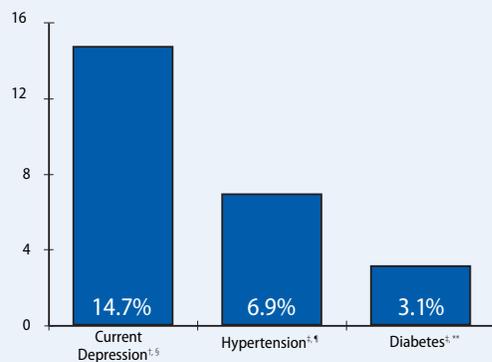


# Preventing and Managing Chronic Disease to Improve the Health of Women and Infants

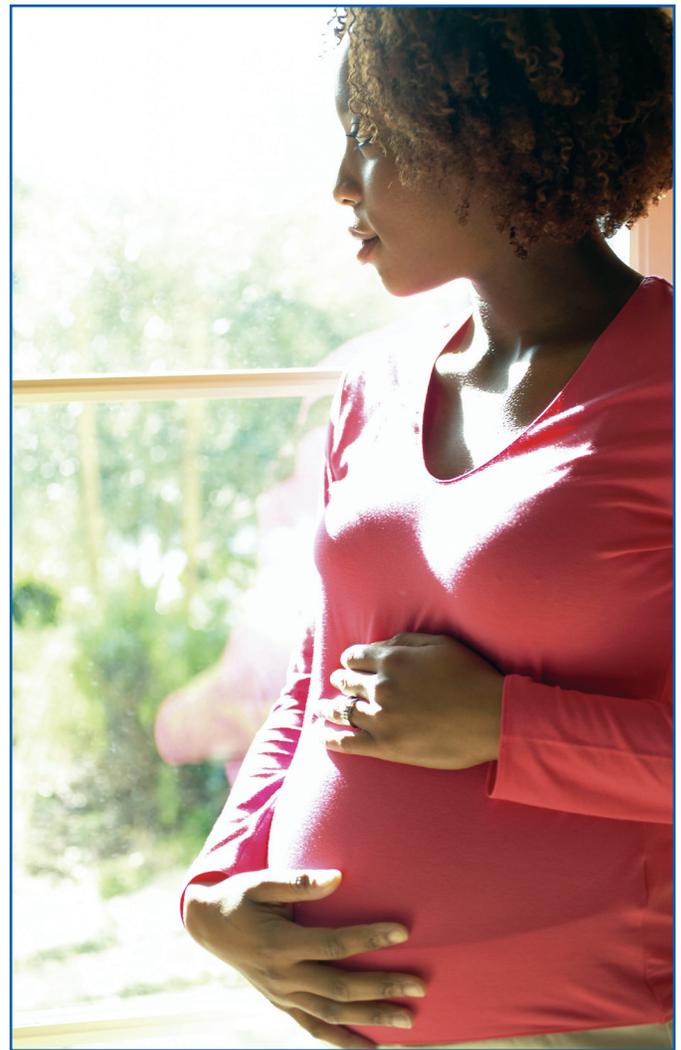
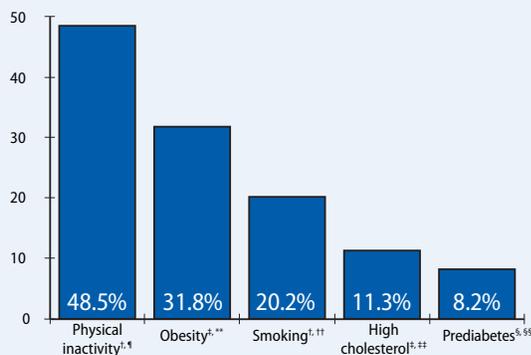
## Chronic Disease and Reproductive Health

- In 2006, people with chronic diseases accounted for 84% of health care spending in the United States.
- Heart disease, cancer, and stroke are the three leading causes of death for women in the United States.
- For women of reproductive age (ages 15–44 years), some of the most common chronic diseases are depression, hypertension (high blood pressure), and diabetes. Chronic diseases can be on-going such as diabetes or they can be reoccurring, such as with depression.
- Among women of reproductive age, insufficient physical activity, poor diet, and smoking are common modifiable risk behaviors for chronic disease. Obesity, high cholesterol, and prediabetes are also common risk factors for developing chronic disease later in life. Eating more healthy foods and being physically active can help prevent the future development of chronic diseases such as heart disease and diabetes.

**Table 1. Prevalence of Chronic Diseases Among Women of Reproductive Age**



**Table 2. Prevalence of Chronic Disease Risk Behaviors and Risk Factors Among Women of Reproductive Age**



## The Impact of Chronic Disease, Risk Behaviors, and Risk Factors on Pregnancy and Infant Outcomes

- **Obesity** increases a woman's risk for maternal complications during pregnancy, such as gestational diabetes, hypertension, and preeclampsia (high blood pressure and protein in the urine) as well as the risk for a cesarean section (C-section). Infants of obese mothers also face increased risk for future chronic disease.
- **Smoking during pregnancy** increases a woman's risk for pregnancy complications including placenta previa (when the placenta gets too close to or covers the cervix), placental abruption (when the placenta partially or totally separates from the uterus before the baby is born), and preterm rupture of membranes. It also increases the infants' risk for low birth weight, preterm delivery, sudden infant death syndrome (SIDS), and preterm-related infant death. Children born to women who smoke during pregnancy are at an increased risk for obesity.
- Women with **type 1 or type 2 diabetes** before pregnancy have an increased risk for preeclampsia, hypertension during pregnancy, cesarean delivery, and adverse birth outcomes such as miscarriage (spontaneous abortions), birth defects, preterm delivery, macrosomia, hypoglycemia (low blood sugar), death of the fetus, and infant death.
- **Hypertension** (high blood pressure) before pregnancy is associated with an increased risk for maternal complications such as preeclampsia, placental abruption, and gestational diabetes. These women also face an increased risk for adverse birth outcomes such as preterm delivery, small for gestational age, and infant death.
- Researchers do not know for certain how **depression** during pregnancy can affect an infant's health. However, women with depression during pregnancy do report engaging in behaviors associated with adverse infant health outcomes such as smoking and other substance abuse, and beginning prenatal care later in pregnancy.

## The Effect of Hypertension and Diabetes During Pregnancy on a Woman's Long-Term Health

### DURING PREGNANCY



» Gestational Diabetes



» Type 2 Diabetes, Cardiovascular Disease Risk

» Hypertension During Pregnancy



» Hypertension, Heart Disease

### AFTER PREGNANCY



- Women who have gestational diabetes or hypertension during pregnancy are at a higher risk of developing cardiovascular and metabolic diseases as they get older.
  - Up to 50% of women with a history of gestational diabetes may develop type 2 diabetes within five years of pregnancy.
  - Women with hypertension during pregnancy are about three times as likely to develop chronic hypertension and two times as likely to develop heart disease later in life. Women with severe preeclampsia (high blood pressure and protein in the urine) are about six times as likely to develop chronic hypertension.

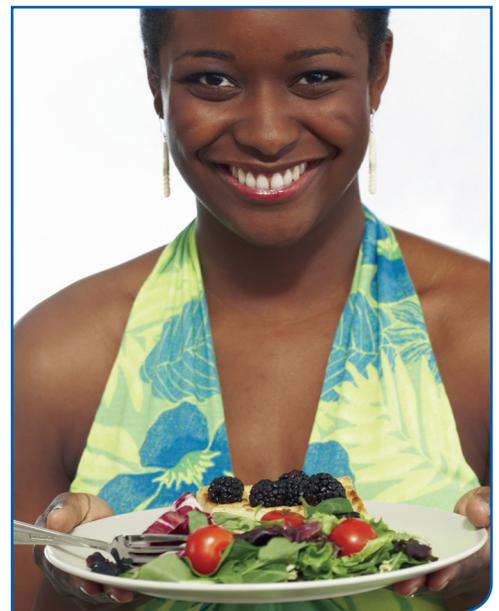
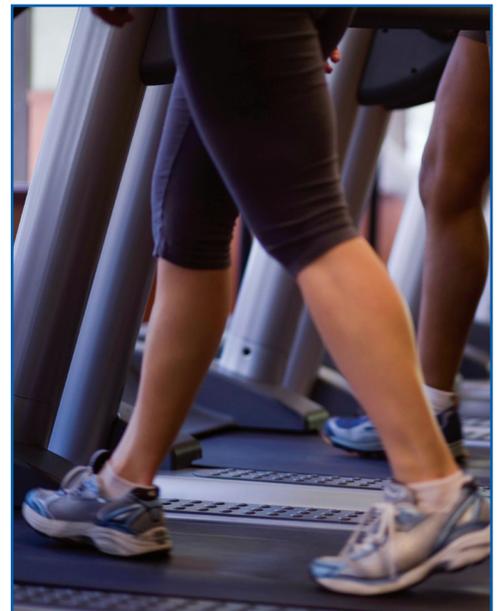
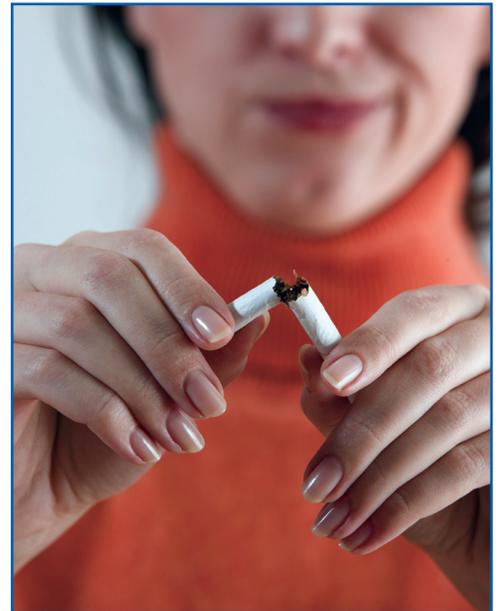
## The Benefits of Reducing Risk for Chronic Disease Among Women of Reproductive Age

The following are examples of how women of reproductive age can benefit from reducing their risk for chronic disease:

- If overweight and obese women reduced their weight to a normal level before pregnancy, the number of women with gestational diabetes could be reduced by almost 50%.
- If all women were of normal weight, exercised daily, and maintained a healthy diet, the number of women with hypertension could be reduced by approximately 50%.
- If clinic-based smoking cessation interventions were universally implemented for pregnant smokers, an additional 3.3% of pregnant smokers would quit.
- If all pregnant smokers quit smoking, as many as 5%–8% of preterm infants, and 13%–19% of term low birthweight infants could be born a normal weight. In addition, as many as 23%–34% of infant deaths from SIDS and 5%–7% of infant deaths from preterm births could be prevented.

### What Can Women Do?

- Visit your doctor at the recommended scheduled time periods for your age and when you are considering becoming pregnant.
- Talk to your doctor about screening for high blood pressure (hypertension), diabetes, and cholesterol, especially if you have a history of gestational diabetes or hypertension during pregnancy. Diagnosis and proper management of chronic disease is important to your long-term health.
- There are lifestyle changes you can make to reduce your risk for future disease. Making these changes is especially important if you already have a history of gestational diabetes or pregnancy induced hypertension. Some of these lifestyle changes include the following:
  - Stop smoking. If you are attempting to quit smoking, contact 1-800-QUIT-NOW (1-800-784-8669) or go to [www.cdc.gov/tobacco/quit\\_smoking/how\\_to\\_quit/index.htm](http://www.cdc.gov/tobacco/quit_smoking/how_to_quit/index.htm).
  - Be physically active regularly. Healthy women should get at least 150 minutes (2 hours and 30 minutes) per week of moderate-intensity aerobic activity, such as brisk walking, during and after their pregnancy. It is best to spread this activity throughout the week.
  - Maintain a healthy diet that includes fruits, vegetables, whole grains, and lean meat (meat with little or no fat) and fat-free or low-fat (1%) milk. Try to limit foods high in fat, added sugars or salt.
  - Maintain a healthy weight, especially before and after pregnancy. When pregnant, talk to your doctor about healthy weight gain.



## What is CDC Doing to Promote Health and Prevent Chronic Disease Among Women of Reproductive Age?

CDC's Division of Reproductive Health (DRH) aims to promote optimal reproductive and infant health and quality of life by influencing public policy, health care practice, community practices, and individual behaviors through scientific and programmatic expertise, leadership, and support with the following activities:

- Monitoring prevalence and trends of chronic disease conditions and risk factors through population-based surveys such as the Behavioral Risk Factor Surveillance System (BRFSS) and the Pregnancy Risk Assessment Monitoring System (PRAMS).
- Supporting and encouraging national- and state-level collaborative work between Maternal and Child Health and Chronic Disease programs through organizations such as the Association of Maternal and Child Health Programs (AMCHP) and National Association of Chronic Disease Directors (NACDD).
- Developing, evaluating, and promoting effective interventions and policies which aim to prevent or reduce the prevalence of chronic disease and related risk factors.
- Some examples of current work being conducted in the United States include—
  - Evaluating a chronic disease screening and lifestyle intervention project for women attending family planning clinics.
  - Developing interventions to increase postpartum screening for diabetes and to prevent progression to type 2 diabetes in women with gestational diabetes.

### Web Sites and Resources:

- CDC's DRH: [www.cdc.gov/reproductivehealth/](http://www.cdc.gov/reproductivehealth/)
- DRH, Research and Evaluation Team: [www.cdc.gov/reproductivehealth/DRH/activities/RET.htm](http://www.cdc.gov/reproductivehealth/DRH/activities/RET.htm)
- BRFSS: [www.cdc.gov/BRFSS](http://www.cdc.gov/BRFSS)
- PRAMS: [www.cdc.gov/prams](http://www.cdc.gov/prams)
- NACDD: [www.chronicdisease.org/i4a/pages/index.cfm?pageid=1](http://www.chronicdisease.org/i4a/pages/index.cfm?pageid=1)
- AMCHP: [www.amchp.org/Pages/Welcome.aspx](http://www.amchp.org/Pages/Welcome.aspx)
- Dietary Guidelines: Department of Health and Human Services (HHS) and the Department of Agriculture: [www.cnpp.usda.gov/dietaryguidelines.htm](http://www.cnpp.usda.gov/dietaryguidelines.htm)
- Weight Gain During Pregnancy Guidelines: Institute of Medicine: [www.iom.edu/Reports/2009/Weight-Gain-During-Pregnancy-Reexamining-the-Guidelines.aspx](http://www.iom.edu/Reports/2009/Weight-Gain-During-Pregnancy-Reexamining-the-Guidelines.aspx)
- Patient Education on Exercise During Pregnancy: American College of Obstetrics and Gynecology: [www.acog.org/publications/patient\\_education/bp119.cfm](http://www.acog.org/publications/patient_education/bp119.cfm)
- Physical Activity Guidelines for Americans: [www.health.gov/paguidelines/](http://www.health.gov/paguidelines/)



#### FOOTNOTES:

**Table 1.** \*Estimates for current depression, hypertension, and diabetes exclude pregnant women; †Ages 18–44 years; ‡Ages 20–44 years; §Depression is defined as major or minor depression as measured by the PHQ-8 scale. Data source: Behavioral Risk Factor Surveillance System (BRFSS), 38 states and District of Columbia (DC), 2006; ¶Hypertension is defined as an elevated BP  $\geq$  140 mmHg OR diastolic BP  $\geq$  90 mmHg) or taking anti-hypertensive medication. Data source: National Health and Nutrition Examination Survey (NHANES), 2003–2006; and \*\*Diabetes is defined as a fasting blood glucose of at least 126 mg/dL. Data source: NHANES, 2003–2006.

**Table 2.** \*Estimates for insufficient physical activity, obesity, and prediabetes exclude pregnant woman. Estimates for smoking and high cholesterol include pregnant women; †Ages 18–44 years; ‡Ages 20–44 years; §Ages 20–39 years; ¶Insufficient physical activity is defined as not meeting the 2008 Physical Activity Guidelines for Americans recommendations for aerobic physical activity (150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic physical activity) or reporting no physical activity. Data source: BRFSS, 50 states, DC, and US territories, 2007; \*\* Obesity is defined as a BMI greater than or equal to 30.0 kg/m<sup>2</sup>. Data source: NHANES, 2003–2006; ††Smoking is defined as reported smoking >100 cigarettes in lifetime and being a current smoker. Data source: National Health Interview Survey (NHIS), 2006–2008; ‡‡High cholesterol is defined as total serum cholesterol levels of 240 mg/dL or higher. Data source: NHANES, 2003–2006; and §§Prediabetes is defined as an impaired fasting glucose of 100–120mg/dl (or 5.6–7.0 mmol/L). Data source: NHANES, 1999–2002.