First prenatal visit
Assessing and addressing risk

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FMF MATERNAL NEWBORN ENHANCED SKILLS SESSION, 2018

Case scenario

- Maia is a 41 you booked to see you for “positive pregnancy test”
- She is a G2P1 with a LMP 32 days ago
- This is a first pregnancy in her second marriage and she is over the moon with joy as it took a lot less time to get pregnant than she thought it would
- Her first child is now 12 and healthy. He was born at 33+4 weeks after an induction for severe pre-eclampsia with growth restriction
- She is physically healthy and on no medications except for a PN vitamin

She has LOTs of questions for you today

Risks identified and topics of discussion

Maia has put her LMP into 3 different websites and gotten 3 different due dates.

How will you determine her EDD based on a certain LMP of 32 days ago and regular 28 day cycles?

SOGC CLINICAL PRACTICE GUIDELINES

No. 303, February 2014

Determination of Gestational Age by Ultrasound

1. When performed with quality and precision, ultrasound alone is more accurate than a “certain” menstrual date for determining gestational age in the first and second trimesters (≤ 23 weeks) in spontaneous conceptions, and it is the best method for estimating the delivery date. (II)

2. In the absence of better assessment of gestational age, routine ultrasound in the first or second trimester reduces inductions for post-term pregnancies. (I)

SOGC CLINICAL PRACTICE GUIDELINES

No. 303, February 2014

Determination of Gestational Age by Ultrasound

Summary Statement 3 - Ideally, every pregnant woman should be offered a first-trimester dating ultrasound; however, if the availability of obstetrical ultrasound is limited, it is reasonable to use a second-trimester scan to assess gestational age. (I)

Recommendation 2 - If there is more than one first-trimester scan with a mean sac diameter or crown-rump length measurement, the earliest ultrasound with a crown-rump length equivalent to at least 7 weeks (or 10 mm) should be used to determine the gestational age. (III-B)

Facilitator Notes – Dating US

- SOGC 2013 guideline recommends that all women be offered a first trimester US
- US considered more accurate than “certain dates” for all gestations under 23 weeks
- Some jurisdictions require a dating US to a book an NT US, those women get two early US
- It is appropriate to have a single 11 week US for both dating and NT
- If only US is the morphology US, this is still preferable to dating
- Main driver is the reduction in post-dates inductions
- If multiple US, use first where CRL is greater than 1cm (or 7 weeks)
- Guideline includes recommendations on when to use CRL vs BPD, transvag, etc.

Maia has been busy reading on BabyCentral about all the do's and don'ts of pregnancy.

She wonders what recommendations you have about foods to eat and foods to avoid.

Deli meats, raw fish and cheese. Oh my!

Bacterial gastrointestinal infections such as Listeria can cause miscarriage, preterm labour and stillbirth

Foods to avoid include some deli meats, some cheeses and raw foods such as fish and eggs

Health Canada website with Safe Food and Food to Avoid Lists

https://www.canada.ca/en/health-canada/services/food-safety-vulnerable-populations/food-safety-pregnant-women.html

Français

Government of Canada | Gouvernement du Canada

Search Canada.ca

Prenatal Nutrition Guidelines for Health Professionals - Fish and Omega-3 Fatty Acids

KEY MESSAGES ON FISH FOR WOMEN OF CHILDBEARING AGE

- Have at least 150 grams (5 ounces) of cooked fish each week, as recommended in Canada's Food Guide.* Fish contains omega-3 fats and other important nutrients for a healthy pregnancy.
- Vary the types of fish you eat and follow advice from Health Canada to limit your exposure to environmental contaminants such as mercury. The recommended intake for some predatory fish is less than 150 grams (5 ounces) per month. Refer to Health Canada's website: www.healthcanada.gc.ca/mercuryandfish

https://www.canada.ca/en/health-canada/services/food-nutrition/healthy-eating/prenatal-nutrition.html

The American College of Obstetricians and Gynecologists
Women's Health Care Physicians

COMMITTEE OPINION

Number 462 • August 2010
(Reaffirmed 2016)

Committee on Obstetric Practice

This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

Moderate Caffeine Consumption in Pregnancy

Weak/conflicting evidence linking consumption above 200mg to increased miscarriage

No evidence showing a significant impact on preterm birth or on IUGR at all consumption levels

Conclusion: no evidence of increased risk at moderate (<200mg) consumption. A final conclusion can not be made between higher use and preterm birth or IUGR.

Facilitator Notes - What can I eat

- Its all about avoiding infection, so general food safety rules apply (eg internal temperatures, food handling etc)
- Some deli meats (moist ones like turkey breast) are dangerous but dry (eg salami) and/or cooked to steaming hot are safe
- Soft rind, blue veined and unpasteurized cheese should be avoided
- Raw or undercooked eggs
- Raw fish and shellfish (remember much of what people call ‘sushi’ is actually more accurately called Japanese food and is cooked

Facilitator notes – fish and Omega 3

- Diets high in Omega 3 (largely fish) has a positive impact on childhood neurologic/cognitive outcomes (more on supplements coming so don't get sucked into that conversation yet)
- Recommended 5 oz of fish per week
- Women need to be cognizant of mercury amounts in fish and should select from the safe fish recommendations that can be found on health Canada Website among others
- ACOG has a good guideline as well, it is on the resources handout

Facilitator Notes -Caffeine

- 200 mg = 12 oz of drip coffee = 1 Tim Horton's medium = 2 cups of brewed black tea = 2 bottles of coke
- No study has shown increased miscarriage below 200mg, some above do, some do not. 200 vs higher amounts not studied
- IUGR – higher odds ratios with caffeine intake at all levels (<200, 200-300, >300) but in all cases confidence interval included 1
- Preterm birth – two large studies show no link between caffeine consumption and birth

Now that you mention Omega-3s, Maia wonders if she should be taking an Omega-3 supplement. She has heard it will make her baby smarter.

She is trying to take a PN vitamin, but keeps puking it up

She also started taking 3000 IU of Vitamin D on her chiropractor's advice.

How do you respond to Maia about taking supplements?

Supplementation with Omega Acids

- Meta-analysis – no clear or consistent benefit on childhood development
- Meta-analysis – no clear or consistent benefit on pregnancy outcome (preterm birth, HDP, IUGR)
- Cochrane – possible reduction in allergic disease although benefit small and questionable
- Meta-analysis – no evidence that supplementation decreases child adiposity/obesity

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Vitamin D supplementation for women during pregnancy

Cochrane Systematic Review - **Intervention** | Version published: 14 January 2016 see what's new

- Vitamin D alone - may reduce the risk of pre-eclampsia, low birthweight and preterm birth
- Vitamin D with calcium – preterm birth risk was **increased**

- Conclusion "The evidence on whether vitamin D supplementation should be given as a part of routine antenatal care to all women to improve maternal and infant outcomes remains unclear."

Prenatal Vitamins

- There is no good quality evidence to support “multivitamins” or “prenatal vitamins”

- The only evidence is for
  - Folic acid preconceptionally and in early pregnancy
  - Vitamin D, maybe. As discussed
  - Iron in women with anemia, low ferritin or low iron diet

Facilitator Notes – Omega 3 supplementation

- Pills are not food
- Based on dietary co-relations Omega 3s supplementation has been looked at for reduction in pregnancy complications, childhood cognitive outcomes, reduction in childhood allergies and reduction in obesity
- The only one with even the weakest evidence is reduction in allergies but while statistically significant the effect difference is not felt to be clinically significant
- Better to recommend fish than pills.

Facilitator Notes – Vitamin D

- Actually some benefit demonstrated. Cochrane 2016:
- Vitamin D alone - may reduce the risk of pre-eclampsia, low birthweight and preterm birth
- Vitamin D with calcium – preterm birth risk was **increased**
- While supplements can increase serum Vitamin D levels, the clinical significance in unclear. Treat on risk, not on level
- Studies looked at 400, 1000,2000. Most studies showing benefit are 1000-2000

Facilitator Notes – Prenatal Vitamins

- No evidence for universal use of prenatal multivitamins despite the fact they are widely viewed as essential.
- Evidence for calcium (in calcium poor diets), vitamin D (as we are all a bit deficient), folic acid (preconception and early pregnancy) and iron (for anemia or iron poor diets).
- Buying these things separately may be cheaper than PN vitamins (which tend to have premium pricing) or may all be available in a cheaper generic multivitamin
- No American or Canadian recommendations on their use but the NHS suggests not necessary unless diet is poor

Maia is worried that because her son was premature that this baby will be too.

How do you counsel her about her risk?

Is there anything you would do to reduce her risk?

What about if her first child was born early due to spontaneous labour? Does that change your advice?

Further study is needed to determine efficacy, optimal dosing, routes and timing

Previous preterm birth before 34 weeks, vaginal progesterone 200 mg from 16 to 36 weeks

Shortened cervix (less than 2 cm) at or before 24 weeks, vaginal progesterone until 36 weeks

SMFM Clinical Guideline www.AJOG.org

Progesterone and preterm birth prevention: translating clinical trials data into clinical practice

Society for Maternal-Fetal Medicine Publications Committee, with the assistance of Vincenzo Berghella, MD

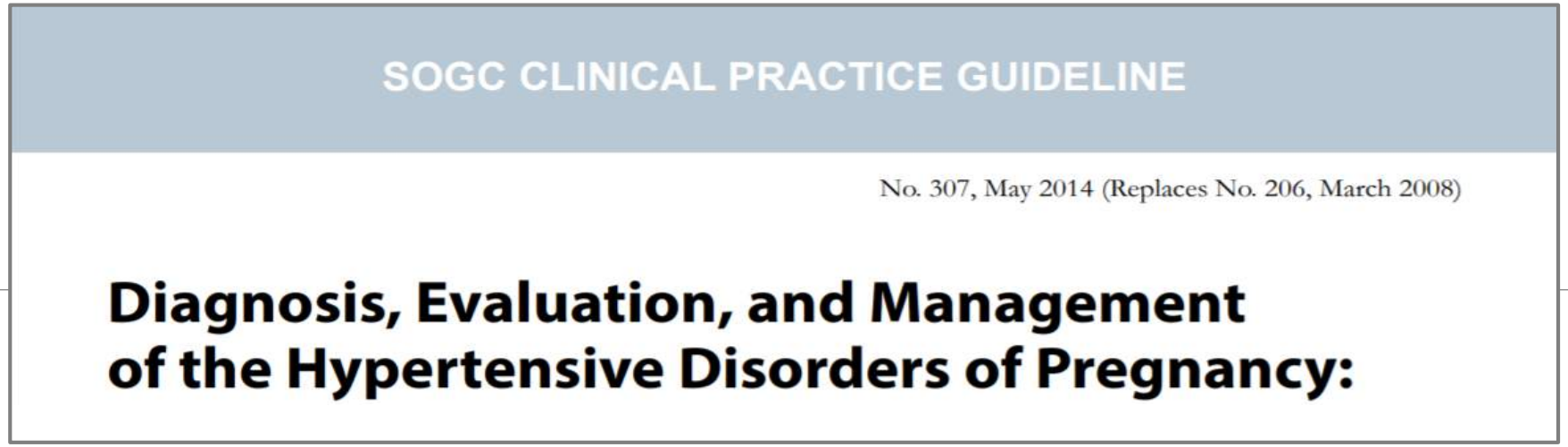
- ACOG, May 2012, Reaffirmed 2017
- Singleton pregnancy with previous preterm birth – 17 hydroxy-progesterone caproate 250 mg IM weekly from 16-20 to 36wks
- Shortened cervix at 24 weeks – vaginal progesterone gel or micronized tablet (200mg) from diagnosis until 36 weeks

Facilitator Notes – Progesterone/PTB

- Maia is NOT at increased risk due to induction for medical complication
- For those with previous spontaneous preterm birth (less than 34 weeks), there is evidence for IM progesterone (17 hydroxy-progesterone caproate 250 mg weekly), vaginal progesterone evidence not near as clear. Start also unclear (12, 16 and 20). Vaginal progesterone only form available in Canada. Society of Maternal Fetal Medicine (US) says vaginal not acceptable substitute for IM in women with previous preterm birth (2017 statement) but given only available, SOGC recommends its use
- For women with shortened Cx on mid trimester US (less than 2 cm at 20-24 weeks, most evidence for 24 weeks but most US done at 20), vaginal progesterone has been shown to reduce preterm birth

Maia seems unconcerned about her previous pre-eclampsia but you're hoping to prevent it.

What recommendations will you make to Maia?



Low-dose acetylsalicylic acid and calcium supplementation (of at least 1 g/d) for women with low calcium intake are recommended for prevention of preeclampsia in women at high risk. (I-A)

Acetylsalicylic acid should be: taken in a low dose (75–162 mg/d), (III-B) administered at bedtime, (I-B) initiated after diagnosis of pregnancy but before 16 weeks' gestation, (I-B) and considered for continuation until delivery. (I-C)

Table 6. Risk markers for preeclampsia

		Current pregnancy	
Demographics and family history	Past medical or obstetric history*	First trimester	Second or third trimester
	Previous preeclampsia **Anti-phospholipid antibody syndrome** **Pre-existing medical condition(s)** • Pre-existing hypertension or booking† diastolic BP ≥ 90 mmHg • Pre-existing renal disease or booking† proteinuria • Pre-existing diabetes mellitus	**Multiple pregnancy**	
Maternal age ≥ 40 years‡ Family history of preeclampsia (mother or sister) Family history of early-onset cardiovascular disease	Lower maternal birthweight and/or preterm delivery Heritable thrombophilias§ Increased pre-pregnancy triglycerides Non-smoking Cocaine and metamphetamine use Previous miscarriage at ≤ 10 weeks with same partner	Overweight/obesity First ongoing pregnancy New partner Short duration of sexual relationship with current partner Reproductive technologies‖ Inter-pregnancy interval ≥ 10 years Booking† sBP ≥ 130 mmHg, or booking dBP ≥ 80 mmHg Vaginal bleeding in early pregnancy Gestational trophoblastic disease Abnormal PAPP-A or free βhCG	Elevated BP (gestational hypertension)¶ Abnormal AFP, hCG, inhA, or E_3# Excessive weight gain in pregnancy Infection during pregnancy (e.g., UTI, periodontal disease) Abnormal uterine artery Doppler** IUGR Investigational laboratory markers††

Evidence not clear on which or how many other risks define at woman as “at high risk”

Little of no evidence of harm however

- **Aspirin did not reduce the incidence of term preeclampsia**
- **In singleton pregnancies, using a combined Bayesian risk assessment tool, 150 mg of aspirin nightly from 11-14 weeks until 36 weeks led to a 62% reduction in the rate of preterm preeclampsia compared to placebo**

Screening tool: Bayesian risk algorithm which assesses the following factors

Age

Weight and height (BMI)

Racial/ethnic origin (white, Afro-Caribbean, South Asian, East Asian, and mixed)

Medical History
- Chronic hypertension
- Systemic lupus erythematosus or antiphospholipid syndrome
- Diabetes mellitus type 1 or 2

Mode of conception – spontaneous vs. assisted

Obstetrical history
- Parity (≥ 24 weeks)
- Previous preeclampsia
- Gestational age and weight at delivery in the last pregnancy
- Interval since last pregnancy

Family history of preeclampsia in the patient's mother

Biomarkers
- Mean arterial pressure (MAP)
- Uterine artery pulsatility index (UtA-PI)
- Pregnancy associated plasma protein-A (PAPP-A)
- Placental growth factor (PlGF)

Facilitator Notes

- Discuss Maia but also prompt for who else you would consider prevention in
- ASA – 80-160. Evidence seems to suggest it is best taken at bed time. Definitely before 16 weeks, probably better before 12. Not clear 160 better than 80 but trend that way.
- Only prevents preterm pre-eclampsia, no impact on term pre-eclampsia
- Some high risk easy to define – previous pre-eclampsia, pre-existing HTN, diabetes, renal disease
- Other risks hard to know which or how many increase risk. ACOG recommends if two or more risks. SOGC less specific
- Risk predictions models have been created and are being refined
- Calcium supplements only beneficial in calcium poor diets (but prevent pre-eclampsia in both low and high risk women)

Maia informs you that she has been vaping cannabis at bedtime for the last two years and “can’t sleep without it”. She assumes that because it is a natural product it is safe in pregnancy.

How do you respond and counsel?

THE SOCIETY OF OBSTETRICIANS AND GYNAECOLOGISTS OF CANADA
LA SOCIÉTÉ DES OBSTÉTRICIENS ET GYNÉCOLOGUES DU CANADA

SOGC Position Statement: Marijuana Use During Pregnancy, May 9th, 2017

- The SOGC recommends that women who are pregnant or contemplating pregnancy should abstain from cannabis use during pregnancy.
- The SOGC also recommends that:
- Health professionals discuss the potential adverse health effects of cannabis use during pregnancy with patients who are pregnant or contemplating pregnancy.
- Women who are pregnant or contemplating pregnancy be encouraged to discontinue cannabis use.
- Use of cannabis for medicinal purposes be strongly discouraged during pregnancy, in favor of alternative therapies that have proven to be safe during pregnancy.

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

ACOG COMMITTEE OPINION

Number 722, October 2017 *(Replaces Committee Opinion No. 637, Jul 2015)*

INTERIM UPDATE
Cannabis Use During Pregnancy and Lactation

- known to cross the placenta, endocannabinoid receptors present from 14 weeks gestation
- Increased risk of stillbirth and preterm birth, especially if used with tobacco
- Increased risk of low birth weight
- Evidence of neurocognitive impacts to the fetus in later life – increased ADHD cluster symptoms, increased behavioural problems, increased learning issues, increased “delinquent” behaviours

Facilitator Notes, Cannabis

- Overall quality of evidence is very poor
- Endocannabinoid receptors present from 14 weeks, definitely crosses placenta. Very long half life (up to 30 days for chronic users)
- Maternal outcomes – stillbirth and prebirth. Both more common with concurrent use of tobacco than either alone
- Newborn outcomes – not really anything, no NAS, no phenotype

Facilitator Notes, Cannabis

- Child outcomes – populations from 80s when pot was about 25% as strong as now
- - increased attention problems, processing disorders at young ages
- - increased learning disabilities and ADHD in school age kids
- - increased executive functioning problems and “delinquency” as well as drug and alcohol use in teens and young adults.
- All the organizations recommend against it

Facilitator notes, cannabis and breastfeeding

- Not in the case but if it comes up
- THC gets into breastmilk, half life similar to blood so 24-36 hours in occasional use, 30 days in long term use
- Very, very little evidence to guide. Almost all babies exposed in utero as well
- Must balance risk/benefit but most organizations recommend against it (SOGC, Motherisk, ACOG, CPS)

Now WAY behind and eager to get on with your list of patients for the day, you wrap things up by handing a copy of the prefilled "1st Prenatal" lab requisition in your EMR to Maia and notice that it includes a TSH.

Should you be doing a TSH on this woman?
When it (inevitably) comes back at 3.75, how will you react?

Subclinical hypothyroidism in pregnancy

Siobhan Deshauer MD, Ahraaz Wyne MD

Cite as: *CMAJ* 2017 July 17;189:E941. doi: 10.1503/cmaj.161388

1 Subclinical hypothyroidism in pregnancy is common

2 Subclinical hypothyroidism may be associated with adverse pregnancy outcomes

3 Universal screening for subclinical hypothyroidism should not be done in pregnancy

4 Pregnant women with subclinical hypothyroidism and thyroid peroxidase antibodies require thyroid replacement therapy

5 Most patients with subclinical hypothyroidism in pregnancy will not require treatment postpartum

Original Research ajog.org

OBSTETRICS

Thyroid-stimulating hormone, anti—thyroid antibodies, and pregnancy outcomes

Secondary analysis of 1100 women in a low-dose ASA for PTB study, published 2016

CONCLUSION: Among women with 1-2 previous pregnancy losses, subclinical hypothyroidism and thyroid autoimmunity were not associated with an increased risk of preterm delivery, gestational diabetes mellitus, or preeclampsia. These data support current recommendations that low-risk asymptomatic women should not be screened routinely for thyroid dysfunction or autoimmunity.

Thyroid, Vol. 26, No. 4 | Pregnancy and Fetal Development

Subclinical Hypothyroidism in Pregnancy: A Systematic Review and Meta-Analysis

2016 meta-analysis

Conclusion: One study at high risk of bias compared pregnant women with SCH who received levothyroxine to those who did not and found no significant decrease in the rate of pregnancy loss, preterm delivery, gestational hypertension, low birth weight, or low Apgar score.

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 MARCH 2, 2017 VOL. 376 NO. 9

Treatment of Subclinical Hypothyroidism or Hypothyroxinemia in Pregnancy

677 women, multicenter RCT in the US

Conclusion: Treatment for subclinical hypothyroidism or hypothyroxinemia beginning between 8 and 20 weeks of gestation did not result in significantly better cognitive outcomes in children through 5 years of age than no treatment for those conditions.

Thyroid Facilitator Notes

- Subclinical hypothyroidism defined in as 2.5 (trimester specific normal) to 4.0 (lab normal) before 20 weeks
- Screening frequently done, but not universal screening not recommended, has not been shown to improve outcomes
- Can screen women at risk, see next note
- While there is association between TSH between 2.5-4.0 and adverse outcomes (variable for preterm birth, variable for first trimester loss, likely for longterm cognitive outcomes in children) there is no clear evidence for improved outcomes with treatment
- One non-RCT for PTB and other adverse outcomes, treatment made no difference
- One RCT for childhood outcomes to 5 years, no difference

Thyroid Facilitator Notes

Risk factors for subclinical hypothyroidism

- Geographic area with iodine insufficiency
- Personal or family history of thyroid disease
- Positive thyroid antibodies
- Type 1 diabetes and other autoimmune diseases
- History of preterm delivery, miscarriage, infertility
- Two or more previous pregnancies
- Prior or current amiodarone or lithium use
- Head or neck radiation exposure
- Morbid obesity: body mass index > 40
- Age older than 30 yr

Later that night, while finishing your charting, you realize there are a whole lot of things you didn't get to:

- Aneuploidy screening options
- Choice of provider and place of birth
- Rationale for "routine labs"
- Occupational and recreational risks
- Symptom management

Thank goodness you booked her back for a first PN apt in the near future.