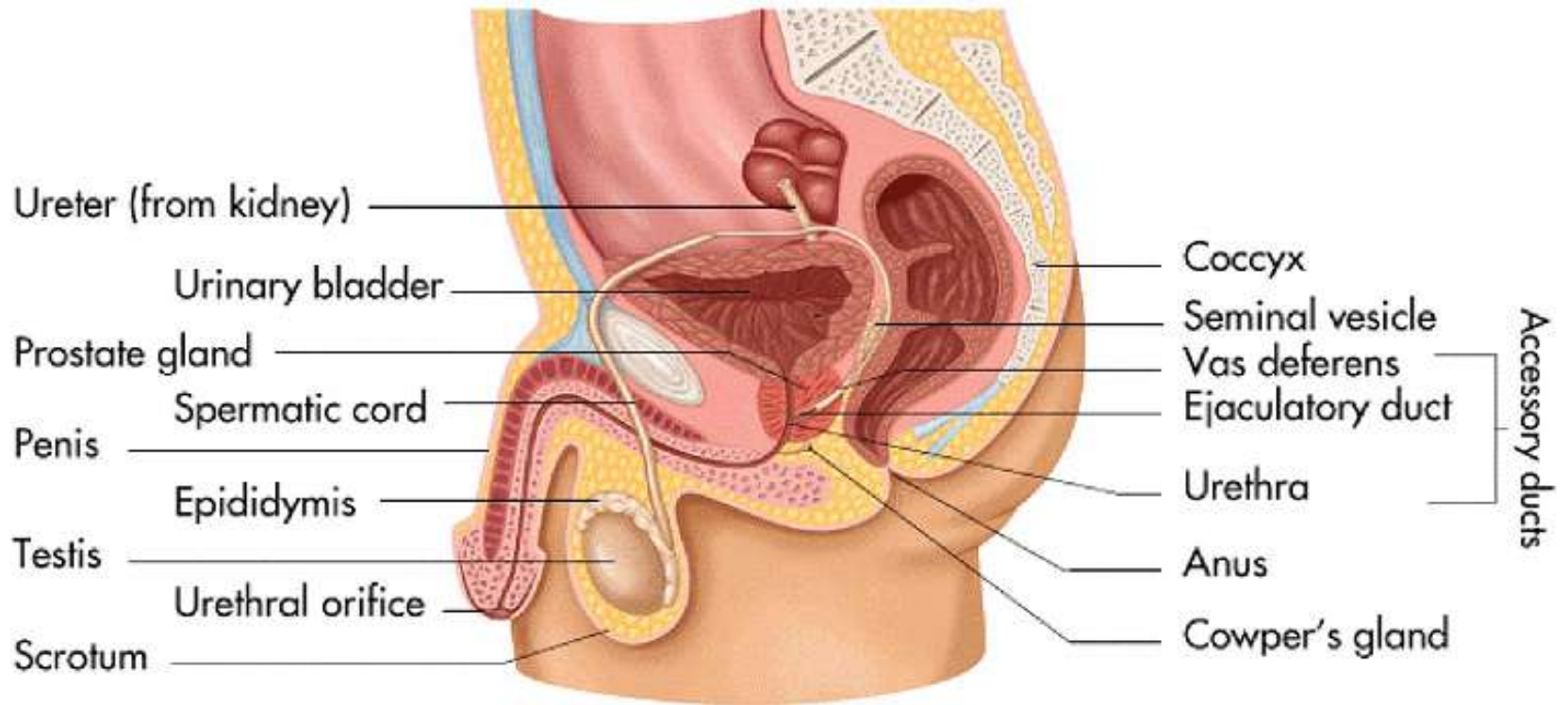


# **Reproductive system**

- **Consists of**
  - Testes
  - Epididymis
  - Vas deferens
  - Seminal vesicles
  - Ejaculatory ducts
    - Urethra
  - Prostate gland
  - Cowper's glands
    - penis

## **Male System**

# MALE SYSTEM



- **TESTES**

- Located in scrotum
- Produce sperm
- Produces testosterone (aids in maturing of sperm and responsible for secondary male characteristics)

- **SCROTUM**

- Sac suspended between thighs
- Located outside the body and temperature is lower than inside
- Low temperature essential for sperm production

- After sperm is developed in the testes it enters the

## **EPIDIDYMIS**

- Sits above testes
- Stores sperm while they mature
- Produces fluid that becomes part of semen
- Connects to tube called the vas deferens

- **VAS DEFERENS**

- Tube 20 ft. long
- Receives sperm and fluid from the epididymis
- Joins w/ the epididymis and extends up in the abdominal cavity where it curves behind the bladder and joins a seminal vesicle
- Tubes that are cut during a vasectomy

- **SEMINAL VESICLES**

- 2 pouch-like tubes behind the bladder
- Contain a thick lining that produces thick, yellow fluid rich in sugar and provides nourishment for the sperm
- Composes a large portion of semen

- **EJACULATORY DUCT**

- 2 short tubes formed by the union of the vas deferens and the seminal vesicles
- Carry sperm and fluids as "semen" through the prostate gland and into the urethra

## ● PROSTATE GLAND

- Doughnut-shaped
- Produces alkaline secretion that increases sperm motility and neutralizes acidity in vagina
- Contracts during ejaculation to help in expulsion of semen
- Closes off urethra to prevent urine passing through

## ● COWPER'S GLAND

- 2 small glands found below the prostate and connected to the urethra
- Secrete mucus which serves as lubricant for intercourse
- Fluid is alkaline to decrease the acidity of the urine residue in the urethra wh/ provides better environment for sperm

- **URETRA**

- Tube extending from bladder through penis to outside the body
- Carries urine from urinary system and semen from reproductive tubes

- **PENIS**

- External male organ
- At distal end is enlarged structure called "glans penis"
- Glans penis covered with a prepuce (foreskin) sometimes surgically removed (circumcision)



# Sperm Production

- Millions of sperm are produced each day when male reaches puberty
- Production continues throughout adult life
- Fluid from seminal vesicle makes up 60% of semen and provides energy for sperm
- Milky white fluid produced by prostate gland makes up 35% of semen and protects sperm as it travels through the female tract
- Erection occurs when when penis becomes large and stiff as blood chambers become filled with blood
- Erection can occur due to stimulation, tight clothing, etc.
- Erection does not need to result in ejaculation

- Ejaculation occurs when muscles force semen through the vas deferens and urethra
- When semen enters the female, sperm “swim” upward through the female system by wiggling their tails
- Semen contains nutrients that enable sperm to survive for several days inside the female’s body

# DISEASES

## • Epididymitis

- Caused by pathogenic organisms (strep, gonorrhea, staph)
- Inflammation of epididymis
- Intense pain of testes, swelling, fever
- Treatment includes antibiotics, cold applications, scrotal support, pain meds

## • Orchitis

- Inflammation of testes
- Caused by mumps, pathogens or injury
- Leads to atrophy of testes and causes sterility
- Swelling of scrotum, fever, pain
- Antibiotics, antipyretics, scrotal support and pain meds

- **Prostatic hypertrophy**

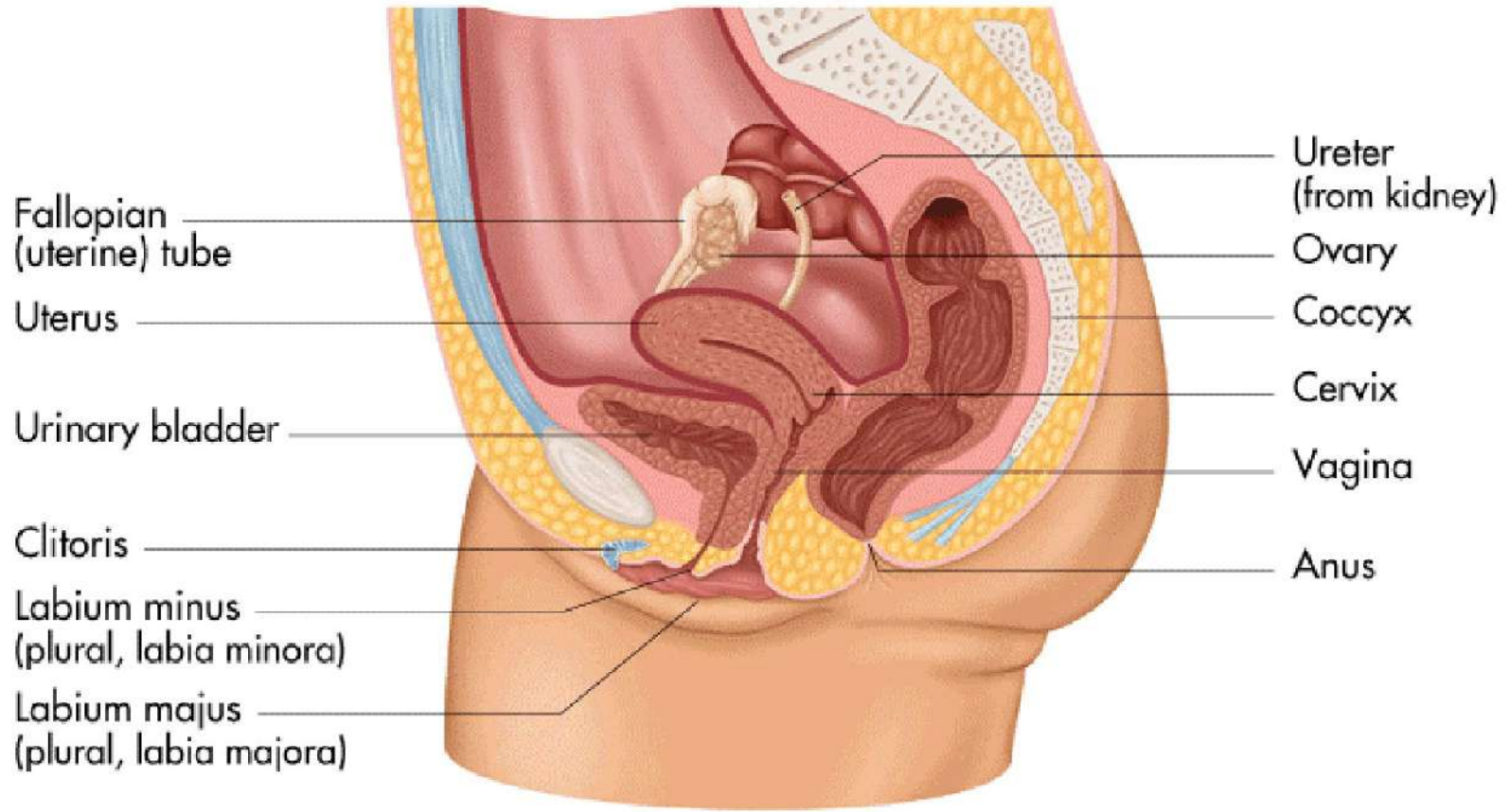
- Enlargement of prostate gland
- Common in men > 50
- Caused by inflammation, tumor, change in hormones or cancer
- Specific test (PSA) can detect early cancer cells to help in dx
- If cancer, testes can be removed

- **Testicular cancer**

- Occurs in men 20-35
- Highly malignant
- Painless swelling of testes, heavy feeling, and accumulation of fluid
- Surgical removal of testes, chemotherapy, radiation
- Self-examinations should start at age 15

# Female System

- **Consists of:**
  - Ovaries
  - Fallopian tubes
    - Uterus
    - Vagina
  - Bartholin's glands
    - Vulva
    - breasts



# Female System

## ● **OVARIES**

- Small, almond shaped glands in the pelvic cavity
- Contain thousands of small sacs called “follicles”
- Each follicle contains immature ovum
- Ovum matures, follicle enlarges and ruptures to release mature ovum called Ovulation
- Ovulation occurs about every 28 days
- Produce hormones that help development of reproductive organs and produce secondary sex characteristics
  - Breast enlargement
  - Pubic hair

- **Fallopian tubes**

- 2 tubes, 5 inches long attached to the upper part of the uterus
- Lateral ends found above the ovaries and not directly connected
- Fingerlike projections called fimbriae that help move ovum into the fallopian tube
- Serves as passage for ovum from the ovary to the uterus
- Ovum moved by peristalsis
- Cilia keep ovum moving toward the uterus

- **Fertilization**

- Union of the ovum and sperm to create a new life
- Takes place in the fallopian tube



## • Uterus

- Hollow, muscular organ behind bladder and in front of rectum
  - Divided into 3 parts
    - Fundus (top)
    - Body/corpus (middle)
    - Cervix(bottom)
  - Organ of menstruation
  - Allows for development and growth of fetus
  - Contracts to expel fetus
- 3 layers of uterus
    - Endometrium (inside)
      - Provides for implantation. If fertilization doesn't occur, deteriorates and causes bleeding
    - Myometrium (middle)
      - Muscle layer; allows for expansion during pregnancy and contracts to expel fetus
    - Perimetrium (outside)
      - Serous membrane

- **Vagina**

- Muscular tube connects cervix of uterus to outside of body
- Passageway for menstrual flow
- Receives sperm and semen from male
- Acts as birth canal during delivery
- Lined with mucous membrane arranged in folds called rugae that allow vagina to enlarge during childbirth and intercourse

- **Bartholin's glands**

- 2 small glands on each side of the vaginal opening
- Secrete mucus for lubrication during intercourse

- **Vulva**

- Name for structures that form the external genital area

- **Mons veneris** – triangular pad of fat covered w/ hair
- **Labia majora** – large folds of fatty tissue covered w/ hair on their outer surfaces; enclose and protect vagina
- **Labia minora** – hairless folds of tissue w/in the labia majora
- **Vestibule** – area inside the labia minora

- **Clitoris** – area of erectile tissue located at the junction of the labia minora; produces sexual arousal when stimulated during intercourse
- **Perineum** – area between vagina and anus in the female; sometimes used to describe to entire pelvic floor in both males and females

- Contain lobes separated by connective tissue
- Milk ducts located in tissue ext on the surface of the nipple
- Main function is to secrete milk after childbirth

## **Breasts**

# Menstrual cycle

- Females usually release only 1 egg cell each month
- The process in which egg matures and is released and the uterus prepares to receive it is known as the menstrual cycle
- Begins when egg starts to mature in one of the ovaries
- The endometrium thickens
- If egg is not fertilized, endometrium breaks down and is discharged from the body
- As menstruation takes place another egg begins to mature in one of the ovaries

- The menstrual cycle lasts usually 28 days
- It is controlled by the endocrine system
- 1<sup>st</sup> half of cycle (days 1-14) pituitary hormone stimulates the egg to mature inside the ovary
- As egg develops, estrogen is released that causes the endometrium to thicken
- At the middle of the cycle (day 14) the level of LH hormone rises and ovulation occurs
- Mature egg is released by the ovary and travels to the fallopian tubes

- Fertility occurs at the time of ovulation
- Takes 7 days for egg to travel through fallopian tube into uterus
- As egg is traveling, progesterone increases to maintain the growth of the endometrium
- If egg is not fertilized when it reaches the uterus, progesterone and estrogen drop and the endometrium breaks down along with the unfertilized egg

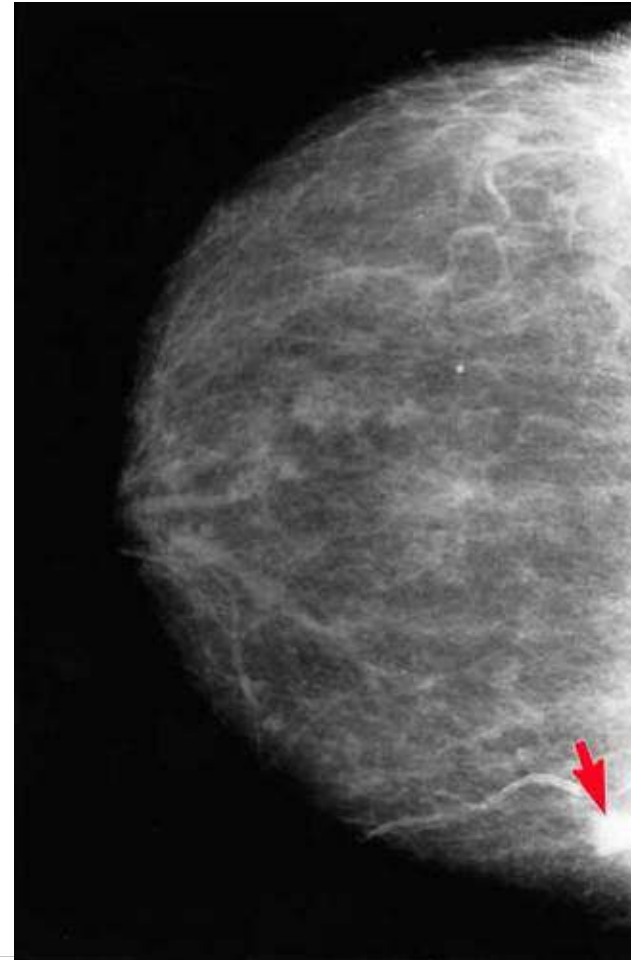
# Factors that affect menstruation

- Diet, stress, illness, travel, exercise, weight gain/loss
- Every woman's cycle is different
- Common to experience cramps, PMS symptoms (discuss later)
- Tx: heating pad, warm bath, exercise, dietary changes
- Menstruation occurs until approx. 45 y.o. when menopause occurs: ovaries slow down production of hormone production and no longer release mature eggs, gradually menstruation stops and the woman is no longer fertile



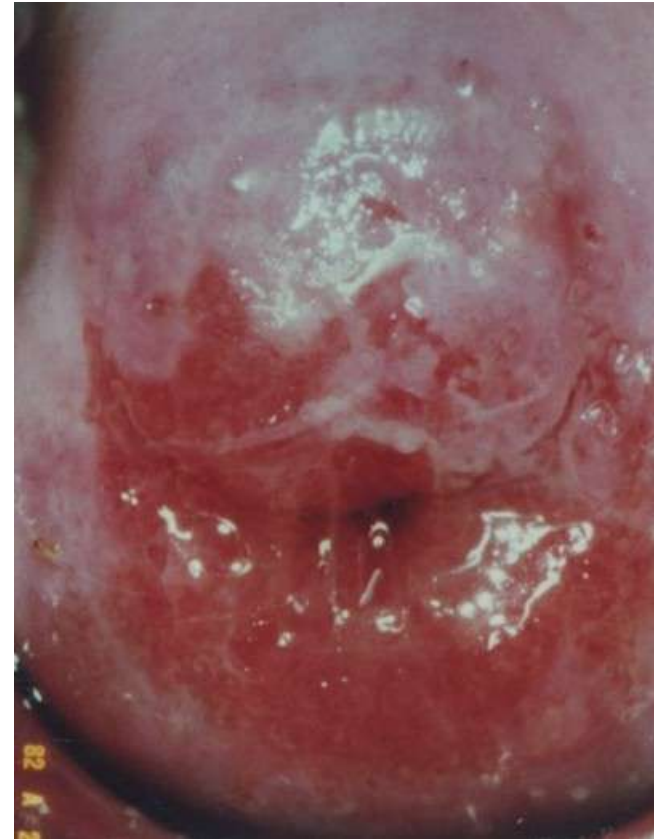
# Diseases

- **Breast tumors**
  - Benign or malignant
  - Lump/mass in breast tissue, change in size or shape, discharge from nipple
  - Self-examination can detect tumors – should be done monthly
  - Mammogram should be done at 35-40 y.o.



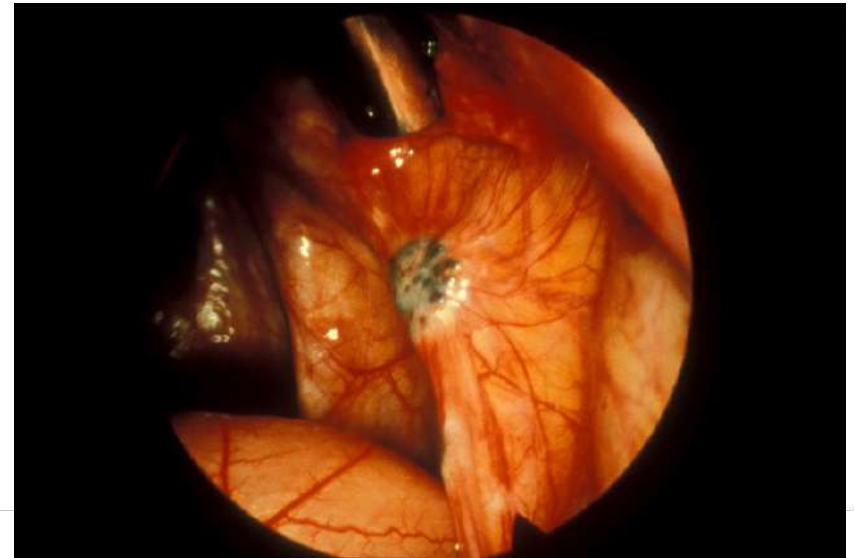
- **Cancer of cervix**

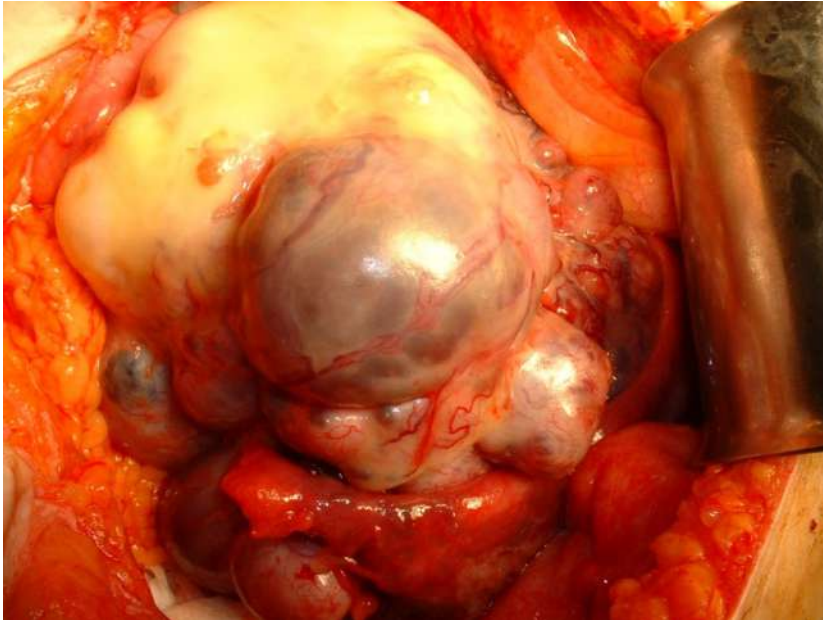
- Detected by pap smear
- Vaginal discharge and bleeding
- Enlarged uterus, discharge, abnormal bleeding
- Tx: hysterectomy, chemotherapy and/or radiation



- **Endometriosis**

- Abnormal growth of endometrial tissue outside the uterus
- Tissue becomes embedded in structures of the pelvic area and constantly grows and sheds
- Can cause sterility if fallopian tubes become blocked w/ scar tissue
- Pelvic pain, abnormal bleeding, dysmenorrhea
- Tx: hormone therapy, pain meds, and surgical removal of affected organs



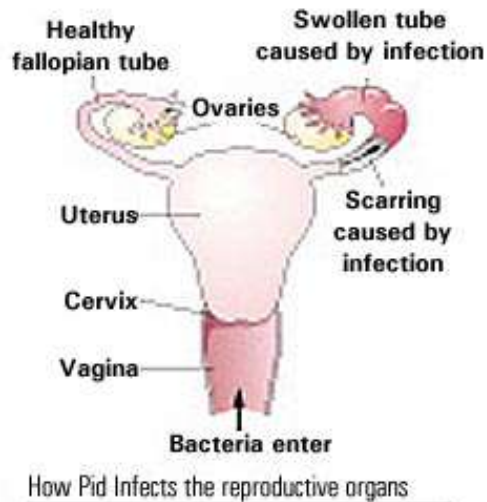


- **Ovarian cancer**

- Most common causes of cancer deaths in women
- Symptoms vague and include abdominal discomfort and mild GI disturbances
- Tx: surgical removal of all reproductive organs and affected lymph nodes, chemotherapy and radiation

- **Pelvic Inflammatory Disease (PID)**

- Inflammation of the cervix, endometrium, fallopian tubes and ovaries
- Caused by pathogenic organisms ie: bacteria, viruses, fungus
- Pain in lower abdomen, fever, puss in discharge
- Tx: increased fluids, rest, antibiotics and pain meds.



- **Premenstrual Syndrome (PMS)**

- Group of symptoms that appear 3-14 days before menstruation
- Unknown cause
- Possible hormone imbalance, poor nutrition, stress
- Tx: relieving symptoms and includes diet modification, exercise, stress reduction and medications

# Sexually Transmitted Diseases

- Acquired Immune deficiency syndrome
  - HIV (virus)
  - Attacks immune system leaving it unable to fight off infections and diseases wh/ causes death
  - Spread through sexual secretions or blood
  - Does not live long outside of body and is not transmitted by casual contact

- 3 most common diseases from AIDS
  - Pneumocystis carinii: rare type of pneumonia
  - Candidiasis: yeast infection
  - Kaposi's sarcoma: slow-growing cancer
- No cure
- Tx: combination of drugs commonly called "drug cocktail"

## ● **Chlamydia**

- Most frequent STD
- Bacterial infection
- Burning when urinating, discharge for males
- Females may be asymptomatic or may have some discharge
- Frequently causes PID and sterility in females if not treated
- Tx: tetracycline or erythromycin







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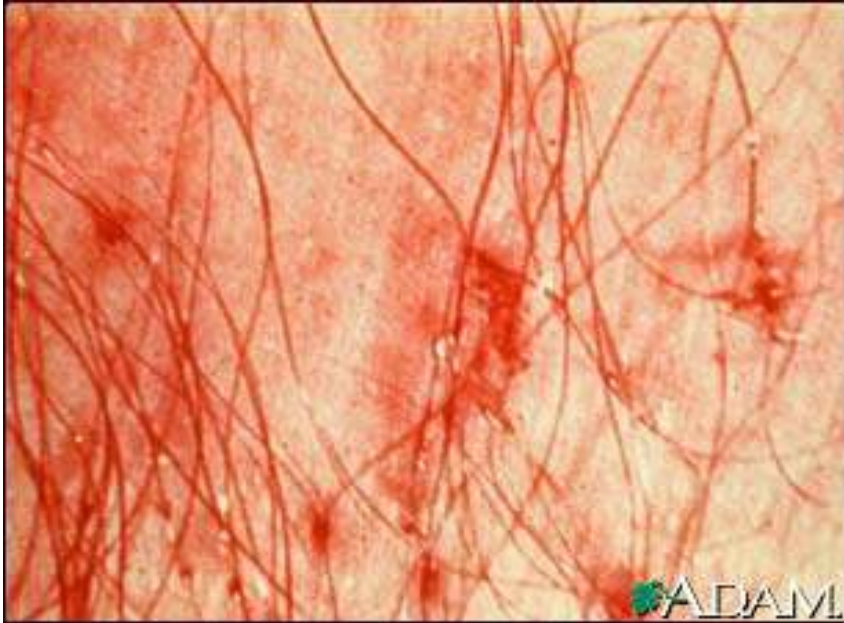
Seattle STD/HIV Prevention Training Center Source: Donnie Celum, Walter Stamm



## • Syphilis

- Bacterial infection
- Occurs in stages
- Primary stage: painless sore that heals within several weeks
- Second stage: occurs if left untreated during primary stage – organism enters bloodstream and causes sore throat, fever and swollen glands
- 3<sup>rd</sup> stage: occurs years later after damage to vital organs. Damage becomes irreversible and death will occur



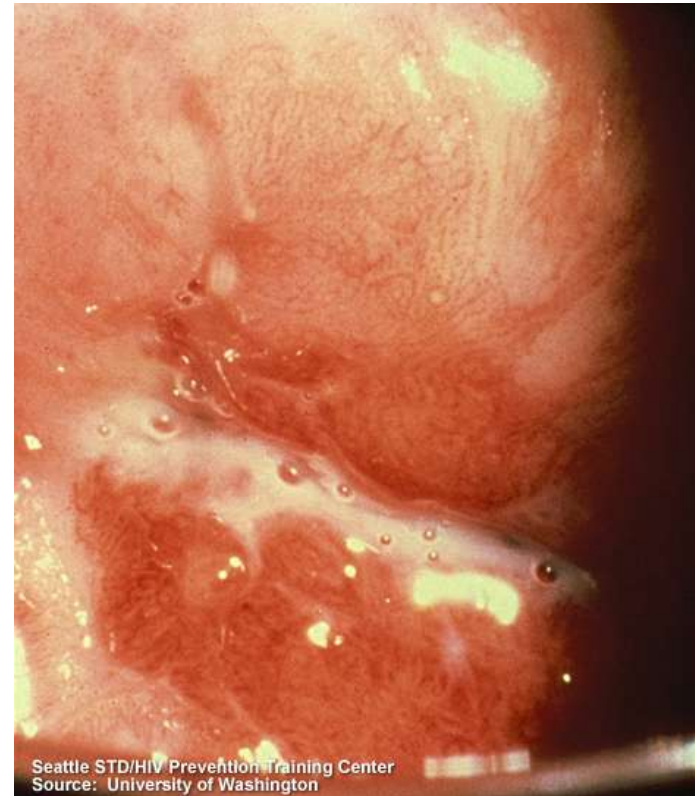


## ● **Pubic Lice**

- Parasite usually transmitted sexually
- Intense itching and redness
- Medications are used for tx.
- Must wash all linens and clothes to destroy lice eggs (nits)

- **Trichomonas vaginitis**

- Parasitic protozoa
- Large amounts of white/yellow, foul-smelling discharge
- Males frequently asymptomatic
- Tx: oral medication called flagyl
- All partners must be treated



Seattle STD/HIV Prevention Training Center  
Source: University of Washington

- **Human Papillomavirus (HPV)**

- A.k.a. genital warts
- Common STD
- Usually asymptomatic, warts may not be visible to the naked eye
- Usually painless, but can become sore, itchy and burn if hit
- Tx: acid to remove wart, gardasil vaccine to prevent 4 of the 11 types
- If left untreated, may cause cancer



# Contraceptives