Chapter 24
Sexually Transmitted Infections & HIV/AIDS

LESSON 1: THE RISK OF STI'S

- **Sexually transmitted infection (STI)** – *infectious diseases spread from person to person through sexual contact*
- **Epidemics** – *occurrence of diseases in which many people in the dame place at the same time are affected*
- ~ 65 million people in the US are living with an incurable STI
- Why?
  - Many are asymptomatic and don't seek treatment because they don't know they are infected; too embarrassed
  - May not be reported so contact can be made to partners
- High-risk behaviors and STD's
  - Teens make up ¼ of ~ 15 million new cases each year; >10,000 infected daily
  - Teens are sexually active with more than one partner
  - Teens engage in unprotected sex
  - Teens select high risk partners
  - Teens use alcohol and other drugs and that decreases their morals
- Consequences
  - Some are incurable (herpes, HIV)
  - Some cause cancer (hepatitis B, HPV)
  - Some cause reproduction complications (PID)
  - Some cam be passed through birth
- Prevention
  - **Abstinence** – *deliberate decision to avoid harmful behaviors, including sexual activity before marriage*

LESSON 2: COMMON STI'S

- CDC reports that STI's account for 85% of most common communicable diseases
- Human Papilovirus (HPV)
  - Virus that can cause genital warts or asymptomatic infection
  - Most common STI in the US
  - About 30 different types of HPV
  - Noticed by PAP test in females
  - Can cause cancers of cervix, penis, and anus
- Genital Warts
  - Pink, reddish wart and cauliflower-like tops that appear on genitals, vagina, or cervix 1-3 months after HPV infection
  - Highly contagious
  - Medication can treat warts but not virus

- Chlamydia
  - Bacterial infection that affects reproductive organs of male and female
  - 40% cases are in teens 15-19 yr. Old
  - Mostly asymptomatic
  - When symptoms occur
    - Female: vaginal discharge, burning with urination, abdominal pain
    - Males: discharge from penis, burning with urination
    - Can cause premature birth, eye disease, pneumonia
- Genital Herpes
  - Cause by herpes simplex virus 2; HSV-1 = cold sores
  - Twice as common in 20-29 yr. Olds
  - Blister like sores, mainly asymptomatic
  - People with HSV-2 are more capable of transmitting or acquiring HIV
- Gonorrhea
  - Bacterial STD that usually affects mucous membranes
  - Highest rate found in females 15-19 yrs old and in males 20-24 yrs old
  - Male symptoms: discharge from penis, painful urination
  - ~ 50% of all females have no symptoms
  - Diagnosis in females is done my swabbing the cervix
  - Can be treated with antibiotics
  - If untreated, leads to infertility; bacteria can pass into the bloodstream and cause permanent damage to the joints
  - Females can pass it on to the baby during birth; can cause eye infections that cause blindness
- Trichomoniasis
  - STD caused by microscopic protozoan that results in infections of vagina, urethra, and bladder
  - Females may have no symptoms, but can result in the disease vaginitis
    - Vaginitis – inflammation of the vagina characterized by discharge, odor, irritation, and itching
  - Males normally show no symptoms; if they do it's mild burning after urination
- Syphilis
  - STD that attacks many parts of the body and is caused by a small bacterium called a spirochete
  - First sign is a painless reddish sore called a chancre
  - The sore will heal on its own, but if infection isn't treated it can spread through the blood to other parts of the body
  - Disease can damage internal organs and the person can risk paralysis, convulsions, blindness, and heart disease
  - Babies can be born with syphilis – damaged nervous system – death
- Chancroid – caused by bacteria, sores on genitals, treat with antibiotics; could infect the lymph glands
- Pubic lice – itching, presence of lice and eggs in pubic hair, treat with medicated soaps; no lasting effects

LESSON 3: HIV & AIDS

- **Acquired immune deficiency syndrome (AIDS)** – *a disease in which the immune system of the patient is weakened*
- **Human immunodeficiency virus (HIV)** – *a virus that attacks the immune system*
- *Teens have one of the fastest growing rates of HIV infection*
- How HIV attacks a cell
  - HIV attaches to cell surface
  - Virus core enters cell and goes to nucleus
  - Virus makes a copy of its genetic material
  - New virus assembles at cell surface
  - New virus breaks away from host cell
- HIV & Human body
  - Lymphocytes – white blood cells that help fight pathogens
  - When HIV enters the blood, it invades T cells and the body becomes susceptible to common infections and OI's
  - **Opportunistic infections (OI's)** – *infections that occur in individuals who do not have healthy immune systems*
- HIV is progressive in nature – it destroys cells over a long period of time
- Transmission
  - HIV lives inside cells and body fluids
  - It doesn't survive well in the air or on surfaces such as the toilet
  - It can be transmitted through blood, semen, vaginal secretions, breast milk, sharing needles

LESSON 4: Treatment for HIV & AIDS

- Stages of HIV Infection
  - Develops over several years
    - ~ ½ develop symptoms about 3-6 weeks after becoming infected
    - symptoms: fever, rash, headache, body aches, swollen glands – flu-like symptoms
    - after the "flu-like" symptoms they enter the asymptomatic stage
  - **asymptomatic stage** – *a period of time during which a person infected with HIV has no symptoms*
    - may show no signs form 6 months to 10 years; however the virus continues to grow
    - the immune system keeps pace with the HIV infection by producing billions of new cells
    - eventually the virus takes over and other infections start to take over
  - **symptomatic stage** – *the stage in which a person infected with HIV has* symptoms as a result of a severe drop in immune cells
    - symptoms: swollen glands, weight loss, yeast infection
  - AIDS is the latter stage of HIV
    - < 200 T-cells
    - the appearance of one or more opportunistic infections

        - by the time AIDS develops, HIV attacks brain cells causing difficulty in thinking and remembering
- Detecting HIV
    - **EIA** – *a test that screens for the presence of HIV antibodies in the blood*
        - EIA may give inaccurate results. The reasons are:
        - Developing antibodies takes time – can give a false negative b/c antibodies take 3-4 weeks to give a positive test; but some take up to 6 months
        - Certain health conditions – hemophilia, hepatitis, and pregnancy can give false positive
    - **Western blot test** – *most common confirmation test for HIV in the US*
- AIDS is decreasing in the industrialized world due to drug cocktails that slow the HIV infection
- At the end of 2001 – 40 million people worldwide were infected with HIV/AIDS; meaning that HIV is now a pandemic
- **Pandemic** – *a global outbreak of infectious disease*
- No cure or effective HIV vaccine; the first defense to this disease – KNOWLEDGE