

Maternity Care Guidelines checklist

To assist physicians in implementing CPGs

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ABSTRACT

PROBLEM BEING ADDRESSED Implementing the recommended clinical practice guidelines for prenatal care can be difficult for busy practitioners because the guidelines are numerous and continually being revised.

OBJECTIVE OF PROGRAM To develop a checklist outlining the current recommended activities for prenatal care to assist practitioners in providing evidence-based interventions to pregnant women.

MAIN COMPONENTS OF PROGRAM We reviewed guidelines for prenatal care from the Canadian Task Force on the Periodic Health Examination (CTFPHE) and from the report of the US Preventive Services Task Force (USPSTF). We searched MEDLINE for interventions commonly performed in pregnancy, but not reviewed by either task force. Interventions graded A or B are listed in bold type on the checklist. Interventions graded C by either task force or recommended by organizations not necessarily using the same rigorous criteria are listed in plain type. Recommended interventions are displayed along a time line under three headings: clinical maneuvers, investigations, and issues for discussion. Pilot testing by 12 practising physicians and 12 family practice residents showed that most respondents thought the checklist very useful.

CONCLUSIONS Providing a one-page checklist summarizing recommended clinical maneuvers, investigations, and topics for discussion should help physicians with implementing the many clinical practice guidelines for prenatal care.

RÉSUMÉ

PROBLÈME La difficulté éventuelle éprouvée par des praticiens débordés de travail dans la mise en œuvre des guides de pratique clinique recommandés pour les soins prénatals, compte tenu de leur grand nombre et de leur révision fréquente.

OBJECTIF DU PROGRAMME Élaborer un aide-mémoire mettant en évidence les activités actuellement recommandées dans les soins prénatals, pour aider les praticiens à effectuer chez les femmes enceintes les interventions indiquées, compte tenu des données probantes.

PRINCIPALES COMPOSANTES DU PROGRAMME Nous avons examiné les lignes directrices concernant les soins prénatals du Groupe d'étude canadien sur l'examen médical périodique (GÉCEMP) et celles tirées du rapport du US Preventive Services Task Force (USPSTF). Nous avons effectué une recherche dans MEDLINE pour relever les interventions communément pratiquées en cas de grossesse, mais qui n'étaient pas incluses par l'un ou l'autre des groupes d'étude. Les interventions cotées de classe A ou B sont présentées en caractères gras dans l'aide-mémoire. Les interventions recommandées sont données chronologiquement en trois colonnes: les manœuvres cliniques, les investigations et les questions à discuter. Un essai expérimental auprès de 12 médecins praticiens et de 12 résidents en médecine familiale a démontré que la majorité des répondants jugeaient l'aide-mémoire très utile.

CONCLUSIONS La présentation d'une synthèse des manœuvres cliniques, des investigations et des sujets de discussion recommandés, sous forme d'aide-mémoire d'une page, devrait aider les médecins dans la mise en œuvre des multiples guides de pratique clinique concernant les soins prénatals.

This article has been peer reviewed.

Cet article a fait l'objet d'une évaluation externe.

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Clinical practice guidelines (CPGs) for prenatal care are constantly changing in the face of new evidence. Keeping track of the recommended guidelines for prenatal care is becoming increasingly difficult for busy practitioners as more tests for pregnant women become available. Studies conducted after release of CPGs have often shown that practitioners had less than satisfactory awareness of, and compliance with, the guidelines.¹ One Canadian survey found that most organizations producing CPGs (58%) do not actively try to ensure implementation of the guidelines they produce.²

Recent studies have demonstrated that practitioners are sometimes unaware of the investigations and procedures they should be recommending for their prenatal patients. In a random sample of family physicians in the Toronto, Ont, area, 43% did not mention folic acid supplementation as a topic for discussion with women of childbearing age, women planning pregnancies, or women in the first trimester of pregnancy, and only 14.3% knew the correct timing of folic acid supplementation.³ A survey of Ontario family physicians, obstetricians, and midwives demonstrated that, although 88% of respondents were routinely offering maternal serum triple-marker screening to all pregnant women, knowledge about the test was far from ideal.^{4,5} In another study, only 5.2% of physicians surveyed in the Hamilton, Ont, area reported they always offered HIV testing to patients in the first trimester (80% never or rarely offered testing).⁶ The authors concluded that modification of the reminder tools currently used in prenatal care might facilitate discussion of HIV with every pregnant patient.

A review of CPG implementation strategies found that primary dissemination strategies (mailing or publication of the actual guidelines) need to be supported by secondary implementation strategies that enable or reinforce changes in the practice setting.¹ In particular, practice-based strategies, such as reminder sheets for physicians and patient-education materials, were effective in improving management.¹

Objective of program

The "Maternity Care Guidelines" checklist was developed, as a secondary implementation strategy for

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physicians, to summarize the clinical maneuvers, investigations, and suggested topics for discussion supported by the best medical evidence. The aim of the checklist is to provide a quick reference and charting aid that facilitates implementation of recommended guidelines. The purpose of this article is to acquaint physicians with the checklist and to review the evidence for some of the recommended investigations and clinical interventions. Several controversies in prenatal care are discussed.

Data sources

Many of the recommendations on the checklist are those of the Canadian Task Force on the Periodic Health Examination (CTFPHE) and the United States Preventive Services Task Force (USPSTF).^{7,8} The Canadian task force, which began its work in 1976, and the US task force, which began in 1984, use a similar, standardized method to systematically review the evidence for a variety of preventive health care interventions.

Explicit criteria are used to judge the quality of evidence from published clinical research, and then clinical practice guidelines are developed using a rating scale from grade A to grade E to classify the evidence. Interventions are classified as grade A and B recommendations when the evidence supporting them is considered good or fair, respectively. Grade C recommendation means the task force found insufficient evidence to recommend for or against a maneuver; decision making must be guided by factors other than scientific evidence. Lack of evidence of effectiveness, however, does not constitute evidence of ineffectiveness. Interventions reviewed by one or both of the organizations and graded A, B, or C are shown in **Table 1**.

MEDLINE was searched from 1993 to 1998 using the applicable MeSH or text words for interventions that, in the authors' experience, were often part of routine prenatal care, but were not reviewed by either task force. We searched for Tay-Sachs disease testing, screening for bacterial vaginosis to prevent preterm labour or premature rupture of membranes, preventing sudden infant death syndrome, exercise in pregnancy, screening for Group B streptococcus infection, gestational diabetes screening, and HIV testing. We thought the task force recommendations regarding the two latter interventions were particularly controversial and that important new evidence had become available since the task force recommendations were last published. We also reviewed the Society of Gynaecologists and Obstetricians' (SOGC)

Table 1. Maternity care recommendations from the Canadian Task Force on the Periodic Health Examination and the United States Preventive Services Task Force

INTERVENTION	GRADE	TASK FORCE
Smoking cessation interventions to prevent low birth weight or decreased cognitive ability of child	A	CTFPHE/USPSTF
Counsel on breastfeeding to prevent gastrointestinal and respiratory infection in newborns	A	CTFPHE/USPSTF
Factor A, B, O, and D (Rh) antibody screening at first prenatal visit	A	CTFPHE/USPSTF
D immune globulin administration to D-negative women after delivery of a D-positive infant to prevent Rh ^D sensitization	A	CTFPHE/USPSTF
Folic acid supplementation of 0.4 to 0.8 mg/d for low-risk women to prevent neural tube defects	A	CTFPHE/USPSTF
Folic acid supplementation of 4 mg/d for high-risk women to prevent neural tube defects	A	CTFPHE/USPSTF
Urine culture to screen for asymptomatic bacteriuria	A	CTFPHE/USPSTF
Screen for acute or chronic hepatitis B by hepatitis B surface antigen (HB _s Ag)	A	USPSTF
Hepatitis B immune globulin and hepatitis B vaccine for infants born to HB _s Ag-positive mothers	A	CTFPHE/USPSTF
Routine serologic test for syphilis to prevent congenital syphilis	A	USPSTF
Ocular prophylaxis for newborns to prevent ophthalmia neonatorum	A	CTFPHE/USPSTF
Recommend use of child car seat*	A	CTFPHE/USPSTF
Screen newborns for phenylketonuria by blood phenylalanine	A	CTFPHE/USPSTF
Screen for congenital hypothyroidism by thyroid-stimulating hormone	A	CTFPHE/USPSTF
Physical examination of newborn's hips to detect congenital hip dislocation	A	CTFPHE
Anticipatory guidance for nighttime crying	A	CTFPHE
Repeat D antibody screening of Rh-negative women at 24 to 28 weeks and D immune globulin administration (300 µg) to prevent Rh ^D sensitization	B	CTFPHE/USPSTF
Routine administration of D immune globulin after amniocentesis and elective abortion to prevent Rh ^D sensitization	B	CTFPHE/USPSTF
Screen for rubella immunity; counsel and vaccinate nonimmune women postpartum to prevent congenital rubella syndrome	B	CTFPHE/USPSTF
Single prenatal ultrasound examination [†]	B	CTFPHE
Offer amniocentesis or chorionic villi sampling to women with risk factors for Down syndrome (age older than 35, previous Down syndrome pregnancy, known carrier)	B	CTFPHE/USPSTF
Maternal serum α-fetoprotein screen for neural tube defects for low-risk women	B	CTFPHE/USPSTF
Triple-marker screen for Down syndrome for low-risk women (with counseling)	B	CTFPHE/USPSTF
Counsel parents on breastfeeding to prevent iron deficiency anemia in infants	B	CTFPHE/USPSTF
Screen high-risk women for hemoglobinopathies (complete blood count, hemoglobin electrophoresis)	B	CTFPHE/USPSTF
Screen for iron deficiency anemia with hemoglobin or hematocrit	B	USPSTF
Counsel on nutrition, including recommended calcium intake (1200 to 1500 mg/d)	B	USPSTF
Universal screen for chlamydial infection [‡]	B	CTFPHE
Screen high-risk women for gonorrhea by cervical culture [‡]	B	USPSTF
Measure blood pressure at first prenatal visit and periodically throughout pregnancy to prevent preeclampsia	B	CTFPHE/USPSTF
Screen for high-risk drinking (2 drinks/d, binge drinking) and counsel on alcohol consumption to prevent fetal alcohol syndrome	B	CTFPHE/USPSTF
Recommend abstinence from alcohol to prevent fetal alcohol syndrome	C	USPSTF
Universal screen for gonorrhea by cervical culture [§]	C	USPSTF
Routine administration of D immune globulin after chorionic villus sampling, other obstetric procedures, and antepartum hemorrhage to prevent Rh ^D sensitization	C	CTFPHE/USPSTF
Screen for gestational diabetes mellitus	C	CTFPHE/USPSTF
Suggest iron supplementation during pregnancy	C	CTFPHE/USPSTF
Suggest ASA prophylaxis for preventing preeclampsia or intrauterine growth retardation	C	USPSTF
Use screening instruments for family violence	C	USPSTF
Offer voluntary HIV antibody screening	C	CTFPHE/USPSTF
Counsel women with no history of herpes who have partners with herpes to abstain from intercourse or use condoms	C	USPSTF

*A recommendation for use, B recommendation for counseling parents.

†Grade C recommendation by USPSTF.

‡Grade A recommendation by CTFPHE.

§Grade D recommendation by CTFPHE.

CPGs and policy statements published during the past 5 years.

Some guidelines for prenatal care remain controversial. Among these controversies is the debate over universal screening for gestational diabetes mellitus (GDM). Use of a 50-g glucose challenge test between 24 and 28 weeks' gestation to screen all pregnant women for GDM has been endorsed by the Second and Third International Workshop-Conferences on Gestational Diabetes,^{9,10} the American Diabetes Association,¹¹ and the SOGC.¹² The CTFPHE found that the studies that led to the prevailing recommendations had important limitations.¹³ In particular, the validity of the diagnostic test itself is questionable and the magnitude of the benefit of screening to the incidence of shoulder dystocia and birth trauma is likely small and not worth the clinical or financial costs of screening. Both the CTFPHE and the USPSTF have concluded that there is insufficient evidence to recommend for or against universal screening for GDM.^{7,8} A recent analysis¹⁴ of data from an earlier study of 3131 pregnant women showed that selective screening of women at increased risk for GDM was efficient and reduced the burden of testing for many women. In 1997, an expert committee of the American Diabetes Association also recommended selective screening.¹⁵

Another still controversial area is the role of screening for and treatment of bacterial vaginosis to prevent preterm labour and premature rupture of membranes. Several observational and cohort studies¹⁶⁻¹⁹ have shown increased risk of preterm delivery among women with bacterial vaginosis. Conclusive evidence of a causal relationship between bacterial vaginosis and preterm deliveries has not yet been established by a randomized controlled trial, so an SOGC committee has stopped short of recommending universal screening and treatment of all pregnant women.²⁰ The committee did, however, recommend treating all women with symptoms and screening and treating all asymptomatic women with a history of preterm birth. They note that diagnosis of bacterial vaginosis must be based on objective criteria, such as criteria from Amsel et al²¹ on our Maternity Care Guidelines checklist (Figure 1) or Gram staining, not culture of *Gardnerella vaginalis*. Other authors²² think criteria for "causality" have been met and that existing evidence supports screening and treating all pregnant women for bacterial vaginosis.

Controversy is also evident in the literature regarding routinely offering HIV testing to pregnant women. The CTFPHE report published in 1992 found

insufficient evidence to recommend inclusion or exclusion of HIV antibody screening for all pregnant women.²³ Subsequently, the AIDS Clinical Trial Group 076 trial demonstrated that peripartum use of zidovudine led to a reduction in the rate of vertical transmission from 25.5% to 8.3%.²⁴ A more recent report from the USPSTF still found insufficient evidence for or against universal prenatal screening for HIV.⁸ The authors note, however, that offering screening to all pregnant women might be recommended on other grounds, including patient preference, easier implementation, and increased sensitivity compared with screening based on community prevalence and reported risk factors. Both the CTFPHE and the USPSTF recommend offering HIV testing (with counseling) to all people, including pregnant women, at increased risk for infection (grade A recommendation).

Despite the fact that both task forces have given a C grade to evidence for routine prenatal HIV screening, other organizations, such as the US Public Health Service,²⁵ the SOGC,²⁶ the American College of Obstetricians and Gynecologists,²⁷ the Canadian Paediatric Society,²⁸ the American Academy of Pediatrics,²⁹ the College of Family Physicians of Canada,³⁰ the Canadian Medical Association,³¹ and Motherisk,³² have released guidelines recommending that all pregnant women be offered HIV antibody testing. A recent study in British Columbia showed that routinely offering prenatal screening for HIV in a low-prevalence setting reduces the rate of maternal-fetal transmission and is cost-effective.³³

Format

The Maternity Care Guidelines are presented as a checklist organized into three categories: clinical maneuvers, investigations, and issues for discussion. Maneuvers are listed along a time line from early pregnancy to the postpartum period (Figure 1). Some practitioners might find it useful to photocopy the guidelines for each patient's chart and use the checklist for record keeping. Recommendations supported by strong evidence (CTFPHE or USPSTF grade A or B) are listed in bold type; those for which evidence is limited or controversial are listed in plain type for consideration. On the reverse side is the Maternity Care Calendar, which is intended to help physicians offer the best evidence-based care and to be an educational tool for patients. The calendar wheel can be set at the first day of the last menstrual period for each patient and then photocopied for the chart and the patient.

Evaluation

In a pilot study, a convenience sample of 12 practising physicians (obstetricians and family physicians) and 12 family practice residents were surveyed regarding their opinions about the usefulness of the checklist. Physicians attending rounds at the Children's and Women's Health Centre of British Columbia were given a copy of the guidelines to use in their offices and asked to complete a short questionnaire summarizing their impressions of the tool. Family practice residents at Saint Paul's Hospital in Vancouver were asked to review the checklist and complete the same questionnaire during their academic half-day.

Respondents were asked to rate the usefulness of the guidelines as "not at all useful," "somewhat useful," or "very useful." Ten (83.3%) practising physicians and 12 (100%) residents rated the checklist very

useful. The physicians were asked whether they would photocopy the checklist for use in each prenatal patient's chart. Most residents (11/12, 91.7%) and some practising physicians (5/12, 41.7%) said they would photocopy the checklist. Respondents were also asked whether there was information in the guidelines that they felt was inaccurate, excessive, or missing. Responses to this question were used in revising the checklist.

Discussion

The checklist is intended to complement existing prenatal forms, which are structured specifically to allow clinical information and laboratory results to be recorded. Unlike these prenatal forms, the Maternity Care Guidelines checklist provides a time line that prompts physicians to gather information at specific

Figure 1. Maternity Care Guidelines checklist

MATERNITY CARE GUIDELINES (1998)

Patient's Name: _____

Weeks 4 20 40

CLINICAL

DIAGNOSIS:

- consider early discussion/referral for prenatal diagnosis if ≥35 years at EDC or risk factors
- consider early ultrasound (bleeding, dates required for amnio or CVS)
- recommend folic acid 0.4 mg-0.5 mg/day for primary prevention or 4 mg/day if previous pregnancy with a neural tube defect (ideally 1 month before conception through first trimester)

FIRST ANTENATAL VISIT:

- complete history on prenatal form
- ask about history of herpes in woman & partner
- screening questions for domestic violence
- physical exam

EARLY FOLLOW-UP VISIT:

- regular prenatal visits every 4-6 weeks
- earliest auscultation of fetal heart with doppler (10-12 weeks)
- Rh negative women should receive a dose of D Ig within 72 hours after elective abortion, amniocentesis, or following asymptomatic hemorrhage, miscarriage, CVS, external version procedures, ectopic pregnancy resection, stillbirth
- quickening (18-20 weeks)
- Rh negative women: administer full (300 µg) dose of D Ig if antibody negative (28 weeks)
- visits every 2-3 weeks after 30 weeks
- visits q 1-2 weeks after 36 weeks
- offer induction of labour if pregnancy persists to 41-42 weeks gestation (if failed or not possible recommend serial fetal surveillance)

DELIVERY/ POST PARTUM:

- Rh negative women: administer dose of D Ig - 100µg (or 300µg) within 72 hours of delivery if a D positive infant is delivered
- rubella vaccine for all non-immune women
- infants born to HBsAg positive mothers should receive HBIG 0.5 ml IM within 12 hours of birth and Hepatitis B vaccine at birth, 1 and 6 months
- secular prophylaxis for newborn
- newborn hip exam
- recommend rooting-in and early, frequent contact

INVESTIGATIONS

- ABO and Rh blood type and antibody testing
- hemoglobin or hematocrit
- rubella serology
- HBsAg
- syphilis serology
- offer HIV testing (with informed consent and pretest counseling including risk factors, risk of transmission to fetus and availability of therapy to reduce risk of transmission to fetus)
- consider toxoplasmosis serology (if new or outside cat, cats raw meat)
- Tay Sachs disease testing in Ashkenazi Jews by hexosaminidase-A serum (non- Ashkenazi women or WBCs (pregnant women)
- screen for hemoglobinopathies (sickle cell disease, beta thalassemia) by MCV +/- hemoglobin electrophoresis in high risk populations (Asian, African, Mediterranean, Hispanic, Middle Eastern, East Indian)
- screen for asymptomatic bacteriuria by urine culture (12-16 weeks)
- PAP (if not done in previous 6-12 months)
- screen for chlamydia by culture
- consider screening for gonorrhea by cervical culture
- screening by gram stain or Amies/crevins* (for bacterial vaginosis in women at risk for preterm labour or PROM or symptomatic women)
- offer prenatal diagnosis to women with risk factors:
 - CVS (10/12 - 12 weeks (if AFP & 18 wk scan)
 - amniocentesis (15 weeks (can be done later if necessary))
- offer maternal serum triple screening to all women (15-20 weeks optimal time between 15-17 weeks)
- detailed ultrasound at 16-20 weeks (dates, anomalies, twins, placenta placement) - optimal time is 18 weeks
- consider 1 hour 50 g glucose screen (50g load, not fasting, between 24-28 weeks) if 7.8 mmol or above do 3 hour GTT with 100g load
- Rh negative women: repeat Rh antibody level at 24-28 weeks
- consider repeat hemoglobin at 24-28 weeks
- if high risk: repeat syphilis serology, HBsAg, HIV serology, screening for chlamydia and gonorrhea
- +/- repeat urine culture
- fo ultrasound of high risk (IUGR, placenta previa, bleeding)
- screening for Group B Streptococcus with a vaginal-anorectal culture (15-37 weeks) and intrapartum chemoprophylaxis for GBS-colonized women
- intrapartum prophylaxis for Group B Streptococcus for women with risk factors (prolonged labour > 37 weeks, PROM, maternal fever > 38, previous infant with GBS, previously documented GBS bacteriuria)
- newborn screening for PKU, congenital hypothyroidism and phenylketonuria

ISSUES FOR DISCUSSION

- discuss prescription and over-the-counter medications
- discuss prenatal vitamins (including folic acid)
- counsel re potential harmful effects of smoking on fetus and recommend smoking cessation
- screen for evidence of risk-drinking (2 drinks per day or binge drinking), counsel re potentially harmful effects of alcohol on fetus, advise abstinence or limiting drinking
- discuss potential risks to fetus of illicit drug use and encourage abstinence
- discuss diet (including folate, calcium, iron, calories and caffeine)
- discuss exercise (fat, sit-ups, communications, max target heart rate)
- give hospital registration form if required
- give copy of maternity care calendar
- discuss prenatal classes
- recommend reading material

Amniocentesis Need 3 of

1. Homogeneous white or grey non-mucopurulent vaginal discharge
2. Presence of clut cells
3. pH of vaginal secretions > 4.7
4. Amniotic fluid color of vaginal discharge before or after addition of 10% KOH

- recommend re prenatal diagnosis by CVS or amniocentesis with women with identified risk factors (age > 35 years at EDC, previous affected pregnancy, known translocation)
- discuss maternal serum AFP or triple screening with all pregnant women (including limited sensitivity and specificity, psychological implications, risks associated with prenatal diagnosis and 2nd trimester abortion, delays interest in process)
- discuss and recommend breastfeeding
- discuss circumcision
- discuss labour and delivery pain relief, monitoring, episiotomy, labour support (when to call)
- discuss community resources for infants & parents
- recommend infant car seat
- discuss signs that your baby is breastfeeding well
- breastfeeding information (support groups, positioning and latching, hand expression, collection, storage and freezing)
- recommend infants be placed on back or side for sleep
- discuss infant crying
- discuss vitamin D supplementation

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Key points

- Children's and Women's Health Centre of British Columbia offers a checklist of maternity care guidelines to serve as a reminder for caregivers.
- The checklist has three streams: clinical maneuvers, investigations, and topics for discussion. They are arranged chronologically as they should occur during the pregnancy.
- Preliminary evaluation shows the checklist is accepted by physicians.

To date, only a limited evaluation of the Maternity Care Guidelines checklist has been completed. A more detailed evaluation examining whether use of the checklist is associated with improved compliance with the many CPGs for prenatal care is planned. As well, use of this checklist during medical training needs to be explored further.

Presentation of information is limited by the space constraints of the one-page format. The checklist is meant to serve as a quick reminder for doctors, rather than a comprehensive reference. For example, the checklist simply recommends discussing exercise early in the pregnancy, but possible topics of discussion include advantages and disadvantages of exercising; prepregnancy level of fitness; absolute and relative contraindications to exercise; contraindicated types of exercise; recommended frequency, intensity, time, and type of exercise; rate of progression; target heart rate zones as a measure of intensity; and the importance of warm-up and cooling-off periods.^{35,36} An inclusive list such as this is beyond the scope of the checklist, and practitioners seeking further information need to review original references.

Because CPGs for prenatal care are constantly changing, this checklist is meant to serve only as a guide and will need to be adapted to incorporate new recommendations. The authors plan to update the checklist periodically.

Conclusion

The Maternity Care Guidelines checklist is designed to help physicians implement the many current CPGs for prenatal care. The checklist notes the various strengths of evidence behind the recommendations. It can be used simply as a quick reference in the office or for recording in individual patient's charts. ♦

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