Most medications pass through the placenta and reach the circulation of the unborn baby (fetus). A medication may have different effects on the mother and the fetus depending upon when it is taken during the pregnancy. The pregnancy is divided into three periods of three months each, also known as trimesters. Some medications may be safe during one trimester but not in another.

**What are the undesirable effects of medications during the pregnancy?**
The first trimester of the pregnancy is the most critical as it relates to development of birth defects (malformations). During the second trimester, some medications may slow the growth and maturation of the fetus. Medications taken during the third trimester may adversely affect the baby’s breathing after delivery. Other drugs may cause premature, delayed, or prolonged delivery.

**How is medication safety during pregnancy evaluated?**
For ethical reasons, pregnant women are not allowed to participate in randomized clinical trials of new medications prior to approval. Since there is no human data available at the time of approval, the regulators have to rely on data from pregnant animals. One problem is that various types of animals often respond differently to the same medication. Thus, it is a challenge to extrapolate (apply) safety data from animals to pregnant women.

Ethically, it is also unacceptable to enroll pregnant women into clinical trials of approved medications. Safety information comes from data registries of women who took the medications while pregnant. These databases collect information on the course of the pregnancy, the baby’s birth weight, and occurrence of any birth defects. Thus, most data on the safety of a medication during pregnancy come from these data registries.

**What are the risks of adverse medication effects during pregnancy?**
There are many medications shown to be harmful to pregnant women. Fortunately, there are also many medications documented to be safe. Having good documentation of potential risks is reassuring. The problem is the third group of medications for which the
Chapter 14 - Why are medications a concern during pregnancy?
documentation is lacking or insufficient. In this group are newly approved medications, natural health products, and dietary supplements. Natural health products sometimes contain heavy metals (Chapter 10), which are toxic to the fetus.

The basic rule is to restrict use of medications during pregnancy. This rule also applies to over-the-counter medications and natural health products. If you are pregnant or trying to become pregnant, consult your physician or pharmacist prior to initiating use of any medication.

It is well documented that smoking during pregnancy exposes the fetus to substantial risks. Unfortunately, medications approved for use by those who wish to quit (nicotine products, Chantix, Cyban) are themselves harmful to the fetus, and their manufacturers discourage use during pregnancy. The advice to pregnant women is to quit without reliance on any medication.

A small group of pregnant women are receiving long-term drug treatment for diabetes, asthma, or high blood pressure. If the mother’s medical condition is poorly controlled, the fetus may be exposed to increased risk. In these situations, it is important to balance the medication’s risks to the fetus against the risks associated with a poorly controlled medical condition in the mother.

What are the current requirements for pregnancy labeling?
The FDA regulations on labeling for medication use during pregnancy were introduced in 1979 and revised in 2006. They require that a “Pregnancy” subsection be included within the “Use in Specific Populations” section of the labeling. This applies to all medications except for those not absorbed systematically and those not known to have a potential for indirect harm to a fetus. Each product must be classified under one of five pregnancy categories based on the risk of reproductive and developmental adverse effects.

Pregnancy Category A. In well-controlled studies of pregnant women, the medication has been shown not to demonstrate a risk to the fetus in the first trimester of pregnancy. The possibility of harm appears remote. The medication should be used during pregnancy only if clearly needed.

Pregnancy Category B. In animal reproductive studies, the medication failed to demonstrate a risk to the fetus, and there are not adequate studies in pregnant women. The possibility of fetal harm is considered remote. The medication should be used only if clearly needed.

Pregnancy Category C. In animal reproduction studies, the medication shows an adverse effect on the fetus (teratogenic or other) and there are no adequate
studies in humans. It should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Pregnancy Category D.** There is evidence of human fetal risk, but the potential benefits from the medication’s use in pregnant women may be acceptable despite its potential risks. The patient must be made aware of the potential hazard to a fetus.

**Pregnancy Category X.** The medication has been demonstrated in humans or animals to cause fetal abnormalities and/or other risks, and this risk in a pregnant woman clearly outweighs any possible benefit. The “Contraindications” section should state this risk. The patient must be made aware of the potential hazard to a fetus.

The FDA recently has proposed changes to the format and content of the pregnancy and lactation labeling for human prescription drugs and biological products. It is proposed that the labeling include a summary of the risks of using a drug during pregnancy and lactation, and a discussion of the data suggesting the summary. It also should include relevant clinical information to help health-care providers make prescribing decisions and counsel women. The current pregnancy categories would be eliminated.

**Key messages**

- New medications are, for ethical reasons, not tested in pregnant women prior to marketing.
- Many medications are documented post-marketing to be safe or unsafe in pregnant women.
- A dilemma occurs with medications that have no documentation or insufficient documentation.
- The basic rule: Restrict use of medications during pregnancy, including over-the-counter medications and natural health products.
- Poorly controlled diabetes, asthma, or high blood pressure in the mother may be a higher risk to the fetus than the risks of the medications.