# NEON Obstetrics & Gynecology Clinical Guidelines: 2012-2013

## Table of Contents

<table>
<thead>
<tr>
<th>Condition</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Care Guidelines</td>
<td>1</td>
</tr>
<tr>
<td>• Anovulatory Bleeding</td>
<td>2</td>
</tr>
<tr>
<td>• Antepartum Fetal Surveillance For Stillbirth High-Risk</td>
<td>2-3</td>
</tr>
<tr>
<td>• Antibiotic Prophylaxis for Gynecologic Procedures</td>
<td>3-4</td>
</tr>
<tr>
<td>• Breast Cancer Screening Guidelines (USPSTF and ACS)</td>
<td>4-5</td>
</tr>
<tr>
<td>• Cervical Cancer Screening Guidelines</td>
<td>5-6</td>
</tr>
<tr>
<td>• Pap Smear &amp; Cervical Cancer Screening Abnormalities</td>
<td>6-7</td>
</tr>
<tr>
<td>• Cervical Cancer Diagnosis &amp; Treatment</td>
<td>8</td>
</tr>
<tr>
<td>• Chronic Hypertension In Pregnancy</td>
<td>9</td>
</tr>
<tr>
<td>• Contraception</td>
<td>9-12</td>
</tr>
<tr>
<td>• Endometriosis</td>
<td>12-13</td>
</tr>
<tr>
<td>• External Cephalic Version</td>
<td>13</td>
</tr>
<tr>
<td>• Fetal Macrosomia</td>
<td>14</td>
</tr>
<tr>
<td>• Herpes in Pregnancy</td>
<td>14-15</td>
</tr>
<tr>
<td>• Induction of Labor</td>
<td>15-16</td>
</tr>
<tr>
<td>• Infertility &amp; Ovulatory Dysfunction</td>
<td>16</td>
</tr>
<tr>
<td>• Intrauterine Growth Restriction (IUGR)</td>
<td>16-17</td>
</tr>
<tr>
<td>• Polycystic Ovarian Syndrome</td>
<td>17-18</td>
</tr>
<tr>
<td>• Preeclampsia &amp; Eclampsia</td>
<td>18-19</td>
</tr>
<tr>
<td>• Premature Rupture Of Membranes</td>
<td>19-20</td>
</tr>
<tr>
<td>• Premenstrual Syndrome</td>
<td>20-21</td>
</tr>
<tr>
<td>• Prenatal Diagnosis of Fetal Chromosomal Abnormalities</td>
<td>21-22</td>
</tr>
<tr>
<td>• Preterm Birth Risk Factor Assessment</td>
<td>22</td>
</tr>
<tr>
<td>• Preterm Labor</td>
<td>22-23</td>
</tr>
<tr>
<td>• Rh D Alloimmunization Prevention</td>
<td>23-24</td>
</tr>
<tr>
<td>• Recurrent Early Pregnancy Loss</td>
<td>24</td>
</tr>
<tr>
<td>• Routine Prenatal Care</td>
<td>25-27</td>
</tr>
<tr>
<td>• Surgical Alternatives To Hysterectomy For Fibroids</td>
<td>28</td>
</tr>
<tr>
<td>• Thromboembolism in Pregnancy</td>
<td>29</td>
</tr>
<tr>
<td>• Vaginal Birth After Previous Cesarean Delivery (VBAC)</td>
<td>30</td>
</tr>
<tr>
<td>• Viral &amp; Parasitic Infections in Pregnancy</td>
<td>30-31</td>
</tr>
<tr>
<td>• Syphilis in Pregnancy</td>
<td>31</td>
</tr>
</tbody>
</table>

Appendix: October 2007 American Journal of Obstetrics & Gynecology [2006 consensus guidelines for the management of women with Cervical Intraepithelial Neoplasia or Adenocarcinoma In Situ.]

Yellow areas infer changes since last update
OBSTETRICS & GYNECOLOGY CLINICAL GUIDELINES 2012-2013

NEON clinicians espouse to the following collection of clinical guidelines. The guidelines cover common conditions that are managed in our practice settings and reflective of our Health Plan. This collection is not intended to be an all-inclusive list. Clinical parameters employed in our clinical performance audits shall be derived from the guidelines herein stated. These guidelines are updated on an annual basis.

The majority of the guidelines noted herein were accessed from the National Guideline Clearinghouse; a federal web-based resource (www.guideline.gov). However, the majority of the guidelines, themselves, are espoused by the American College of Obstetrics & Gynecology (ACOG).

Levels of Recommendations shall be highlighted herein below where applicable as are defined as follows:

- **Level A** - Recommendations are based on good and consistent scientific evidence.
- **Level B** - Recommendations are based on limited or inconsistent scientific evidence.
- **Level C** - Recommendations are based primarily on consensus and expert opinion.

**GENERAL CARE GUIDELINES**

With respect to the general medical care guidelines of a patient, the following apply:

1. The health care provider should consider the patient’s chief complaint, concerns and expectations.
2. Medications should be prescribed, modified and/or administered for health care provider patients whose known conditions would affect or be affected by diagnostic procedures provided without the medication or its modification.
3. The health care provider in performing the comprehensive evaluation and in developing the treatment plan should consider the behavioral, psychological, developmental and physiologic limitations of the patient.
4. The health care provider should attempt to manage the patients’ plan, anxiety and behavior during evaluation to facilitate safety and efficiency.
5. The health care provider should recommend that the patient return for further evaluation. The health care provider, based on the patient’s risk factors, should determine the frequency and type of evaluation(s) and preventive measures.
6. The health care provider should consult with or refer the patient to other health professionals when deemed to be in the best interest of the patient.
7. Relevant and appropriate written referral information about the patient should be communicated between the referring health care provider and the health professional accepting the referral.
8. Changes in the patient’s health history, and the findings and observations of the periodic evaluation and general health assessment, including counseling and recommended preventive measures, as well as consultations with and referrals to other health professionals, should be included in the patient’s health information record.
9. At every opportunity, the health care provider should emphasize the prevention and early detection of disease through patient education in preventive health practices.
ANOVULATORY BLEEDING

The following recommendations are based on good and consistent scientific evidence (Level A):

1. The treatment of choice for anovulatory uterine bleeding is medical therapy with oral contraceptives. Cyclic progestins also are effective.

2. Women who have failed medical therapy and no longer desire future childbearing are candidates for endometrial ablation, which appears to be an efficient and cost-effective alternative treatment to hysterectomy for anovulatory uterine bleeding. However, endometrial ablation may not be definitive therapy.

The following recommendations are based primarily on consensus and expert opinion (Level C):

1. An underlying coagulopathy, such as von Willebrand’s disease, should be considered in all patients (particularly adolescents) with abnormal uterine bleeding, especially when bleeding is not otherwise easily explained or does not respond to medical therapy.

2. Although there is limited evidence evaluating the efficacy of conjugated equine estrogen therapy in anovulatory bleeding, it is effective in controlling abnormal uterine bleeding.

SOURCE(S)

ANTEPARTUM FETAL SURVEILLANCE FOR STILLBIRTH HIGH-RISK

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

1. Women with high-risk factors for stillbirth should undergo antepartum fetal surveillance using the nonstress test (NST), contraction stress test (CST), biophysical profile (BPP), or modified BPP.

2. Initiating testing at 32 to 34 weeks of gestation is appropriate for most pregnancies at increased risk of stillbirth, although in pregnancies with multiple or particularly worrisome high-risk conditions, testing may be initiated as early as 26 to 28 weeks of gestation.

3. When the clinical condition that has prompted testing persists, a reassuring test should be repeated periodically (either weekly or, depending on the test used and the presence of certain high-risk conditions, twice weekly) until delivery. Any significant deterioration in the maternal medical status or any acute diminution in fetal activity requires fetal reevaluation, regardless of the amount of time that has elapsed since the last test.

4. An abnormal NST or modified BPP usually should be further evaluated by either a CST or a full BPP. Subsequent management should then be predicated on the results of the CST or BPP, the gestational age, the degree of oligohydramnios (if assessed), and the maternal condition.
5. Oligohydramnios, defined as either no ultrasonographically measurable vertical pocket of amniotic fluid greater than 2 cm or an amniotic fluid index (AFI) of 5 cm or less, requires (depending on the degree of oligohydramnios, the gestational age, and the maternal clinical condition) either delivery or close maternal or fetal surveillance.

6. In the absence of obstetric contraindications, delivery of the fetus with an abnormal test result often may be attempted by induction of labor with continuous monitoring of the fetal heart rate and contractions. If repetitive late decelerations are observed, cesarean delivery generally is indicated.

7. Recent, normal antepartum fetal test results should not preclude the use of intrapartum fetal monitoring.

8. Umbilical artery Doppler velocimetry has been found to be of benefit only in pregnancies complicated by intrauterine growth restriction. If used in this setting, decisions regarding timing of delivery should be made using a combination of information from the Doppler ultrasonography and other tests of fetal well-being, along with careful monitoring of maternal status.

9. Middle cerebral artery Doppler velocimetry should be considered an investigational approach to antepartum fetal surveillance.

SOURCE(S)

ANTIBIOTIC PROPHYLAXIS FOR GYNECOLOGIC PROCEDURES

The following recommendations are based on good and consistent scientific evidence (Level A):
1. Patients undergoing hysterectomy should receive antimicrobial prophylaxis.
2. Pelvic inflammatory disease (PID) complicating intrauterine device (IUD) insertion is uncommon. The cost-effectiveness of screening for gonorrhea and chlamydia before insertion is unclear; in women screened and found to be negative, prophylactic antibiotics appear to provide no benefit.
3. Women undergoing surgically induced abortion are candidates for antibiotic prophylaxis.
4. Appropriate prophylaxis for women undergoing surgery that may involve the bowel includes a mechanical bowel preparation with or without oral antibiotics and the use of a broad-spectrum parenteral antibiotic, given preoperatively.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):
1. In patients with no history of pelvic infection, hysterosalpingography (HSG) can be performed without prophylactic antibiotics. If HSG demonstrates dilated tubes, antibiotic prophylaxis should be given to reduce the incidence of post-HSG PID.
2. Routine antibiotic prophylaxis is not recommended in patients undergoing hysteroscopic surgery.
3. Cephalosporin antibiotics may be used for antimicrobial prophylaxis in women with a history of penicillin allergy not manifested by an immediate hypersensitivity reaction.
The following recommendations are based primarily on consensus and expert opinion (Level C):

1. Antibiotic prophylaxis is not recommended in patients undergoing exploratory laparotomy or diagnostic laparoscopy.

2. Use of antibiotic prophylaxis with saline infusion sonography should be based on clinical considerations, including individual risk factors.

3. Patients with high- and moderate-risk structural cardiac defects undergoing certain surgical procedures may benefit from antimicrobial prophylaxis.

4. Patients with a history of anaphylactic reactions to penicillin should not receive cephalosporins.

5. Pretest screening for bacteriuria or urinary tract infection by urine culture or urinalysis, or both, is recommended in women undergoing urodynamic testing. Those with positive results should be given antibiotic treatment.

SOURCE(S)

BREAST CANCER SCREENING GUIDELINES

Women at Average Risk
- Screening mammography every 2 years from 50 to 74 years of age (USPSTF 2009)

 Older Women

Screening decisions in older women should be individualized by considering the potential benefits and risks of mammography in the context of current health status and estimated life expectancy. As long as a woman is in reasonably good health and would be a candidate for treatment, she should continue to be screened with mammography.

Women at Increased Risk

Women at increased risk of breast cancer might benefit from additional screening strategies beyond those offered to women of average risk, such as earlier initiation of screening, shorter screening intervals, or the addition of screening modalities other than mammography and physical examination, such as ultrasound or magnetic resonance imaging. However, the evidence currently available is insufficient to justify recommendations for any of these screening approaches.
CERVICAL CANCER SCREENING GUIDELINES

Based on ASCCP 2006 consensus guidelines & ACOG 2009 guidelines screening for cervical cancer in women should generally begin at age 21 as tabulated and described below.

<table>
<thead>
<tr>
<th>Group</th>
<th>Cytopath</th>
<th>Pap Testing</th>
<th>HPV DNA Testing</th>
<th>Colposcopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 20 y/o</td>
<td>ASC-US</td>
<td>Repeat Pap in 12 months if HPV is negative</td>
<td>Reflex HPV testing should be ordered</td>
<td>Colpo is recommended if HPV is positive</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSIL</td>
<td></td>
<td></td>
<td></td>
<td>Colpo is recommended</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>If histology is CIN-positive, manage according to 2006 Consensus Guidelines for the Management of CIN</td>
</tr>
<tr>
<td>HSIL, ASC-H</td>
<td>Colpo is recommended within a short time frame</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGC</td>
<td>Colpo is recommended along with endocervical and endometrial evaluation</td>
<td>HPV positive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ 30</td>
<td>Negative</td>
<td>HPV positive</td>
<td></td>
<td>Repeat Pap &amp; HPV test in 12 months</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Colpo is recommended if Pap is still negative and HPV is positive on 12-month repeat</td>
</tr>
</tbody>
</table>

ASC-US = Atypical Squamous Cells of Undetermined Significance; LSIL = Low grade Squamous Intraepithelial Lesion; HSIL = High grade Squamous Intraepithelial Lesion; ASC-H = Atypical Squamous Cells, cannot exclude HSIL; AGC = Atypical Glandular Cells

Pregnant Non-adolescent women:
- **ASC-US & LSIL**: Identical to above except that it is acceptable to defer colposcopy until 6 weeks postpartum
- **HSIL**: Identical to above except that reevaluation with cytology and colposcopy is recommended no sooner than 6 weeks postpartum in whom CIN 2,3 histopathology is not diagnosed
- **ACG**: Identical to above except that endocervical and endometrial evaluation are unacceptable during pregnancy

Cytology-negative HPV-positive women:
- Conservative follow-up with repeat Pap testing and HPV testing at 12 months appears to be the best approach.
- Most newly acquired HPV infections clear spontaneously and the prevalence of HPV DNA positivity drops with age from a peak in adolescents and women in their 20s.

For women 30 years and older:
- Combined screening utilizing Pap test and HPV test is recommended.
- If both Pap and HPV tests are negative, screening period of 3 years is supported by ASCCP.

2009 ACOG Cervical Cancer Screening recommendations are as follows:
Cervical cancer screening should begin at the age of 21.
Most women under the age of 30 should be screened every two years.
Women age 30 and older who have had three consecutive normal Pap tests can be screened every three years.
Women with certain risk factors may need to be screened more frequently. These risk factors include HIV positivity; immunosuppression; DES exposure in utero; or history of treatment for cervical intraepithelial neoplasia (CIN) 2, CIN 3, or cervical cancer.
Women who have had a total hysterectomy (removal of the cervix and uterus) for reasons other than cancer can stop being screened for cervical cancer unless they have a history of high-grade CIN.

The upper age limit for cervical cancer screening has not changed: ACOG notes that women may be able to stop cervical cancer screening at age 65 or 70 if they've had three or more normal Pap results in a row and no abnormal Pap in the previous ten years. Women at high-risk of cervical cancer may need to continue screening beyond this age.

PAP SMEAR & CERVICAL CANCER SCREENING ABNORMALITIES

When faced with an abnormal Pap smear the management plan should be developed that reflects the latest consensus guidelines. The patient should be made aware of her responsibility and the importance of her role in the management plan. The medical record should reflect that the patient is fully aware of her role in the management plan relative to adherence to the plan.

The provider and ancillary staff must exhaust all reasonable efforts at ensuring patient adherence with follow-up for all abnormal Pap smears. These efforts must be documented in the medical record as an added precaution against heightened malpractice risk associated with these clinical decisions and actions thereof.

Management of Abnormal Screening Results

NEON providers are directed to abide by the American Society for Colposcopy and Cervical Pathology (ASCCP) September 2006 Consensus Statement that is published in the American Journal of Obstetrics & Gynecology, October 2007. These guidelines are summarized in the grid illustrated below.

<table>
<thead>
<tr>
<th>ACOG PAP SMEAR MANAGEMENT GUIDELINES 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NEGATIVE FOR INTRAEPITHELIAL LESION OR MALIGNANCY</strong></td>
</tr>
<tr>
<td>21-29 years old</td>
</tr>
<tr>
<td>(HPV testing run as ASCUS-Reflex)</td>
</tr>
<tr>
<td>ROUTINE SCREENING (every 2 years)</td>
</tr>
<tr>
<td><strong>NEGATIVE FOR INTRAEPITHELIAL LESION OR MALIGNANCY AND NEGATIVE HPV TEST</strong> (30 years and older)</td>
</tr>
<tr>
<td>(30 years and older)</td>
</tr>
<tr>
<td>ROUTINE SCREENING (no sooner than 3 years)</td>
</tr>
<tr>
<td><strong>NEGATIVE FOR INTRAEPITHELIAL LESION OR MALIGNANCY AND POSITIVE HPV TEST</strong> (30 years and older)</td>
</tr>
<tr>
<td>(30 years and older)</td>
</tr>
<tr>
<td>a) if Pap normal and HPV NEG then routine screening @ 3 years</td>
</tr>
<tr>
<td>b) if Pap normal but HPV + (for 2nd year), refer to GYN for Colposcopy and F/U within 6 wks</td>
</tr>
</tbody>
</table>
ORGANISMS: (trichomonas vaginalis, fungal organisms consistent with Candida spp. Shift in flora suggestive of bacterial vaginos, cellular changes consistent with Herpes simplex virus and bacteria consisten with actinomyces spp.)

Treat accordingly

OTHER NON-NEOPLASTIC FINDINGS: (e.g. inflammation, repair, radiation, IUD changes, etc.); glandular cells status post hysterectomy: atrophy

Use clinical judgement

OTHER: endometrial cells (in women > 40 y/o)

Refer to GYN for Endometrial Sampling & F/U within 6 weeks

EPITHELIAL CELL ABNORMALITIES - SQUAMOUS CELLS

<table>
<thead>
<tr>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) if HPV positive refer to GYN for Colposcopy &amp; F/U within 6 weeks</td>
</tr>
<tr>
<td>b) if HPV negative repeat cytology @ 12 months</td>
</tr>
</tbody>
</table>

Low-grade Squamous Intraepithelial Lesion (LSIL) encompassing: HPV/mild dysplasia/ CIN 1

Refer to GYN for Colposcopy. GYN visit should occur within 6 weeks

High-grade Squamous Intraepithelial (HSIL) encompassing: moderate and severe dysplasia, CIS/ CIN 2 and CIN 3 - with features suspicious for invasion (if invasion is suspected)

Refer to GYN for Colposcopy. GYN visit should occur within 6 weeks

Squamous cell carcinoma

Refer to GYN for management within 2 weeks

EPITHELIAL CELL ABNORMALITIES-GLANDULAR CELLS

<table>
<thead>
<tr>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Atypical endocervical cells</td>
</tr>
<tr>
<td>b) Atypical glandular cells</td>
</tr>
<tr>
<td>c) Atypical endometrial cells</td>
</tr>
<tr>
<td>d) Endocervical adenocarcinoma in situ</td>
</tr>
<tr>
<td>e) Adenocarcinoma</td>
</tr>
</tbody>
</table>

Refer to GYN for Endometrial Sampling & F/U. GYN visit should occur within 6 weeks.

OTHER MALIGNANT NEOPLASMS: (specified)

Refer to GYN for management within 2 weeks

Pregnant Non-adolescent women:

- **ASC-US & LSIL**: Identical to above except that it is acceptable to defer colposcopy until 6 weeks postpartum
- **HSIL**: Identical to above except that reevaluation with cytology and colposcopy is recommended no sooner than 6 weeks postpartum in whom CIN 2,3 histopathology is not diagnosed
- **ACG**: Identical to above except that endocervical and endometrial evaluation are unacceptable during pregnancy

Cytology-negative HPV-positive women:

- Conservative follow-up with repeat Pap testing and HPV testing at 12 months appears to be the best approach.
- Most newly acquired HPV infections clear spontaneously and the prevalence of HPV DNA positivity drops with age from a peak in adolescents and women in their 20s.

Management of CIN and Adenocarcinoma Histology derived from Colposcopy & Biopsy

**SEE APPENDIX:** ASCCP 2006 Consensus Statement
CERVICAL CANCER DIAGNOSIS & TREATMENT

Guidelines for Clinical Staging of Invasive Cervical Carcinoma

1. Examinations should include inspection, palpation, colposcopy, endocervical curettage, hysteroscopy, cystoscopy, proctoscopy, intravenous pyelography, and x-ray examination of lungs and skeleton.

2. Conization of the cervix is considered a clinical examination.

3. Suspected bladder or rectal involvement should be confirmed histologically.

4. If there is a question about the most appropriate stage, the earlier stage should be assigned.

These guidelines are made up of examinations generally available throughout the world. Strict adherence to the rules for staging provides the framework for making valid scientific comparison of results. It is recommended that the International Federation of Gynecology and Obstetrics (FIGO) system for staging of gynecologic cancer be used to facilitate comparisons of international data. Refer to the original guideline document for FIGO nomenclature for cancer of the cervix.

The following recommendations are based on good and consistent scientific evidence (Level A):

- For stage Ib and selected Ila carcinomas of the cervix, either radical hysterectomy and lymph node dissection or radiation therapy with cisplatin-based chemotherapy should be considered. Adjuvant radiation therapy may be required in those treated surgically, based on pathologic risk factors, especially in those with stage Ib2 carcinoma.

- Stage Iib and greater should be treated with external-beam and brachytherapy radiation and concurrent cisplatin-based chemotherapy.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- For stage Ia1 microinvasive squamous carcinoma of the cervix, treatment with conization of the cervix or simple extrafascial hysterectomy may be considered.

- Stage Ia2 invasive squamous carcinoma of the cervix should be treated with radical hysterectomy with lymph node dissection or radiation therapy, depending on clinical circumstances.

- Stage Ib1 should be distinguished from stage Ib2 carcinoma of the cervix because the distinction predicts nodal involvement and overall survival and may, therefore, affect treatment and outcome.

- Patients with squamous cell cancers and those with adenocarcinomas should be managed similarly, except for those with microinvasive disease. Criteria for microinvasive adenocarcinomas have not been established.

SOURCE(S)

CHRONIC HYPERTENSION IN PREGNANCY

The following recommendation is based on good and consistent scientific evidence (Level A):

- Angiotensin-converting enzyme inhibitors are contraindicated during pregnancy and are associated with fetal and neonatal renal failure and death.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- Antihypertensive therapy should be used for pregnant women with severe hypertension for maternal benefit.
- Methyldopa and labetalol are appropriate first-line antihypertensive therapies.
- Treatment of women with uncomplicated mild chronic hypertension is not beneficial because it does not improve perinatal outcome.
- The beta-blocker atenolol may be associated with growth restriction and is not recommended for use in pregnancy.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Women with chronic hypertension should be evaluated for potentially reversible etiologies, preferably prior to pregnancy.
- Women with long-standing hypertension should be evaluated for end-organ disease, including cardiomegaly, renal insufficiency, and retinopathy, preferably prior to pregnancy.
- When chronic hypertension is complicated by intrauterine growth restriction or preeclampsia, fetal surveillance is warranted.

SOURCE(S)


CONTRACEPTION

Family Planning Primary Care Guidelines

- Refer to contraception and family planning guide to counseling and management developed by Brigham and Women's Hospital under separate cover. Boston (MA): Brigham and Women's Hospital; 2005 National Guideline Clearinghouse publishing. Also refer to current NEON Hormone Contraception Guidelines.

Emergency Contraception

The following recommendations are based on good and consistent scientific evidence (Level A):
• Combination or progestin-only oral contraceptives for emergency contraception should be offered to women who have had unprotected sexual intercourse within 72 hours of intercourse.
• Because the progestin-only method produces less nausea and may be more effective than the combination oral-contraceptive method, this regimen should be strongly considered.
• To minimize nausea and vomiting with combination oral-contraceptive products, an antiemetic agent should be prescribed and the patient should take it 1 hour before the first oral contraceptive dose.
• During a routine gynecologic visit, physicians who wish to increase the availability and use of emergency contraception may offer patients an advance prescription for emergency contraception.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):
• If possible, emergency contraception should be used within the first 24 hours after unprotected intercourse because efficacy may be greatest if used within 24 hours after exposure.
• Patients should be evaluated for pregnancy if menses have not begun within 21 days following emergency contraception treatment.

The following recommendations are based primarily on consensus and expert opinion (Level C):
• Counseling regarding effective contraceptive methods, sexually transmitted diseases, and safe sex practices should be undertaken, when feasible, at the time emergency contraception is prescribed.
• Data are insufficient to evaluate the effectiveness of emergency contraception treatment when initiated more than 72 hours and up to 120 hours after a single act of unprotected sexual intercourse. Therefore, the risk and benefits of treatment should be weighed on a case-by-case basis.
• No data specifically examine the risk of using hormonal methods of emergency contraception among women with contraindications to the use of conventional oral-contraceptive preparations; nevertheless, emergency contraception may be offered to such women.
• In a woman with a history of idiopathic thrombosis, the progestin-only regimen may be preferred.

SOURCE(S)

Hormonal Contraception and Coexistent Conditions
The following recommendations are based on good and consistent scientific evidence (Level A):
• Women with fibroadenoma, benign breast disease with epithelial hyperplasia with or without atypia, or a family history of breast cancer are at little or no additional
risk of breast cancer because of oral contraceptive (OC) use. Therefore, OCs can be prescribed for such women if they are otherwise appropriate candidates.

- Progestin-only preparations are safe and preferable forms of hormonal contraception for lactating women. Combination OCs are not recommended as the first choice for breastfeeding mothers because of the negative impact of contraceptive doses of estrogen on lactation. However, use of combination OCs by well-nourished breastfeeding women does not appear to result in infant development problems; therefore, their use can be considered once milk flow is well established.

- Hormonal contraceptive effectiveness is compromised by the use of the antibiotics rifampin and griseofulvin; thus, women taking these antibiotics should use nonhormonal contraceptives.

- Progestin-only preparations are appropriate for women at increased risk for venous thromboembolism (VTE). Combination OCs are not recommended for women with a documented history of unexplained VTE or VTE associated with pregnancy or exogenous estrogen use, unless they are taking anticoagulants.

- Combination OCs should be prescribed with caution, if ever, to women who are older than 35 years and are smokers. Women younger than 30 years who smoke and are otherwise healthy generally can be prescribed combination OCs.

- If desired, healthy, nonsmoking women doing well on combination OCs may continue their use until menopause.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- Women with well-controlled and monitored hypertension aged 35 years and younger are appropriate candidates for a trial of combination OCs formulated with 35 micrograms or less of estrogen, provided they are otherwise healthy with no evidence of end-organ vascular disease and do not smoke cigarettes. If blood pressure remains well controlled several months after initiating OCs, use can be continued.

- The use of combination OCs by women with diabetes should be limited to such women who do not smoke, are younger than 35 years, and are otherwise healthy with no evidence of hypertension, nephropathy, retinopathy, or other vascular disease.

- Women with migraine headaches who have focal neurologic signs are not appropriate candidates for OC use. Combination OCs can be used by women with simple migraine headaches (i.e., no focal neurologic signs) if they do not smoke, are younger than 35 years, and are otherwise healthy. If such women experience increased frequency or severity of headaches or develop headaches with focal neurologic signs or symptoms, they should discontinue OC use.

- Combination OCs may be beneficial in treating dysmenorrhea and menorrhagia in women with uterine fibroids.

- The risks associated with stopping OCs 1 month or more before major surgery should be balanced against the risks of an unintended pregnancy. In current OC users undergoing major surgical procedures, heparin prophylaxis should be considered. Because of the low perioperative risk of VTE, it generally is
considered unnecessary to discontinue combination OCs before laparoscopic tubal sterilization or other brief surgical procedures.

- Progestin-only OCs and contraceptive injections appear to be the hormonal contraception methods of choice for women with systemic lupus erythematosus (SLE). Use of combination OCs in women with SLE can be considered if the women have stable or inactive disease and no history of thrombosis, nephropathy, or antiphospholipid antibodies.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Most women with controlled dyslipidemia can use combination OCs formulated with 35 micrograms or less of estrogen. In women with uncontrolled low-density lipoprotein (LDL) cholesterol greater than 160 mg/dL, a triglyceride level greater than 250 mg/dL, or multiple additional risk factors for coronary artery disease, alternative contraceptives should be considered.

- Depot medroxyprogesterone acetate (DMPA) has noncontraceptive benefits and is the contraceptive method of choice for many women with sickle cell disease.

- Progestin-only contraceptives may be appropriate for women with coronary artery disease, congestive heart failure, or cerebrovascular disease. However, combination oral contraceptives are contraindicated in these women.

**SOURCE(S)**

**ENDOMETRIOSIS**

The following recommendations are based on good and consistent scientific evidence (Level A):

- For pain relief, treatment with a gonadotropin-releasing hormone (GnRH) agonist for at least 3 months or with danazol for at least 6 months appears to be equally effective in most patients.

- When relief of pain from treatment with a GnRH agonist supports continued therapy, the addition of add-back therapy reduces or eliminates GnRH-induced bone mineral loss without reducing the efficacy of pain relief.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- Therapy with a GnRH agonist is an appropriate approach to the management of the woman with chronic pelvic pain, even in the absence of surgical confirmation of endometriosis, provided that a detailed initial evaluation fails to demonstrate some other cause of pelvic pain.

- For pain relief, oral contraceptives and oral or depot medroxyprogesterone acetate (MPA) are effective in comparison with placebo and may be equivalent to other more costly regimens.
• Hormone replacement therapy with estrogen is not contraindicated following hysterectomy and bilateral salpingo-oophorectomy for endometriosis.

The following recommendations are based primarily on consensus and expert opinion (Level C):
• For severe endometriosis, medical treatment alone may not be sufficient.
• Because endometriosis often is unpredictable and may regress, expectant management may be appropriate in asymptomatic patients.

SOURCE(S)

EXTERNAL CEPHALIC VERSION

The following recommendation is based on good and consistent scientific evidence (Level A):
• Because the risk of an adverse event occurring as a result of external cephalic version (ECV) is small and the cesarean delivery rate is significantly lower among women who have undergone successful version, all women near term with breech presentations should be offered a version attempt.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):
• Patients should have completed 36 weeks of gestation before attempting ECV.
• Previous cesarean delivery is not associated with a lower rate of success; however, the magnitude of the risk of uterine rupture is not known.
• There is insufficient evidence to recommend routine tocolysis for ECV attempts for all patients, but it may particularly benefit nulliparous patients.
• Evidence is inconsistent regarding the benefits of anesthesia use during ECV attempts.
• Cost-effectiveness depends upon utilization of vaginal breech deliveries and costs of the version protocol at a particular institution, but at least one decision analysis suggests the policy is cost effective.

The following recommendations are based primarily on consensus and expert opinion (Level C):
• Fetal assessment before and after the procedure is recommended.
• External cephalic version should be attempted only in settings in which cesarean delivery services are readily available.

SOURCE(S)
FETAL MACROsomIA

The following recommendation is based on good and consistent scientific evidence (Level A):

- The diagnosis of fetal macrosomia is imprecise. For suspected fetal macrosomia, the accuracy of estimated fetal weight using ultrasound biometry is no better than that obtained with clinical palpation (Leopold's maneuvers).

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- Suspected fetal macrosomia is not an indication for induction of labor, because induction does not improve maternal or fetal outcomes.
- Labor and vaginal delivery are not contraindicated for women with estimated fetal weights up to 5,000 g in the absence of maternal diabetes.
- With an estimated fetal weight greater than 4,500 g, a prolonged second stage of labor or arrest of descent in the second stage is an indication for cesarean delivery.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Although the diagnosis of fetal macrosomia is imprecise, prophylactic cesarean delivery may be considered for suspected fetal macrosomia with estimated fetal weights greater than 5,000 g in women without diabetes and greater than 4,500 g in women with diabetes.
- Suspected fetal macrosomia is not a contraindication to attempted vaginal birth after a previous cesarean delivery.

SOURCE(S)


HERPES IN PREGNANCY

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- Women with primary herpes simplex virus (HSV) during pregnancy should be treated with antiviral therapy.
- Cesarean delivery should be performed on women with first-episode HSV who have active genital lesions at delivery.
- For women at or beyond 36 weeks of gestation with a first episode of HSV occurring during the current pregnancy, antiviral therapy should be considered.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Cesarean delivery should be performed on women with recurrent HSV infection who have active genital lesions or prodromal symptoms at delivery.
- Expectant management of patients with preterm labor or preterm premature rupture of membranes and active HSV may be warranted.
- For women at or beyond 36 weeks of gestation who are at risk for recurrent HSV, antiviral therapy also may be considered, although such therapy may not reduce the likelihood of cesarean delivery.
- In women with no active lesions or prodromal symptoms during labor, cesarean delivery should not be performed on the basis of a history of recurrent disease.

SOURCE(S)

INDUCTION OF LABOR

The following recommendations are based on good and consistent scientific evidence (Level A):
- Prostaglandin E (PGE) analogues are effective in promoting cervical ripening and inducing labor.
- Women in whom induction of labor is indicated may be appropriately managed with either a low- or high-dose oxytocin regimen.
- Fetal heart rate and uterine activity should be continuously monitored from the time the PGE\textsubscript{2} vaginal insert is placed until at least 15 minutes after it is removed.
- High-dose PGE\textsubscript{2} vaginal suppositories may be used in the management of intrauterine fetal demise in the second trimester of pregnancy.
- Although the optimal dose and timing interval of misoprostol is unknown, lower doses (25 micrograms every 3 to 6 hours) are effective for cervical ripening and induction of labor.
- With term premature rupture of membranes, labor may be induced with prostaglandins.

The following recommendations are based on evidence that may be limited or inconsistent (Level B):
- Misoprostol use in women with prior cesarean birth should be avoided because of the possibility of uterine rupture.
- The use of higher doses of misoprostol (50 micrograms every 6 hours) to induce labor may be appropriate in some situations, although there are reports of increased risk of complications, including uterine hyperstimulation.

The following recommendations are based primarily on consensus and expert opinion (Level C):
- For women with third-trimester intrauterine fetal demise, intravaginal misoprostol can be used to induce labor.
- Fetal heart rate and uterine activity should be continuously monitored from 30 minutes to 2 hours after administration of PGE\textsubscript{2} gel.

SOURCE(S)
INFERTILITY & OVULATORY DYSFUNCTION

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- In obese women with polycystic ovary syndrome (PCOS), weight loss should be considered because it is associated with a decrease in circulating testosterone concentration, an increase in the frequency of ovulation, and in some women, pregnancy.
- In obese women with PCOS who did not ovulate when treated with clomiphene, the combination of clomiphene plus metformin may be considered because the rate of ovulation is greater than it is with clomiphene alone.
- In women with PCOS and a serum dehydroepiandrosterone sulfate (DHEAS) level higher than 2 micrograms/mL, the combination of clomiphene plus glucocorticoid may be considered because the rate of ovulation is greater than it is with clomiphene alone.
- In women with hypothalamic amenorrhea and a body mass index (BMI) lower than 20, weight gain should be considered because it may be associated with the resumption of ovulation and pregnancy.
- In women with PCOS receiving gonadotropin injections for ovulation induction, low-dose follicle-stimulating hormone (FSH) may be considered because it is associated with a higher rate of cycles with the development of a single dominant follicle and fewer high-order multiple gestations.

SOURCE(S)

INTRAUTERINE GROWTH RESTRICTION (IUGR)

The following recommendations are based on good and consistent scientific evidence (Level A):

- The use of Doppler ultrasonography to measure umbilical artery waveforms in the management of intrauterine growth restriction (IUGR) is associated with a reduction in perinatal death and may be considered a part of fetal evaluation once IUGR is suspected or diagnosed.
- Nutrient treatment or supplementation, zinc or calcium supplementation, plasma volume expansion, maternal oxygen therapy, antihypertensive therapy, heparin, and aspirin therapy have not been shown to be effective for prevention or treatment of IUGR.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Antepartum surveillance should be instituted once the possibility of extrauterine survival for the growth-restricted fetus has been determined. This may include
Doppler velocimetry, contraction stress testing, nonstress test (NST) with amniotic fluid volume assessment, and biophysical profile (BPP).

- Routine screening for IUGR in low-risk patients should comprise classical clinical monitoring techniques. Ultrasound evaluation of the fetus is appropriate in patients determined to be at high risk.

**SOURCE(S)**


**POLYCYSTIC OVARIAN SYNDROME**

The following recommendations are based on good and consistent scientific evidence (Level A):

- All women with polycystic ovary syndrome (PCOS) should be screened for glucose intolerance with a 2-hour glucose level after a 75-g fasting glucose challenge.
- All women with PCOS should be screened for dyslipidemia with a fasting lipoprotein profile, including total cholesterol, low-density lipoprotein (LDL) cholesterol, high-density lipoprotein (HDL) cholesterol, and triglyceride determinations.
- Interventions that improve insulin sensitivity, including weight loss, use of metformin, and use of thiazolidinediones, are useful in improving ovulatory frequency in women with PCOS.
- Use of clomiphene citrate is appropriate because it effectively results in pregnancy in women with PCOS.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- Improvements in insulin sensitivity, by weight loss or by the use of insulin-sensitizing agents, may favorably improve many risk factors for diabetes and cardiovascular disease in women with PCOS.
- When using gonadotropins to induce ovulation, low-dose therapy is recommended because it offers a high rate of monofollicular development and a significantly lower risk of ovarian hyperstimulation in women with PCOS.
- The benefit and role of surgical therapy in ovulation induction in women with PCOS is uncertain.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Although eflornithine hydrochloride cream has been effective in treating facial hirsutism in women, additional benefits or risks for women with PCOS are unknown.
- All women with a suspected diagnosis of PCOS should be screened with a 17-hydroxyprogesterone value for nonclassical congenital adrenal hyperplasia.
• Combining medical interventions may be the most effective way to treat hirsutism. Combined therapy with an ovarian suppression agent and an antiandrogen appears effective in treating hirsutism in women with PCOS. The best pill or antiandrogen is unknown.

• The ideal choice of ablative procedures for long-term management of hirsutism in women with PCOS is unknown.

• The optimal progestin, duration, and frequency of treatment to prevent endometrial cancer in women with PCOS is unknown.

• The effects of insulin-sensitizing agents on early pregnancy are unknown; metformin appears safe, but any additional effect at reducing pregnancy loss is uncertain.

• The best or initial treatment for hirsutism, ovulation induction, or prevention of long-term metabolic sequelae for women with PCOS is unknown. All of these conditions may benefit from lifestyle modification as initial treatment.

SOURCE(S)

PREECLAMPSIA & ECLAMPSIA

The following recommendations are based on good and consistent scientific evidence (Level A):

• Magnesium sulfate should be used for the prevention and treatment of seizures in women with severe preeclampsia or eclampsia.

• If analgesia/anesthesia is required, regional or neuraxial analgesia/anesthesia should be used because it is efficacious and safe for intrapartum management of women with severe preeclampsia in the absence of coagulopathy.

• Low-dose aspirin has not been shown to prevent preeclampsia in women at low risk and, therefore, is not recommended.

• Daily calcium supplementation has not been shown to prevent preeclampsia and, therefore, is not recommended.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

• The management of a woman with severe preeclampsia remote from term is best accomplished in a tertiary care setting or in consultation with an obstetrician–gynecologist with training, experience, and demonstrated competence in the management of high-risk pregnancies, such as a maternal–fetal medicine subspecialist.

• Practitioners should be aware that although various laboratory tests may be useful in the management of women with preeclampsia, to date there is no reliable predictive test for preeclampsia.
- Invasive hemodynamic monitoring should be considered in preeclamptic women with severe cardiac disease, renal disease, refractory hypertension, pulmonary edema, or unexplained oliguria.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Women should be considered as having severe preeclampsia if they have blood pressure levels of 160 mm Hg systolic or higher or 110 mm Hg diastolic or higher on two occasions at least 6 hours apart while the patient is on bed rest, proteinuria of 5 g or higher in a 24-hour urine specimen or 3+ or greater on two random urine samples collected at least 4 hours apart, oliguria of less than 500 mL in 24 hours, cerebral or visual disturbances, pulmonary edema or cyanosis, epigastric or right upper-quadrant pain, elevated liver enzymes, thrombocytopenia, or fetal growth restriction.

- Expectant management should be considered for women remote from term who have mild preeclampsia.

- Antihypertensive therapy (with either hydralazine or labetalol) should be used for treatment of diastolic blood pressure levels of 105–110 mm Hg or higher.

**SOURCE(S)**
American College of Obstetricians and Gynecologists (ACOG). Diagnosis and management of preeclampsia and eclampsia. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 2002 Jan. 9 p. (ACOG practice bulletin; no. 33). [63 references]

### PREMATURE RUPTURE OF MEMBRANES

The following recommendations are based on good and consistent scientific evidence (Level A):

- With term premature rupture of membranes (PROM), labor may be induced at the time of presentation or patients may be observed for up to 24 to 72 hours for the onset of spontaneous labor.

- Antibiotics prolong the latency period and improve perinatal outcome in patients with preterm PROM and should be administered according to one of several published protocols if expectant management is to be pursued prior to 35 weeks of gestation.

- Antenatal corticosteroids should be administered to gravidas with PROM before 32 weeks of gestation to reduce the risks of respiratory distress syndrome, neonatal intraventricular hemorrhage, necrotizing enterocolitis, and neonatal death.

- Digital cervical examination should not be performed in patients with PROM who are not in labor and in whom immediate induction of labor is not planned.

- Patients with PROM prior to 30 to 32 weeks of gestation should be managed conservatively if no maternal or fetal contraindications exist.

The following recommendations are based primarily on consensus and expert opinion (Level C):
• Tocolysis may be utilized in patients with preterm PROM to permit administration of antenatal corticosteroids and antibiotics.
• Antenatal corticosteroids may be administered to gravidas with PROM up to 34 weeks of gestation.

SOURCE(S)

PREMENSTRUAL SYNDROME

The following recommendations are based on good and consistent scientific evidence (Level A):
• Women in whom premenstrual syndrome (PMS) has been diagnosed should meet standard diagnostic criteria and should have the timing of their symptoms confirmed using a prospective symptom calendar.
• Risk factors such as increased imposed stress and specific personality profiles are not helpful in differentiating women with PMS from those without PMS.
• The selective serotonin reuptake inhibitors (SSRIs), particularly fluoxetine and sertraline, have been shown to be effective in treating PMS.
• The bulk of scientific evidence does not support the usefulness of natural progesterone or primrose oil in the treatment of PMS.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):
• The use of gonadotropin-releasing hormone (GnRH) agonists and surgical oophorectomy has been shown to be effective in PMS. However, the side effects of GnRH agonists and oophorectomy limit their usefulness in most patients.
• Treatment with the anxiolytic alprazolam is effective in some patients. Its side effects limit its use as a first-line approach.
• Carbohydrate-rich foods and beverages may improve mood symptoms and food cravings in women with PMS and are a reasonable first-line approach in many patients.
• Calcium supplements have been shown to be effective in treatment of PMS.
• Magnesium, vitamin B₆, and vitamin E may have minimal effectiveness in the treatment of PMS.
• Oral contraceptives may improve physical symptoms of PMS.

The following recommendations are based primarily on consensus and expert opinion (Level C):
• Supportive therapy is central to the management of all PMS patients.
• Aerobic exercise can be recommended to PMS patients.
• As an overall clinical approach, treatments should be employed in increasing orders of complexity. Using this principle, in most cases, the therapies should be used in the following order:
  
  • Step 1. Supportive therapy, complex carbohydrate diet, aerobic exercise, nutritional supplements (calcium, magnesium, vitamin E), spironolactone
  
  • Step 2. The SSRIs (fluoxetine or sertraline as the initial choice); for women who do not respond, consider an anxiolytic for specific symptoms
  
  • Step 3. Hormonal ovulation suppression (oral contraceptives or GnRH agonists)

SOURCE(S)

PRENATAL DIAGNOSIS OF FETAL CHROMOSOMAL ABNORMALITIES

The following recommendation is based on good and consistent scientific evidence (Level A):

• Early amniocentesis

The following recommendations are based primarily on consensus and expert opinion (Level C):

• Women with singleton pregnancies who will be age 35 years or older at delivery should be offered prenatal diagnosis for fetal aneuploidy.

• Patients with a risk of fetal aneuploidy high enough to justify an invasive diagnostic procedure include women with a previous pregnancy complicated by an autosomal trisomy or sex chromosome aneuploidy, a major fetal structural defect identified by ultrasonography, either parent with a chromosome translocation, and carriers of a pericentric chromosome inversion or parental aneuploidy.

• A combination of one major or two or more minor ultrasound markers of Down syndrome substantially increases risk and warrants further counseling regarding invasive testing.

• The use of ultrasonographic screening for Down syndrome in high-risk women (e.g., women age 35 years and older) to avoid invasive testing should be limited to specialized centers.

• With an isolated choroid plexus cyst, testing is indicated only if serum screening results are abnormal or the patient will be older than 32 years at delivery.

• Cervical infections with chlamydia or herpes are contraindications to transcervical chorionic villus sampling (CVS).

• Counseling for amniocentesis in a twin pregnancy in women age 33 years is indicated because the midtrimester risk of fetal Down syndrome is approximately the same as for that of a singleton pregnancy at age 35 years.
• Nondirective counseling before genetic amniocentesis does not require a patient to commit to pregnancy termination if the result is abnormal.

**SOURCE(S)**

**PRETERM BIRTH RISK FACTOR ASSESSMENT**

The following recommendation is based on good and consistent scientific evidence (Level A):

• There are no current data to support the use of salivary estriol, home uterine activity monitoring (HUAM), or bacterial vaginosis (BV) screening as strategies to identify or prevent preterm birth.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

• Screening for risk of preterm labor by means other than historic risk factors is not beneficial in the general obstetric population.

• Ultrasonography to determine cervical length, fetal fibronectin (fFN) testing, or a combination of both may be useful in determining women at high risk for preterm labor. However, their clinical usefulness may rest primarily with their negative predictive value given the lack of proven treatment options to prevent preterm birth.

• Fetal fibronectin testing may be useful in women with symptoms of preterm labor to identify those with negative values and a reduced risk of preterm birth, thereby avoiding unnecessary intervention.

**SOURCE(S)**

**PRETERM LABOR**

The following recommendations are based on good and consistent scientific evidence (Level A):

• There are no clear "first-line" tocolytic drugs to manage preterm labor. Clinical circumstances and physician preferences should dictate treatment.

• Antibiotics do not appear to prolong gestation and should be reserved for group B streptococcal prophylaxis in patients in whom delivery is imminent.

• Neither maintenance treatment with tocolytic drugs nor repeated acute tocolysis improve perinatal outcome; neither should be undertaken as a general practice.
• Tocolytic drugs may prolong pregnancy for 2 to 7 days, which may allow for administration of steroids to improve fetal lung maturity and the consideration of maternal transport to a tertiary care facility.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

• Cervical ultrasound examination and fetal fibronectin testing have good negative predictive value; thus, either approach or both combined may be helpful in determining which patients do not need tocolysis.

• Amniocentesis may be used in women in preterm labor to assess fetal lung maturity and intra-amniotic infection.

• Bed rest, hydration, and pelvic rest do not appear to improve the rate of preterm birth and should not be routinely recommended.

SOURCE(S)

RH D ALLOIMMUNIZATION PREVENTION

The following recommendations are based on good and consistent scientific evidence (Level A):

The Rh D-negative woman who is not Rh D-alloimmunized should receive anti-D immune globulin:

• At approximately 28 weeks of gestation, unless the father of the baby is also known to be Rh D negative

• Within 72 hours after the delivery of an Rh D-positive infant

• After a first-trimester pregnancy loss

• After invasive procedures, such as chronic villus sampling, amniocentesis, or fetal blood sampling

The following recommendations are based primarily on consensus and expert opinion (Level C):

Anti-D immune globulin prophylaxis should be considered if the patient has experienced:

• Threatened abortion

• Second- or third-trimester antenatal bleeding

• External cephalic version

• Abdominal trauma

SOURCE(S)
PLEASE NOTE THAT NEON PRENATAL PATIENTS WHO ARE RH-NEGATIVE ANTI-D-POSITIVE SHOULD BE REFERRED TO A HIGH-RISK PERINATOLOGIST FOR PRENATAL CARE.

RECURRENT EARLY PREGNANCY LOSS

The following recommendations are based on good and consistent scientific evidence (Level A):

- Women with recurrent pregnancy loss should be tested for lupus anticoagulant and anticardiolipin antibodies using standard assays. If test results are positive for the same antibody on two consecutive occasions 6 to 8 weeks apart, the patient should be treated with heparin and low dose aspirin during her next pregnancy attempt.
- Mononuclear cell (leukocyte) immunization and intravenous immune globulin (IVIG) are not effective in preventing recurrent pregnancy loss.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- An association between the luteal phase defect and recurrent pregnancy loss is controversial. If a diagnosis of luteal phase defect is sought in a woman with recurrent pregnancy loss, it should be confirmed by endometrial biopsy.
- Luteal phase support with progesterone is of unproven efficacy.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Couples with recurrent pregnancy loss should be tested for parental balanced chromosome abnormalities.
- Women with recurrent pregnancy loss and a uterine septum should undergo hysteroscopic evaluation and resection.
- Cultures for bacteria or viruses and tests for glucose intolerance, thyroid abnormalities, antibodies to infectious agents, antinuclear antibodies, antithyroid antibodies, paternal human leukocyte antigen status, or maternal antipaternal antibodies are not beneficial and, therefore, are not recommended in the evaluation of otherwise normal women with recurrent pregnancy loss.
- Couples with otherwise unexplained recurrent pregnancy loss should be counseled regarding the potential for successful pregnancy without treatment.

SOURCE(S)
ROUTINE PREGNATAL CARE

Clinical Highlights
1. Identify patients with greater potential for high-risk for pregnancy and provide appropriate preconception counseling.
2. Each pregnant patient should receive visit-specific screening tests, education, immunizations, and chemoprophylaxis as described on the prenatal care guidelines table below.
3. Each pregnant patient and each patient planning a pregnancy should receive a comprehensive risk assessment and appropriate risk-related interventions, including risks for preterm labor, relevant infectious diseases, and relevant genetic disorders.
4. For patients with previous Cesarean section, provide education of risks and benefits associated with vaginal birth after Cesarean (VBAC). Assess and document patients’ desire and appropriateness for VBAC.
5. Pregnant women at risk for lead exposure should have lead screening.

<table>
<thead>
<tr>
<th>Prenatal Care Guidelines Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event</td>
</tr>
<tr>
<td>Screening Maneuvers</td>
</tr>
<tr>
<td>1. Risk profiles</td>
</tr>
<tr>
<td>2. Height and weight/BMI</td>
</tr>
<tr>
<td>5. Cholesterol and HDL</td>
</tr>
<tr>
<td>7. Rubella/rubeola</td>
</tr>
<tr>
<td>8. Varicella</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
### Prenatal Care Guidelines Table (cont'd)

<table>
<thead>
<tr>
<th>Event</th>
<th>Preconception Visit</th>
<th>Visit 1** 6 to 8 weeks</th>
<th>Visit 2 10 to 12 weeks</th>
</tr>
</thead>
</table>
| **Counseling Education Intervention** | 1. PTL education and prevention  
2. Substance use  
3. Nutrition and weight  
4. Domestic abuse  
5. List of medications, herbal supplements, and vitamins  
6. Accurate recording of menstrual dates | 1. PTL education and prevention  
2. Prenatal and lifestyle education  
   - Physical activity  
   - Nutrition  
   - Warning signs  
   - Course of care  
   - Physiology of pregnancy  
   - Follow-up modifiable risk factors  
3. Discuss fetal anomaly biochemical screening | 1. PTL education and prevention  
2. Prenatal and lifestyle education  
   - Fetal growth  
   - Review lab results from visit 1  
   - Breast-feeding  
   - Physiology of pregnancy  
   - Follow-up modifiable risk factors |

| Immunization and Chemoprophylaxis | 1. Tetanus booster  
2. Rubella/MMR  
3. [Varicella/VZIG]  
4. Hepatitis B vaccine  
5. Folic acid supplement | 1. Tetanus booster  
2. Nutritional supplements  
3. Influenza  
4. [Varicella/VZIG] | |

### Prenatal Care Guidelines Table (cont’d)

<table>
<thead>
<tr>
<th>Event</th>
<th>Visit 3 16 to 18 weeks</th>
<th>Visit 4 22 weeks</th>
<th>Visit 5 28 weeks</th>
</tr>
</thead>
</table>
| **Screening Maneuvers** | 1. Weight  
2. Blood pressure  
3. Fetal heart tones  
4. Fetal anomaly/ biochemical screening  
5. OB ultrasound (optional)  
6. Fundal height  
7. [Cervical assessment] | 1. Weight  
2. Blood pressure  
3. Fetal heart tones  
4. Fundal height  
5. [Cervical assessment] | 1. PTL risk  
2. Weight  
3. Blood pressure  
4. Fetal heart tone  
5. Fundal height  
6. Cervical assessment  
7. GDM  
8. Domestic abuse  
9. [Rh antibody status]  
10. Hepatitis B surface Ag  
11. [GC/Chlamydia] |

| **Counseling Education Intervention** | 1. PTL education and prevention  
2. Prenatal and lifestyle education  
   - Physiology of pregnancy  
   - Second trimester growth  
   - Quickening  
   - Follow-up modifiable risk factors | 1. PTL education and prevention  
2. Prenatal and lifestyle education  
   - Classes  
   - Family issues  
   - Length of stay  
   - GDM  
   - Follow-up modifiable risk factors  
   - [RhoGAM] | 1. PTL education and prevention  
2. Prenatal and lifestyle education  
   - Work  
   - Physiology of pregnancy  
   - Preregistration  
   - Fetal growth  
   - Follow-up modifiable risk factors  
3. Awareness of fetal movement |

| Immunization and Chemoprophylaxis | None | None | [ABO/Rh/Ab (RhoGAM)] |
## Prenatal Care Guidelines Table (cont’d)

<table>
<thead>
<tr>
<th>Event</th>
<th>Visit 6 32 weeks</th>
<th>Visit 7 36 weeks</th>
<th>Visit 8-11 38 to 41 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Screening Maneuvers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Weight</td>
<td></td>
<td>1. Weight</td>
<td></td>
</tr>
<tr>
<td>2. Blood pressure</td>
<td></td>
<td>2. Blood pressure</td>
<td></td>
</tr>
<tr>
<td>3. Fetal heart tones</td>
<td></td>
<td>3. Fetal heart tones</td>
<td></td>
</tr>
<tr>
<td>4. Fundal height</td>
<td></td>
<td>4. Fundal height</td>
<td></td>
</tr>
<tr>
<td>5. Cervix exam</td>
<td></td>
<td>5. Cervix exam</td>
<td></td>
</tr>
<tr>
<td>6. Confirm fetal position</td>
<td></td>
<td>6. Confirm fetal position</td>
<td></td>
</tr>
<tr>
<td>7. Culture for group B streptococcus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Counseling Education Intervention</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. PTL education and prevention</td>
<td></td>
<td>Prenatal and lifestyle education:</td>
<td></td>
</tr>
<tr>
<td>2. Prenatal and lifestyle education:</td>
<td></td>
<td>• Postpartum care</td>
<td></td>
</tr>
<tr>
<td>• Travel</td>
<td></td>
<td>• Management of late pregnancy symptoms</td>
<td></td>
</tr>
<tr>
<td>• Sexuality</td>
<td></td>
<td>• Contraception</td>
<td></td>
</tr>
<tr>
<td>• Pediatric care</td>
<td></td>
<td>• When to call provider</td>
<td></td>
</tr>
<tr>
<td>• Episiotomy</td>
<td></td>
<td>• Discussion of postpartum depression</td>
<td></td>
</tr>
<tr>
<td>• Follow-up modifyable risk factors</td>
<td></td>
<td>• Follow-up modifyable risk factors</td>
<td></td>
</tr>
<tr>
<td>3. Labor and delivery issues</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Warning signs/PIH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. [VBAC]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Immunization and Chemoprophylaxis</strong></td>
<td></td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

[Bracketed] items refer to high risk groups only.

* It is acceptable for the history and physical and laboratory tests listed under Visit 1 to be deferred to Visit 2 with the agreement of both the patient and the provider.

** Should also include all subjects listed for the preconception visit if none occurred.

**Abbreviations:** CPR, cardiopulmonary resuscitation; GC, gonococci; GDM, gestational diabetes mellitus; HDL, high density lipoprotein; HIV, human immunodeficiency virus; MMR, measles/mumps/rubella; OB, obstetrics; PIH, pregnancy-induced hypertension; PTL, preterm labor; VBAC, vaginal birth after cesarean; VZIG, varicella zoster immune globulin

### Prenatal Care Practices to Consider Discontinuing:

1. Pelvimetry
2. Routine urine dipsticks and routine urinalysis
3. Routine evaluation for edema
4. Routine testing for cytomegalovirus (CMV), parvovirus, toxoplasmosis
5. Routine nutritional supplements
6. Routine testing for bacterial vaginosis (may be necessary in women with a history of preterm labor)

### SOURCE(S)

Institute for Clinical Systems Improvement (ICSI). Routine prenatal care. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2005 Aug. 80 p. [229 references]
SURGICAL ALTERNATIVES TO HYSTERECTOMY FOR FIBROIDS

The following recommendations are based on good and consistent scientific evidence (Level A):

- In women with symptomatic leiomyomas, hysterectomy provides a definitive cure.
- In women with symptomatic leiomyomas, abdominal myomectomy is a safe and effective option for women who wish to retain their uterus. If this option is selected, women should be counseled preoperatively about the relatively high risk of reoperation.
- Use of gonadotropin-releasing hormone (GnRH) agonists preoperatively is beneficial, especially when improvement of hematologic status and uterine shrinkage are important goals. Benefits of the use of GnRH agonists should be weighed against their cost side effects for individual patients.
- The use of vasopressin at the time of myomectomy appears to limit blood loss.

The following recommendation is based on limited or inconsistent scientific evidence (Level B):

- The clinical diagnosis of rapidly growing leiomyomas has not been shown to predict uterine sarcoma and thus should not be used as the sole indication for myomectomy or hysterectomy.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Laparoscopic myomectomy appears to be a safe and effective option for women with a small number of moderately sized uterine leiomyomas who do not desire future fertility. Further studies are necessary to evaluate the safety of this procedure for women planning pregnancy.
- Hysteroscopic myomectomy is an effective option for controlling menorrhagia in women with submucosal leiomyomas.
- Although endometrial ablation appears to be an effective option in controlling menorrhagia in women without leiomyomas, further studies are needed in women who have clinically significant leiomyomas.
- Because leiomyomas may be a factor in infertility for some patients, the issues are complex, and myomectomy should not be performed without first completing a comprehensive fertility evaluation.
- Although postmenopausal women with leiomyomas may have more bleeding problems and some increase in leiomyoma size while taking hormone replacement therapy, there appears to be no reason to withhold this treatment option from women who desire or need such therapy.

SOURCE(S)
American College of Obstetricians and Gynecologists (ACOG). Surgical alternatives to hysterectomy in the management of leiomyomas. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 2000 May. 10 p. (ACOG practice bulletin; no. 16). [64 references]
THROMBOEMBOLISM IN PREGNANCY

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Pregnant patients with a history of isolated venous thrombosis directly related to a transient, highly thrombogenic event (orthopedic trauma, complicated surgery) in whom an underlying thrombophilia has been excluded may be offered heparin prophylaxis or no prophylaxis during the antepartum period. However, they should be counseled that their risk of thromboembolism is likely to be higher than the normal population. Prophylactic warfarin should be offered for 6 weeks postpartum.

- Pregnant patients with a history of idiopathic thrombosis, thrombosis related to pregnancy or oral contraceptive use, or a history of thrombosis accompanied by an underlying thrombophilia other than homozygous for the factor V Leiden mutation, heterozygous for both the factor V Leiden and the prothrombin G20210A mutation, or antithrombin-III (AT-III) deficiency should be offered antepartum and postpartum low-dose heparin prophylaxis.

- Patients without a history of thrombosis but who have an underlying thrombophilia and have a strong family history of thrombosis also are candidates for antepartum and postpartum prophylaxis. At the minimum, postpartum prophylaxis should be offered.

- Pregnant patients with a history of life-threatening thrombosis, with recent thrombosis, with recurrent thrombosis, receiving chronic anticoagulation, or patients with thrombosis found to be AT-III deficient, homozygous for the factor V Leiden mutation or prothrombin G20210A mutation, heterozygous for both the factor V Leiden and the prothrombin G20210A mutation should be given adjusted-dose heparin every 8 hours to maintain the activated partial thromboplastin time (APTT) at least 1.5 times control throughout the dosing interval. Low-molecular-weight heparin (LMWH) administered twice daily also is an alternative.

- Patients at risk for thrombosis should receive warfarin postpartum for 6 weeks to achieve an international normalized ration (INR) of approximately 2.0 to 3.0. Heparin should be given immediately postpartum with warfarin for at least 5 days until the INR is therapeutic.

- Patients with antiphospholipid syndrome and a history of thrombosis require adjusted-dose prophylactic anticoagulation.

- Patients who are candidates for either prophylactic or therapeutic heparin may be given enoxaparin or dalteparin during pregnancy. However, because of the lack of data regarding adequate dosing during pregnancy, antifactor Xa levels may be monitored.

- The safety of epidural anesthesia with twice-daily dosing of LMWH is of concern and should be withheld until 24 hours after the last injection.

- Epidural anesthesia appears to be safe in women taking unfractionated low-dose heparin if the APTT is normal.

SOURCE(S)
VAGINAL BIRTH AFTER PREVIOUS CESAREAN DELIVERY

The following recommendations are based on good and consistent scientific evidence (Level A):

- Most women with one previous cesarean delivery with a low-transverse incision are candidates for vaginal birth after cesarean delivery (VBAC) and should be counseled about VBAC and offered a trial of labor.
- Epidural anesthesia may be used for VBAC.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- Women with a vertical incision within the lower uterine segment that does not extend into the fundus are candidates for VBAC.
- The use of prostaglandins for cervical ripening or induction of labor in most women with a previous cesarean delivery should be discouraged.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Because uterine rupture may be catastrophic, VBAC should be attempted in institutions equipped to respond to emergencies with physicians immediately available to provide emergency care.
- After thorough counseling that weighs the individual benefits and risks of VBAC, the ultimate decision to attempt this procedure or undergo a repeat cesarean delivery should be made by the patient and her physician. This discussion should be documented in the medical record.
- Vaginal birth after a previous cesarean delivery is contraindicated in women with a previous classical uterine incision or extensive transfundal uterine surgery.

SOURCE(S)

VIRAL & PARASITIC INFECTIONS IN PREGNANCY

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- Pregnant women who are seronegative for varicella zoster virus (VZV) and exposed to chickenpox should receive varicella-zoster immune globulin (VZIG).
- Pregnant women who develop chickenpox should be treated with oral acyclovir to minimize maternal symptoms; if pneumonia develops, they should be treated with intravenous acyclovir.
• Pregnant women who have acute parvovirus B19 infection during pregnancy should be monitored with serial ultrasound examinations for at least 10 weeks following infection for the presence of hydrops fetalis.

• Fetuses with evidence of hydrops should undergo fetal blood sampling and transfusion as needed.

• Pregnant women who acquire toxoplasmosis should be treated with spiramycin. When diagnosed, fetal toxoplasmosis should be treated with a combination of pyrimethamine, sulfadiazine, and folinic acid, alternating with spiramycin.

The following recommendations are based primarily on consensus and expert opinion (Level C):

• Routine serologic screening of all pregnant women for cytomegalovirus (CMV) and toxoplasmosis is not recommended.

• Nonpregnant women of reproductive age who have no history of varicella infection should be offered varicella vaccine.

• The diagnosis of toxoplasmosis should be confirmed by a reliable reference laboratory.

• Pregnant women exposed to parvovirus B19 should have serologic screening performed to determine if they are at risk for seroconversion.

• Pregnant women should be counseled about methods to prevent acquisition of cytomegalovirus or toxoplasmosis during pregnancy.

SOURCE(S)

SYMPHILIS IN PREGNANCY

All pregnant women should have a non-treponemal serologic test for syphilis at the time of the first prenatal visit. In women suspected of being at increased risk for syphilis, another non-treponemal test should be performed during the third trimester and again at delivery. The serologic status of all women who have delivered should be known before discharge from the hospital. Seropositive women should be considered infected and should be treated unless prior treatment with fall in antibody titer is medically documented.

The preferred treatment is with penicillin in dosage schedules appropriate for the stage of syphilis (see above). Penicillin prevents congenital syphilis in 90% of cases, even when treatment is given late in pregnancy. Tetracycline and doxycycline are contraindicated in pregnancy, and erythromycin is associated with a high risk of failure in the fetus. Women with a history of penicillin allergy should be skin-tested and desensitized if necessary.

The infant should be evaluated immediately, as noted below, and at 6–8 weeks of age.