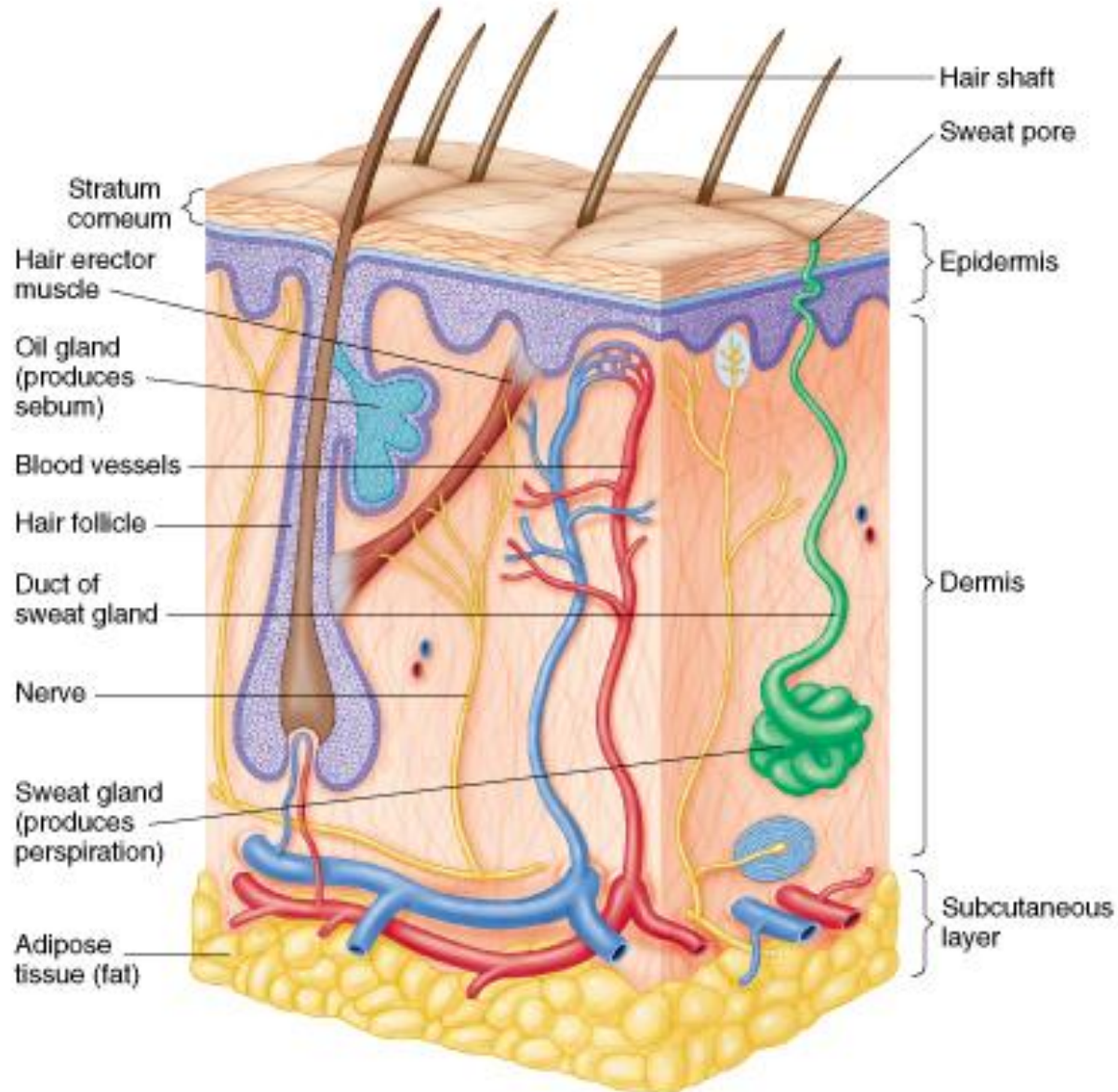


# **Infectious Diseases of the Skin**

**CLS 212: Medical Microbiology**

# Anatomy of the Normal Skin



# Anatomy of Normal Skin

- The skin is the largest organ covering the entire body.
- Functions of the skin is to protect the body against heat, light, and infection.
- The skin consist of 3 layers:
  1. **Epidermis:** one part is the **stratum corneum**, contains the protein Keratin and skin pigment (melanin).
  2. **Dermis:** contains blood vessels, nerves, lymph vessels, hair follicles, and sweat and oil glands.
  3. **Subcutaneous:** contain lipid tissue that keeps the heat of the body.

# Infectious Diseases of the Skin

## Bacteria

*Staphylococcus aureus.*

*Streptococci pyogenes* (Group A)

*Propionibacterium acnes.*

*Clostridium spp.*

## Viruses

*Herpes viruses* (HSV-1 & HSV-2)

*Varicella-zoster virus*

*Measles virus*

*Rubella virus*

## Fungi

*Candida spp.*

*Tinea spp.* (Dermatophytes)

*Piedra hortae* (Black Piedra)

## Parasites

Lice

Scabies (mite)

Hook worm

# *Staphylococcus aureus*

- **Folliculitis:** Infection of hair follicles.
  - **Pimples:** superficial infection (red area).
  - **Furuncles:** localized region of pus (white) surrounded by inflamed tissue- red area).
  - **Carbuncles:** deep tissue damage.
- **Impetigo (school sores):** a superficial skin infection It appears as small blisters or yellow honey-colored crusts.
- **Cellulitis:** redness of the skin, swelling, blistering, and abscess.
- **Ecthyma:** hard crusted sores over ulcer.
- **Staphylococcal Scalded Skin Syndrom (SSSS).**
- **Toxic Shock Syndrome (TSS).**



**Folliculitis**

**Carbuncles**



**Furuncles**



**Pimples**

**Impetigo**



**Ecthyma**



**Cellulitis**



**Scalded Skin Syndrome**



# Bacterial Skin Disease

Other Bacterial Disease of the Skin	Etiologic Agent
Acne	<i>Propionibacterium</i>
Cutaneous Anthrax	<i>Bacillus anthracis</i>
Gas Gangrene	<i>Clostridium perfringens</i>
Leprosy	<i>Mycobacterium leprae</i>
Scarlet Fever	<i>Streptococcus pyogenes</i>
Necrotizing Fasciitis	<i>Streptococcus pyogenes</i>
Impetigo	<i>Staphylococcus aureus</i> or <i>Streptococcus pyogenes</i>



# Viral Infections of the Skin

- **Warts:** caused by *Human Papilloma Virus (HPV)*
  - Although warts themselves are invariably benign, papillomaviruses have been associated with increased frequency of cervical and skin cancers, so removal of warts is usually recommended.



- **Chickenpox and shingles:** caused by *Varicella-Zoster Virus (VZV)*.
  - Chickenpox is transmitted by air-route, and the infection is localized in the skin. Most common in children.
  - After recovery, the virus remains dormant in the nervous system.
  - However, in old people it may become reactivated, causing shingles. Shingles is an infection of a nerve and the area of skin around it.



Shingles

- **Measles:** caused by *Rubeola virus*, is a systemic infection characterized by a skin rash.

- It is an endemic childhood disease, complications of measles infection can be quite serious (ear infection, respiratory tract infection).

- There is no treatment for measles.

A vaccine has been available since 1963, and has had a dramatic effect on the incidence of measles in the developed world; unfortunately, the vaccine does not produce strong immunity in all individuals, and compliance remains a problem



- **Rubella: (or German measles)** caused by *Rubella virus*.
  - Rubella infection in both children and adults is usually mild, infection starts with facial red rash then goes to the whole body. Infection will take about 3 days.
  - Infection of a woman during the first trimester of pregnancy can lead to **congenital rubella syndrome (CRS)**, with a high incidence of fetal damage.
- **Immunity to both diseases:** through MMR-Measles Mumps Rubella Vaccine. Given to 18 month babies.

# Parasitic Infection of the Skin: Lice

## 1. Head Lice: (*Pediculus humanus capitis*)

- **Symptoms:** include itching of the scalp, neck, and behind ears.
- Most common in children.
- **Transmission:** direct head-to-head contact or sharing hair stuff.

## 2. Body Lice: (*Pediculus humanus corporis*)

- **Symptoms:** itching, bite marks on the body.
- Most common in communities dealing with poverty, overcrowding, and poor personal hygiene.
- **Transmission:** body lice live in clothing and affect the body.

## 3. Pubic Lice: (*Phthirus pubis*)

- **Symptoms:** itching of the pubic area, Bluish colored sore.
- **Transmission:** direct sexual contact. Not spread by toilet seats.

**Body Louse**



**Head louse**



**Louse eggs (nits)**



**Pubic Louse**