In Ohio, certain infectious diseases of public health significance must be reported along with county of residence, age and gender of the patient. Although all three pieces of data are important, this issue of Women’s Health Update focuses on the impact of infectious diseases on women.

Varicella (chickenpox) is an infectious disease that negatively impacts a pregnant woman. The Centers for Disease Control and Prevention (CDC) Web site (http://www.cdc.gov/vaccines/vpd-vac/varicella/vac-faqs-clinic-preg.htm) explains:

- “Susceptible pregnant women are at risk for associated complications when they contract varicella. Varicella causes severe maternal morbidity, and 10 percent to 20 percent of infected women develop varicella pneumonia, with mortality reported as high as 40 percent.”
- “Newborns whose mothers develop varicella rash from five days before to two days after delivery are at risk for neonatal varicella, associated with mortality as high as 30 percent. Furthermore, intrauterine infection may result in stillbirth, [chickenpox] during infancy or early childhood or congenital varicella syndrome.”

Sexually transmitted diseases (STDs) are also an important concern for physicians caring for
pregnant women and the unborn children they carry. The CDC Web site (http://www.cdc.gov/std/STDFact-STDs&Pregnancy.htm#affect) explains:

- “STDs can be passed from a pregnant woman to the baby before, during or after the baby's birth. Some STDs (such as syphilis) cross the placenta and infect the baby while it is in the uterus (womb). Other STDs (such as gonorrhea, Chlamydia, hepatitis B and genital herpes) can be transmitted from mother to baby during delivery as the baby passes through the birth canal. HIV can cross the placenta during pregnancy, infect the baby during the birth process and, unlike most other STDs, can infect the baby through breastfeeding.”

- “A pregnant woman with an STD may also have early onset of labor, premature rupture of the membranes surrounding the baby in the uterus and uterine infection after delivery.”

The harmful effects of STDs in babies may include stillbirth (a baby who is born dead), low birth weight (less than five pounds), conjunctivitis (eye infection), pneumonia, neonatal sepsis (infection in the baby’s bloodstream), neurologic damage, blindness, deafness, acute hepatitis, meningitis, chronic liver disease and cirrhosis. Most of these problems can be prevented if the mother receives routine prenatal care, which includes screening tests for STDs starting early in pregnancy and repeated close to delivery, if necessary. Other problems can be treated if the infection is found at birth.

When a woman has an infectious disease, she is not able to work until she recovers. The loss of one income in a two-income home, or the loss of income for a single parent, can be devastating. Sometimes a woman is not able to care for her children after an infectious disease leaves her debilitated. This can occur with a pregnant woman who contracts chickenpox during pregnancy and recovers but experiences learning and mobility problems as a result. It can also occur as a secondary result of an infectious disease, such as meningitis.

Some women do not seek medical care quickly enough after contracting an infectious disease. This may be due to lack of insurance or medical provider, the inability to pay an insurance co-payment or the inability to access a medical provider because of transportation needs. When medical care is delayed, complications become a problem.

One infectious disease that causes complications is strep throat, which can have no symptoms or include a sore throat. Strep can be life threatening and result in death if the bacteria move into the blood. Another is poliomyelitis; it can cause permanent disability. And infection with E. coli due to food contamination can result in diarrhea, kidney failure and death. Some E. coli infections can cause loss of circulation to extremities and result in removal of the extremity, especially in infants.

With the onset of influenza season, the CDC Advisory Committee for Immunization Practices recommends pregnant women receive the influenza vaccine. Other high-risk groups of women should also receive the vaccine; medical providers can answer questions as to whether an individual should receive the vaccine each influenza season. Each year, more and more people are recommended to receive the vaccination.

Infectious diseases that impact women are important for many reasons. The bottom line for infectious disease prevention and control holds true for women as well as men in our population: wash your hands, have regular checkups with a medical provider, eat nutritious foods, exercise regularly and be sure vaccinations are up to date.

SHINGLES
By Kim Beery, RN
Infectious Disease Control Consultant, Immunization Program, Bureau of Infectious Disease Control, Division of Prevention, Ohio Department of Health

Shingles, also called herpes zoster or zoster, is a painful skin rash caused by the varicella zoster virus (VZV). VZV is the same virus that causes chickenpox. After an adult or child recovers from chickenpox, the virus stays in the body and can reappear years later, causing shingles. In the United States, there are an estimated 1 million cases of shingles each year.1 Approximately
98 percent of adults 20 years old or older in the United States have evidence of VZV infection and are at risk for shingles. Approximately 30 percent of those individuals will develop shingles at some point in their lifetime.\(^2\)

Shingles usually starts as a rash on one side of the face or body. The rash starts as blisters that scab after three to five days and usually clears within two to four weeks. Before the rash develops, there is often pain, itching or tingling in the area where the rash will develop. Other symptoms of shingles can include fever, headache, chills and upset stomach. Very rarely, shingles can lead to pneumonia, hearing problems, blindness, brain inflammation (encephalitis) or death.\(^2\) For about one person in five, severe pain can continue even after the rash clears up. This pain is called post-herpetic neuralgia (PHN). As people get older, they are more likely to develop PHN, and it is more likely to be severe.

The risk of getting shingles increases as a person gets older, and shingles most commonly occurs in people 50 years old and older. People who have medical conditions that keep the immune system from working properly such as cancer, leukemia, lymphoma and HIV, or people who receive immunosuppressive drugs such as steroids, are also at greater risk to get shingles.\(^2\) Several studies have shown an increased incidence of zoster among women, but some researchers did not find a difference by sex. Women with zoster might also be at increased risk for developing PHN, compared with men.\(^3\) Usually a person has only one episode of shingles in their lifetime; however, it may recur rarely.

Shingles cannot be passed from one person to another. However, shingles virus can be spread from a person with active shingles to a person who has never had chickenpox through direct contact with the rash. The person exposed would develop chickenpox, not shingles. The virus is not spread through sneezing, coughing or casual contact. A person with shingles can spread the disease when the rash is in the blister-phase. If the rash is covered, the risk of spreading shingles is low. Once the rash has developed crusts, the person is no longer contagious. A person is not infectious before blisters appear or with PHN.\(^2\)

Several antiviral medicines are available to treat shingles. These medications should be started as soon as possible after the rash appears and may decrease the length and severity of the illness. Pain medicine may also help with pain caused by shingles.

The vaccine Zostavax®, made by Merck, was licensed in 2006 by the Food and Drug Administration for use in people 60 years old and older to prevent shingles. This is a one-time vaccination. Zostavax® does not treat shingles or PHN once it develops.\(^2\) People who have had an episode of shingles can still receive the shingles vaccine to help prevent future occurrences of the disease. The most common side effects in people who got the vaccine were redness, soreness, swelling or itching at the shot site and headache. A vaccine, like any medicine, could possibly cause serious problems, such as severe allergic reactions. However, the risk of a vaccine causing serious harm is extremely small and no serious problems have been identified with the shingles vaccine.\(^4\)

In a clinical trial involving thousands of adults 60 years old or older, the shingles vaccine prevented shingles in about half (51 percent) of the people and PHN in 67 percent of the study participants. While the vaccine was most effective in people 60 to 69 years old, it also provided some protection for older groups.\(^2\)

Even though a person’s risk for getting shingles begins to rise around age 50, the shingles vaccine is recommended only for persons age 60 and older. Future research may determine the recommended age for vaccination should be lowered or booster doses are needed.

**Resources:**

2. Centers for Disease Control and Prevention (CDC). Vaccines & Immunizations Website.
4. CDC. Vaccine Information Statement (Interim). Shingles Vaccine (9/11/06).
HIV/AIDS AND WOMEN
By Tracy Barron-Watkins
HIV/STD Prevention Program, Bureau of Infectious Disease Control, Ohio Department of Health

In the United States, HIV is one of the leading causes of death for women behind only cancer and heart disease.1

In Ohio, the number of female HIV/AIDS cases has risen from 1990 through 2006. In 1990, females accounted for less than 13 percent of all new HIV/AIDS cases; by 2006, they accounted for 23 percent.2,3 A benefit of HIV treatment has been fewer deaths and thus more people, including women, living with HIV/AIDS. In 2002, the number of women reported living with HIV/AIDS in Ohio was 2,227; by 2006, the number reached 3,066.3 This increase demonstrates a need for continued HIV prevention-related awareness programming, education and behavior-change programming for women.

In 2006, black women accounted for the largest percentage of new HIV/AIDS cases and women living with HIV/AIDS; white women and Hispanic women, respectively, accounted for the second- and third-largest percentages. HIV/AIDS affects various racial/ethnic groups; the rate of infection in Ohio is similar to the national pattern and disproportionately affects women of color. In Ohio, there were 14,698 persons including 3,066 women living with HIV/AIDS in 2006.3 Of this number, 58 percent were black women, 33 percent were white, 6 percent were Hispanic, less than 1 percent were Asian/Pacific Islander and less than 1 percent were American Indian/Alaska Native.3

In 2006, the majority of new female HIV/AIDS cases were reported in women 20 to 39 years old (57 percent); teen girls 13 to 19 years old accounted for an additional 7 percent.3 This shows a need for HIV/AIDS prevention efforts targeted to females in these age groups to help equip them with the skills and practices needed to make decisions and take actions to prevent HIV transmission. The primary mode of transmission among new female HIV/AIDS cases in 2006 was high-risk heterosexual contact (45 percent) followed by 6 percent who engage in intravenous drug use.3 For the remaining 49 percent of cases, the transmission mode was reported as other or unknown.3

Among the many HIV risk issues and challenges for women are:
- High-risk heterosexual contact
- Substance/drug use
- Lack of recognition of a partner’s risk factors
- Lack of control in relationships
- Biological vulnerability
- Sexually transmitted diseases (STDs)
- Young age
- Race/ethnicity
- Perinatal HIV transmission

So what can women do to prevent HIV/AIDS? The Centers for Disease Control and Prevention recommends the following actions for women to reduce the risk of HIV transmission:4
- Abstain from sex (do not have oral, anal or vaginal sex) until you are in a relationship with only one person, are having sex only with each other and each of you knows the other’s HIV status.
- Get tested for HIV.
- Use a latex condom and lubricant every time you have sex. There are female condoms available.
- If you and your partner have HIV, use condoms to prevent other STDs and possible infection with a different strain of HIV. If only one of you has HIV, use a latex condom every time you have sex.
- Talk about HIV and STDs with your/each partner before you have sex.
- Learn as much as you can about your/each partner’s past behavior (sex and drug use) and consider the risks associated with having sex.
- If you think you may have been exposed to an STD such as gonorrhea, syphilis or Chlamydia, get treatment. These diseases can increase your risk of getting HIV.
- Even if you think you have a low risk of HIV infection, get tested whenever you have a regular medical checkup.
- Do not inject illicit drugs (drugs not prescribed by your doctor).
- If you do inject drugs, do the following:
  - Use only clean needles, syringes and other works.
  - Never share needles, syringes or other works.
Be careful not to expose yourself to another person’s blood.
Get tested for HIV at least once a year.
Consider getting counseling and treatment for your drug use.
Do not have sex when you are taking drugs or drinking alcohol—being high can make you more likely to take risks.
Get tested if you are pregnant or plan on getting pregnant. If you are pregnant and have HIV, talk to your doctor about taking medicine so your baby does not get HIV.
Do not use spermicides that contain nonoxynol-9 (N-9). This product may help keep you from getting pregnant, but it will not protect you from HIV. Using N-9 may make it easier for you to get HIV.
Do not count on most birth control methods to protect you from HIV. The following birth control methods will NOT protect you from HIV: contraceptive pills, diaphragms, shots, implants, N-9.
Do not douche. Douching removes some of your body’s natural protection.

The Ohio Department of Health HIV/STD Prevention Program provides a number of services to address HIV/AIDS prevention by funding the following local services: HIV counseling, testing and referral sites and HIV prevention programs, as well as the statewide Ohio AIDS/HIV/STD hotline: 1-800-332-AIDS (2437) Voice, 1-800-332-3889 (TTY).

References:

HUMAN PAPILLOMAVIRUS (HPV)
By Kim Beery, RN
Infectious Disease Control Consultant-Immunization Program, Bureau of Infectious Disease Control, Division of Prevention, Ohio Department of Health

Genital human papillomavirus (HPV) is the most common sexually transmitted disease in the United States. Women have an 80 percent chance of contracting HPV by the time they are 50 years old. There are more than 40 HPV types that can infect the genital areas, including the skin of the vulva (area outside the vagina), penis and anus, and the linings of the vagina, cervix and rectum. HPV cannot be seen; most people who become infected with HPV do not even know they have it and they do not develop symptoms or health problems. But sometimes, certain types of HPV cause genital warts. Other HPV types can cause cervical cancer and other less common cancers, such as cancers of the vulva, vagina, anus and penis. The American Cancer Society estimates that in 2008, more than 11,000 women will be diagnosed with cervical cancer and approximately 3,600 women will die from this disease.

Condoms may lower the risk of HPV, if used all the time and the right way. But HPV can infect areas not covered by a condom—so condoms may not fully protect against HPV. The only sure way to prevent HPV is to avoid all sexual activity.

Individuals can lower their chances of getting HPV by being in a mutually monogamous relationship with someone who has had no or few sex partners. However, even people with only one lifetime sex partner can get HPV, if their partner was infected with HPV. For those who are not in long-term, mutually monogamous relationships, limiting the number of sex partners and choosing a partner less likely to be infected may lower the risk of HPV. Partners less likely to be infected include those who have had no or few prior sex partners.

Gardasil®, a vaccine made by Merck & Co., Inc., can protect females from the four types of HPV that cause most cervical
HPV-RELATED CANCERS
The American Cancer Society estimates in 2008, the number of non-cervical, HPV-related cancers diagnosed will be:

- 3,460 women with vulvar cancer;
- 2,210 women with vaginal and other female genital cancers;
- 3,050 women with anal cancer.

Resources:
5. CDC. Vaccine Information Statement (Interim). Human Papillomavirus (HPV) Vaccine (2/2/07).

PANDEMIC INFLUENZA AND PREGNANT WOMEN
By Mary Diorio, MD, MPH
Medical Epidemiologist-Bureau of Infectious Disease Control, Division of Prevention, Ohio Department of Health

Influenza (also called “the flu”) is a contagious respiratory illness caused by influenza viruses. It can cause mild to severe illness and at times can lead to death. Every year in the United States, an average of 5 percent to 20 percent of the population gets the flu; more than 200,000 people are hospitalized from flu complications; and approximately 36,000 people die from the flu. The best way to prevent the flu is by getting an influenza vaccination each year. The Centers for Disease Control and Prevention (CDC) recommends certain people get vaccinated each year. These are people who are either at high risk of serious flu complications or people who live with or care for those at high risk for serious complications. Some of the individuals at high risk for complications include older people, young children, people with certain health conditions and pregnant women.

There are many different flu viruses. Over the course of a year, different types (and subtypes) of flu viruses circulate and cause illness. In addition, influenza viruses are constantly undergoing minor changes. When a major change to a flu virus occurs, there is a potential for this new flu virus to cause an influenza pandemic.

An influenza pandemic is a worldwide outbreak of influenza that occurs when a new influenza virus emerges for which people have little or no immunity. This virus spreads easily from person to person and causes serious illness. There were three pandemics in the 20th century:

- The 1918 influenza pandemic (“Spanish flu”) caused approximately 675,000 deaths in the United States and 50 million deaths worldwide. Ohio reported 1.1 million cases and 8,602 deaths.
- The 1957 influenza pandemic (“Asian flu”) caused approximately 70,000 deaths in the United States and between 1 million and 2 million deaths worldwide.
- The 1968 influenza pandemic (“Hong Kong flu”) caused 34,000 deaths in the United States and 700,000 deaths worldwide.

It is difficult to predict when the next influenza pandemic will occur or how severe it will be. Several groups of individuals are at high risk for influenza-virus complications during both seasonal influenza outbreaks and pandemics. One such group is pregnant women. The increased risk in pregnant women...
is thought to be due to the hormonal and physical changes that occur in a woman’s body because of the pregnancy. In the three pandemics of the 20th century, mortality rates for pregnant women appeared very high. For example, during the 1918 influenza pandemic, the mortality rate for pregnant women was 27 percent, compared with a general mortality rate of 2.5 percent.²

Although more scientific studies need to be done to assess the risks to infants when mothers are infected during pregnancy, some studies suggest an increased risk for adverse outcomes. For example, during the 1957 influenza pandemic, there appeared to be greater numbers of birth defects, fetal deaths, preterm deliveries and pregnancy losses.³

Public health agencies have undertaken pandemic influenza preparedness planning for several years now. Among the key planning areas are: pandemic influenza vaccine allocation, antiviral medication use and community containment activities (such as canceling public gatherings and closing schools). These areas have special implications for pregnant women. Given their high-risk status, pregnant women are considered a priority for receipt of a flu vaccine as soon as a vaccine is available for an influenza pandemic. The U.S. Department of Health and Human Services’ “Guidance on Allocating and Targeting Pandemic Influenza Vaccine” places pregnant women in the top tier for situations in which vaccine supply is limited and prioritization is necessary.⁴ The vaccination of pregnant women not only protects them but also their infants for the first several months of life. (After the mother receives the vaccine, her body produces antibodies that are then passed on to the infant. When the infant is born, the infant has those antibodies for several months to help him/her combat infection.)

Part of public health preparedness for pandemic influenza in Ohio has involved the stockpiling of antiviral medications so individuals who become ill will be able to receive medication. The primary medications being stockpiled include oseltamivir (Tamiflu®) and zanamivir (Relenza®). The U.S. Food and Drug Administration has insufficient information available to assess the possible risks of these medications to a fetus. Thus, during a pandemic, information needs to be clearly communicated to pregnant women about the risks of infection by influenza virus, compared with the risks and benefits of antiviral medication use.

Depending on the severity of an influenza pandemic, individuals may be asked to modify their activities to slow the spread of the disease. People may be asked to avoid crowds, public gatherings may be canceled and students may be dismissed from school. Because pregnant women are at increased risk from complications due to infection by influenza, health care providers will want to minimize their pregnant patients’ exposure to ill individuals. This may mean altering how these women receive care. During the 2003 severe acute respiratory syndrome outbreak in Toronto, obstetric care was moved to a designated facility separate from the rest of the hospital to minimize the risk of exposure for pregnant women.⁵ This might serve as a model for the care of pregnant women during an influenza pandemic to minimize exposure of pregnant women to ill individuals.

In summary, an influenza pandemic has the potential to cause many severe illnesses and deaths throughout the world, because of limited or no immunity to the new virus. Pregnant women are at increased risk for complications from influenza; thus, their special needs must be considered as part of a response to an influenza pandemic. These needs include vaccination prioritization, antiviral medication discussions and special issues surrounding the care of pregnant women in health care settings.

Resources:

WOMEN AND SEXUALLY TRANSMITTED DISEASES

By James D. Greenshields
Infertility Prevention Project Coordinator-HIV/STD Prevention Program, Bureau of Infectious Disease Control, Division of Prevention, Ohio Department of Health

Women face many health challenges including the risk of contracting sexually transmitted diseases (STDs), notably the two most common STDs: Chlamydia trachomatis (Chlamydia) and Neisseria gonorrhoea (gonorrhea).

Women in Ohio and across the United States are faced with the ever-increasing problem of the spread of Chlamydia. Today’s “One in Generation” theme is intended to raise awareness that anyone can be infected with an STD. Whether considering STDs in general, or specifically, e.g., human papillomavirus (genital warts) that can lead to cervical cancer, the prevalence of these...
Infections is much greater than the general population realizes. So, too, are the complications to personal health.

The transmission of an STD is caused by sexual relations with an infected person. Studies show one in 20 sexually active women of childbearing age will be infected with Chlamydia. Among sexually active adolescent women 19 years old and younger, the rate of infection increases to one in 10.

Complications from contracting Chlamydia and gonorrhea can be life threatening in extreme cases, and very painful, requiring hospitalization in some cases. Chlamydia and gonorrhea are the two major causes of pelvic inflammatory disease (PID) in the United States. PID is an infection affecting the pelvic cavity, endometrial lining (of the uterus) and/or an infection of the fallopian tubes (salpingitis). PID causes extreme pelvic pain, infertility, ectopic pregnancy and can result in death from complications. The problem faced by women and their sexual partners can be the absence of symptoms. Between 50 percent and 70 percent of infected persons do not exhibit recognizable symptoms. When women have symptoms, they are already in the mid stages of PID. Women who develop PID are at increased risk (33 percent) of infertility with the first episode, 66 percent with a second episode and 99 percent with a third episode. Alarming, multiple episodes of PID are common among sexually active individuals, principally among adolescent females.

In the United States, approximately 3 million new cases of Chlamydia are diagnosed each year. In Ohio, the total reported cases of Chlamydia and the reported cases for women only during 2004 to 2007 are:

<table>
<thead>
<tr>
<th>Year</th>
<th>Overall</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>38,911</td>
<td>30,085</td>
</tr>
<tr>
<td>2005</td>
<td>42,179</td>
<td>32,343</td>
</tr>
<tr>
<td>2006</td>
<td>41,679</td>
<td>31,810</td>
</tr>
<tr>
<td>2007</td>
<td>45,939</td>
<td>34,838</td>
</tr>
</tbody>
</table>

With the exception of 2006, reported cases of Chlamydia in Ohio are increasing. The ratio of female to male cases is 3.5 to 1.

The increasing number of reported STD infections is complicated by human nature itself. Sexual activity will endure, so with it must come responsibility.

The first responsibility is routine testing following sexual activity that may result in exposure to an STD infection. Both partners in a sexually active relationship must be tested.

Testing is necessary because some STDs, such as Chlamydia and gonorrhea, do not present symptoms in an infected individual.

The second responsibility is to receive appropriate medical treatment for an STD when a test is positive. This may sound like a "no brainer," but many individuals who do not have symptoms find it difficult to believe test results. Many individuals who test positive for STDs do not return for treatment. Reasons may include cost, stigma and disbelief. It can be easier to challenge the credibility of test results than to challenge a patient's relationship with their partner.

The third responsibility can be the most difficult for a positive patient but will have the greatest impact in decreasing the spread of infections. Talk to sexual partners about getting tested and, if necessary, treated. The “talk” may be difficult; counseling by a professional can help a patient who has tested positive to approach his or her sexual partner(s).

It should be noted that in the State of Ohio, no follow-up to positive Chlamydia or gonorrhea tests is conducted or required by the state health department; there is no mechanism for mandatory treatment or partner testing and treatment. The responsibility for partner follow-up falls upon the patient. Health providers who administer STD testing are not required to follow up with patients or their partners.

Positive public health outcomes will result if the Three “T”s are practiced by all STD patients: TEST, TREAT and TALK.

Ongoing initiatives in Ohio provide testing and treatment for STDs. The Ohio Department of Health (ODH), through its Infertility Prevention Project, provides free testing for Chlamydia and gonorrhea for high-risk populations. ODH supplies medications at no cost to multiple sites throughout the state for the treatment of STDs. ODH, in collaboration with the Centers for Disease Control and Prevention, is developing a social marketing campaign aimed at raising awareness in Ohio about Chlamydia and gonorrhea and to spread the message of taking sexual responsibility and practicing safe sex.

Resources:
Ohio Department of Health  
HIV/STD Prevention Program  
35 East Chestnut Street  
Columbus OH 43215  
(614) 466-2446

Ohio Department of Health  
Infertility Prevention Project  
161 South High Street  
Akron OH 44308  
(330) 643-1300

Local area city or county public health districts  
Local area family planning agency  
Centers for Disease Control and Prevention at http://www.cdc.gov
TB-LEADING KILLER OF WOMEN
By Maureen Murphy, BSN, RN
TB Controller/Manager-Refugee Health Initiative, Bureau of Infectious Disease Control, Division of Prevention, Ohio Department of Health

Background
Tuberculosis (TB) is the most pervasive, curable infectious disease worldwide. An estimated 1.5 million people died from TB in 2007. In addition, another 200,000 people with HIV died from HIV-associated TB. However, if TB disease is detected early and fully treated, people with the disease quickly become non-infectious and eventually cured.

TB as a Women’s Health Issue
The World Health Organization estimates approximately 900 million women of reproductive age are infected with TB, and at least 3 million women 15 to 44 years of age develop active TB every year, causing more than 750,000 deaths. Women are two times more likely to die from TB than from war, three times more likely to die from TB than heart disease and more women die each year of TB than of all maternal mortality causes combined. At least one-third of women sick with TB will die because they go undiagnosed or lack access to effective treatment due to poverty and TB-related stigma common in many cultures.

Although TB-related deaths are rare in the United States, the impact of TB disease on individuals, families and communities can be profound. Decades of data provide evidence that TB continues to be a disease that disproportionately affects racial and ethnic minorities as well as the underemployed and medically underserved globally, in the United States and Ohio. For many women, the costs required to access TB treatment are usually out of reach due to poverty and socioeconomic conditions.

A woman’s inability to work due to TB disease, combined with social issues such as limited access to food, safety issues, poor sanitation and the erosion of the public health infrastructure, plunges her and her children deeper into poverty, leaving the most vulnerable without the resources to meet even their most basic needs. Even with the availability of TB drugs, women’s socioeconomic status and gender roles, including child-bearing and caring, puts them at high risk of both HIV and TB infection. The social stigma associated with a TB diagnosis and its association with HIV forces both men and women to delay getting tested for the disease. In some cases, when men in marital relationships test positive for TB, they are likely to withhold the information, thereby increasing the likelihood of spreading the disease to their partner and children. Left untreated, each person with active TB will infect between 10 and 15 people.

TB has a major impact on women’s sexual reproductive health and that of their children. For pregnant women living in areas with high TB infection rates, there are increased chances of transmission of TB to a child before and during delivery or after birth. TB in pregnant women not only increases the rate of maternal mortality but is also a major factor contributing to mother-to-child transmission of the disease.

TB in U.S. Women
While women account for approximately one-third of the total TB cases in the United States, 81 percent of these cases affect minority women. Of these cases, 26 percent are among Asian American/Pacific Islander women (second only to African American women, who make up 30 percent of TB cases among minority women).

TB in Ohio Women
The 252 TB cases reported in 2007 represent a 5.4 percent increase from the 239 cases reported in 2006. The percentage of female cases has increased from 34.2 percent (n=89) in 2005 to 39.7 percent (n=100) in 2007.

Resources:
National Tuberculosis Controllers Association/National Tuberculosis Nurse Coalition. http://www.tbcontrollers.org/
Hepatitis B

HBV is transmitted through the blood and body fluids of an infected person including from a mother to her child during pregnancy, delivery or after birth. In 2007, at least 305 infants were born to HBV-infected women in Ohio. Up to 90 percent of untreated infants born to women with HBV will become infected, with the majority becoming chronically infected. Ohio’s Perinatal HBV Prevention Program works hard to eliminate the perinatal transmission of HBV. HBV-positive pregnant women are identified and followed to assure that their infants receive prophylaxis with HBV immune globulin (HBIG) and the first dose of HBV vaccine immediately after birth and a complete three-shot HBV vaccine series by 6 months of age. HBIG and the first dose of HBV vaccine within 12 hours of birth prevents perinatal transmission in approximately 98 percent of infants born to infected mothers. All pregnant women should be tested for HBV as a routine part of prenatal care.

The majority of new cases of HBV today are due to sexual transmission. From 2003 through 2006, nearly 200 women in Ohio were diagnosed with acute HBV. Women who have multiple sex partners should get vaccinated against HBV if no contraindications exist. Currently, free HBV vaccine for high-risk adults is available at local health departments across the state.

Hepatitis C

HCV is transmitted primarily through contact with the blood of an infected person. The majority of new infections are due to injection drug use; however, prior to 1992, when testing of the blood supply improved, it is estimated that thousands of women in the United States were infected from blood transfusions associated with childbirth. Because people with HCV may have no symptoms for 30 years or more, many of these women do not know they are infected. Sexual transmission of HCV is rare in persons in long-term monogamous relationships where one partner is infected (approximately 1 percent to 3 percent). Sexual transmission of HCV more likely occurs between persons engaging in high-risk sexual activity; it is estimated that sexual transmission accounts for approximately 18 percent of new HCV infections. In occupations that are predominately female such as nursing, there may be more opportunity for exposure to infected blood; however, due to standard precautions health care workers follow, the rate of infection in health care is close to that of the general population. From 2003 through 2006, more than 9,450 women in Ohio were reported as having past or present HCV.

While the prevalence of HCV is higher among men than women in Ohio and the United States, there are some issues specific to women that differ from men. Women are less likely to develop chronic infection than men. If they do develop chronic infection, liver disease tends to progress more slowly than in their male counterparts. They are also more likely to eliminate HCV with treatment, especially if they complete treatment prior to menopause. They are less likely to die of HCV, but they are more susceptible to alcohol-related health problems from HCV if they continue to drink after becoming infected. Many of the symptoms of HCV mimic other things such as menopause. It is important to consult a medical provider about any changes in health status because many medical conditions have symptoms similar to HCV.

Women who are HCV positive are not discouraged from becoming pregnant. In fact, the average rate of HCV infection among infants born to HCV-positive women is just 5 percent to 6 percent; if the pregnant woman is co-infected with HIV, the average infection rate is increased to 14 percent to 17 percent. There are no universal guidelines for labor and delivery for HCV-positive pregnant women. Some physicians may avoid amniocentesis and/or fetal scalp monitoring, and some may express concern over prolonged rupture of membranes, but there are no specific recommendations regarding these issues.
or mode of delivery (cesarean versus vaginal delivery). An HCV-positive pregnant woman should notify her obstetrician as well as her infant’s pediatrician about her HCV status. Babies born to HCV-positive mothers should be tested for antibodies to HCV at 18 months of age, once the mother’s antibodies have cleared the infant’s system. HCV treatment can cause birth defects and fetal death; therefore, pregnancy must be delayed during treatment for HCV and for six months afterward through the use of two reliable forms of birth control. This is true even if the male partner is HCV positive and on treatment and the woman is HCV negative. All pregnancies that occur during HCV treatment must be reported to the Ribavirin Pregnancy Registry.

For more information on viral hepatitis, please visit the Centers for Disease Control and Prevention Web page at http://www.cdc.gov/hepatitis.

ORGANIZATIONS AND ASSOCIATIONS
National Center for Preparedness, Detection and Control of Infectious Diseases (NCPDCID)
1600 Clifton Road, NE
Mailstop C-14
Atlanta GA  30333
Phone:  (404) 639-3311
Web site:  http://www.cdc.gov/ncpdcid/about.html

The National Center for Preparedness, Detection and Control of Infectious Diseases (NCPDCID) protects populations domestically and internationally through leadership, partnerships, epidemiologic and laboratory studies and the use of quality systems, standards and practices. NCPDCID collaborates with the Coordinating Center for Infectious Disease (CCID), Centers for Disease Control and Prevention and the agency’s national and global partners to conduct, coordinate and support infectious disease surveillance, research and prevention. NCPDCID’s six internal and external partners to improve public health include:

- Division of Global Migration and Quarantine (DGMQ)
- Division of Healthcare Quality Promotion (DHQP)
- Division of Emerging Infections and Surveillance Services (DEISS)
- Division of Bioterrorism Preparedness and Response (DBPR)
- Division of Laboratory Systems (DLS)
- Division of Scientific Resources (DSR)

Outbreak Response and Bioterrorism Investigation Team
Bureau of Disease Surveillance and Investigation
Ohio Department of Health
246 North High Street
Columbus OH  43215
Phone:  (614) 466-0265
Fax:  (614) 995-7186
E-mail:  Investigate@odh.ohio.gov

The program name, Outbreak Response and Bioterrorism Investigation Team, was announced in August 2007. The program is a combination of the Investigation Section and the Bioterrorism Epidemiology and Surveillance Program. Because the name of the program is long, program staff came up with the acronym ORBIT (Outbreak Response and Bioterrorism Investigation Team). The mission of this program is to prevent and control foodborne, waterborne and emerging infectious disease outbreaks and incidents of bioterrorism in Ohio.

ACTIVITIES
- Provide consultation and technical assistance to local health jurisdictions and health care professionals in the investigation of individual cases or outbreaks related to foodborne, waterborne, emerging infectious diseases or suspect bioterrorism incidents.
- Provide education and training for public health and health care professionals on prevention and control related to foodborne, waterborne and emerging infectious diseases.
- Collaborate with other Ohio Department of Health bureaus and state and federal agencies to protect and improve the health of all Ohioans by identifying and preventing foodborne, waterborne and emerging infectious disease outbreaks or bioterrorism incidents.
- Report foodborne disease outbreaks promptly through the Electronic Food-borne Outbreak Reporting System.
- Coordinate capacity planning, outreach and training activities pertaining to bioterrorism and public health infrastructure epidemiology.
- Ensure availability 24/7/365 to respond to Class A(1) infectious disease reports.
RESOURCES

Infectious Disease Control Manual
The Infectious Disease Control Manual (IDCM) is a project of the Bureau of Disease Surveillance and Investigation and the Bureau of Public Health Laboratory in the Division of Prevention, Ohio Department of Health. It is designed to be a reference for health departments, hospitals, laboratories and physicians in Ohio, providing information about infectious conditions from a public health perspective, including prevention, control and reporting of suspected and diagnosed cases. It is also intended to assist in the development of local policies and procedures. This manual is not exhaustive; a list of additional information sources is included.

Section 1
General information, telephone numbers, abbreviations, definitions, lists of reportable diseases alphabetically and by class, surveillance and epidemiologic investigations and interagency collaboration.

Section 2
Rules that pertain to infectious disease control.

Section 3
Reportable and non-reportable infectious diseases, including reporting requirement, description of the disease agents, case definition, signs and symptoms, diagnostic criteria, epidemiology of the disease and the public health management. Forms needed for reporting and to assist in case investigation.

Section 4
Services available at the Ohio Department of Health Laboratories and discussion of proper specimen submission.

Section 5
Limitations on movement and infection control practices to prevent the spread of infectious diseases.

Please direct any comments, questions or suggestions to the Bureau of Disease Surveillance and Investigation, Ohio Department of Health, (614) 466-0265.

The information included in this manual was reviewed by many people and every effort was made to avoid errors; however, it is possible that errors might have been missed. Please confirm dosages and routes of administration of drugs and other biologicals with package inserts and current recommendations.

External links to other sites throughout the IDCM are intended to be informational and do not have the endorsement of the Ohio Department of Health. To find the manual online, go to http://www.odh.ohio.gov/healthResources/infectiousDiseaseManual.aspx.

Ohio Department of Health, Violence and Injury Prevention Program—Debra Seltzer, Administrator

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Women's Health Program Web Site: http://www.odh.ohio.gov/odhPrograms/hprr/wom_hlt/sadywhlth.aspx