20\text{mm}$ when $\leq 24\text{wks}$
- Improves perinatal outcomes (e.g. respiratory distress syndrome, low birth weight, admission to NICU)
- Exact mechanism unknown
 - progesterone has anti-inflammatory effects;
 - modulates processes implicated in cervical ripening
- Example dose: vaginal progesterone 200mg daily from 16-24 to 36 weeks gestation

Early Referral

Patients with risk factors for preterm labour (esp <34 wks), second trimester loss or short cervix require early referral for monitoring

Interventions for prevention of preterm labour:

- Smoking cessation
- Screen for bacterial vaginosis at 16w gestation
- Cervical length assessment
- Vaginal progesterone if cervical length < 2.5cm

Conclusions

- ▶ Folic acid doses determined based on the patient's risk category
- ▶ Treatment for substance use can be challenging during pregnancy but pregnancy can be a motivator to reduce/stop use
- ▶ Ultrasound is the most accurate method to estimate due date
- ▶ All patients should be offered screening for aneuploidy after discussion of risks and benefits
- ▶ Screening tests like NIPT require further diagnostic testing
- ▶ Recommend ASA to women at risk of preeclampsia and start before 16 weeks gestation
- ▶ Vaginal progesterone can decrease preterm birth in women with a history of preterm birth short cervix < 20mm on ultrasound

Questions from our viewers

Contemporary Topics in Early Antenatal Care:

A Practical Course for Providers

<https://maternitylearning.cfpc.ca>