

# Game plan

## Lecture

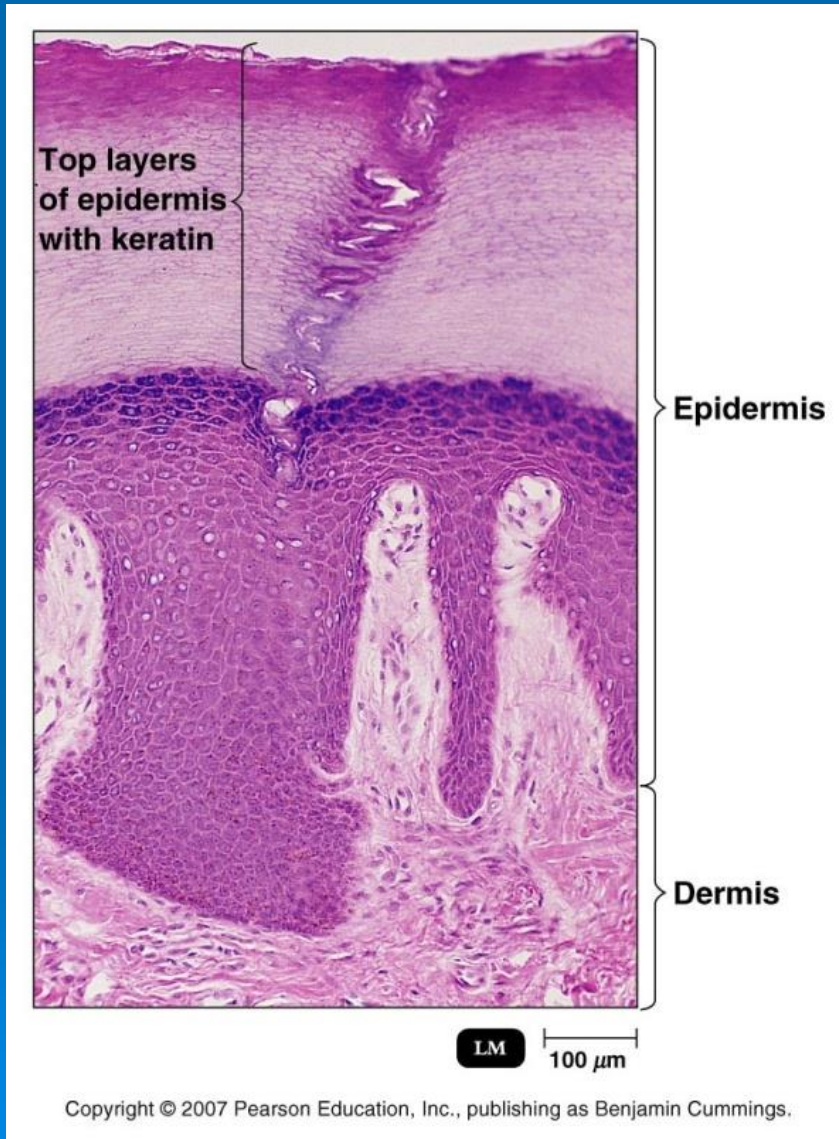
Skin and eye diseases

## Lab

Major Unknown

*Major Unknown Quiz*

# Skin- first line of defense



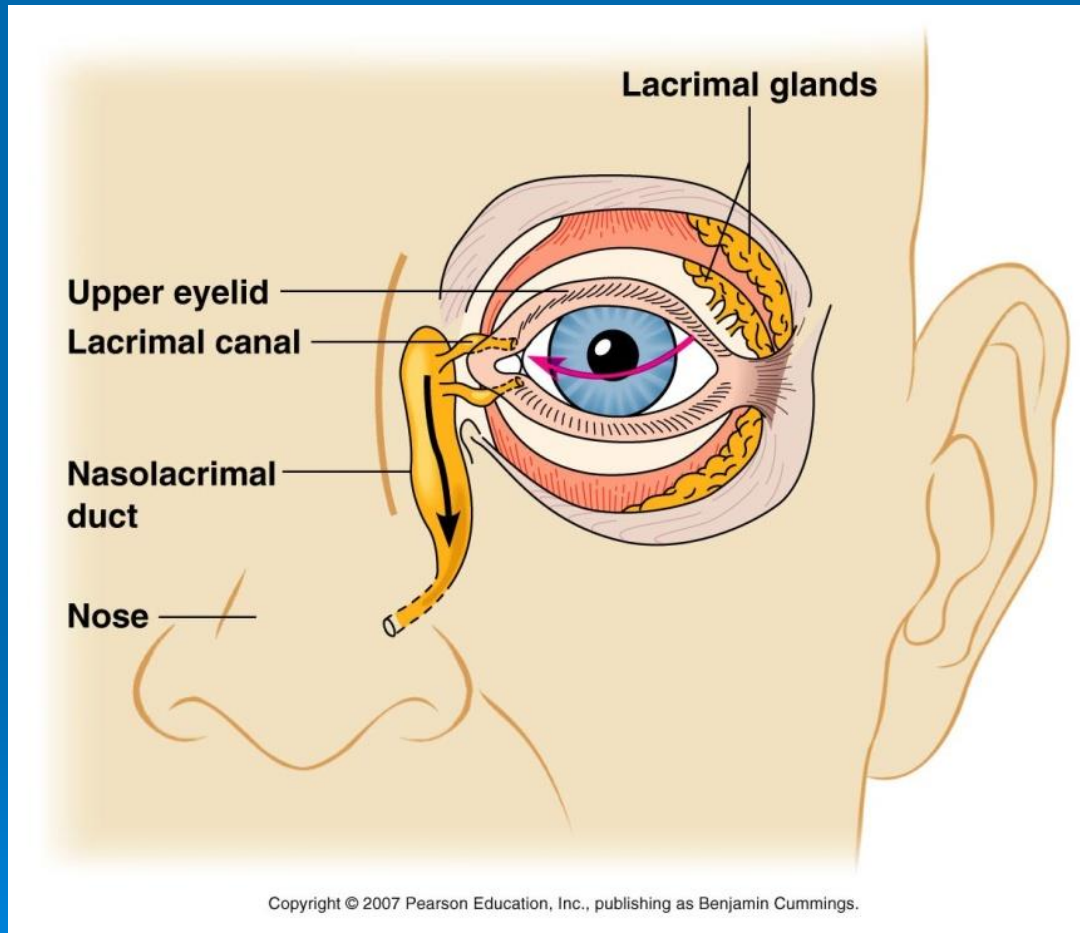
- **Structural:**

Epidermal and dermal layers

*Stratum corneum* contains keratin

- **Physical and chemical defense factors**

# Lacrimal apparatus- first line of defense

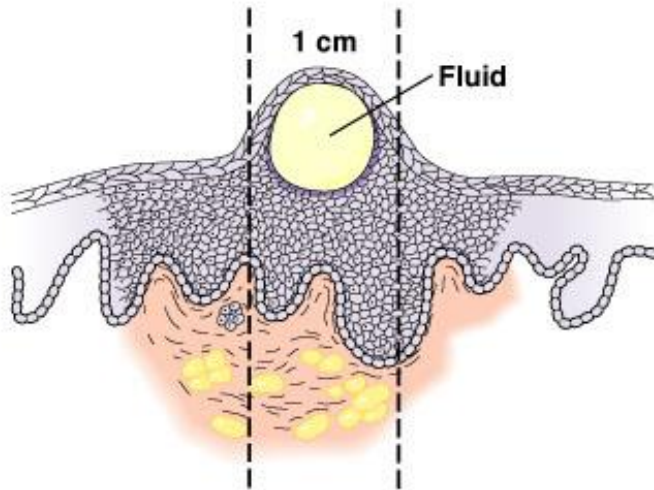


- Physical and chemical defense factors

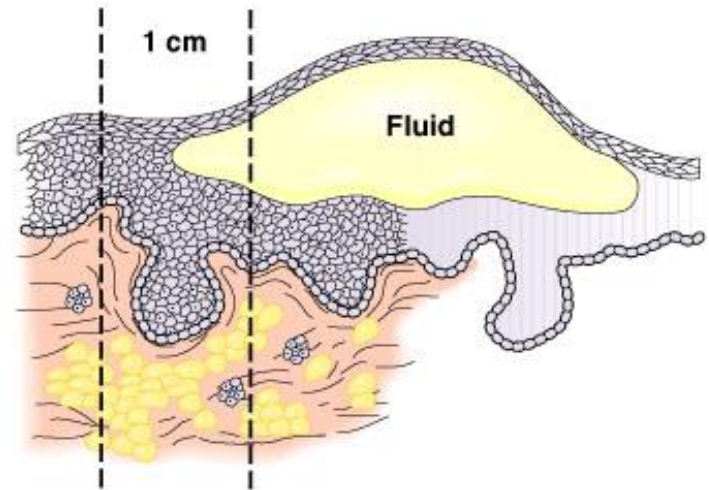
# Skin/Eye Lesions

- **Causes:**
  - Direct penetration of pathogen
  - Hematogenous spread of pathogen to site
  - Cutaneous manifestations of systemic diseases
- **Classified by anatomical level of infection**
  - Superficial
  - Deep (necrotizing fasciitis)
- **Lesion type important for diagnosis**

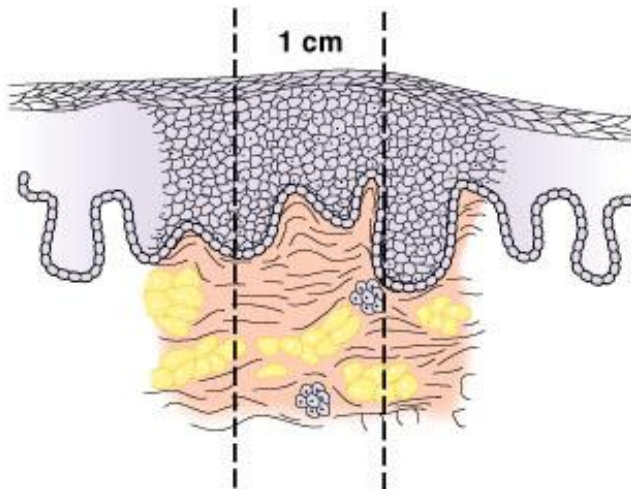
# Lesions



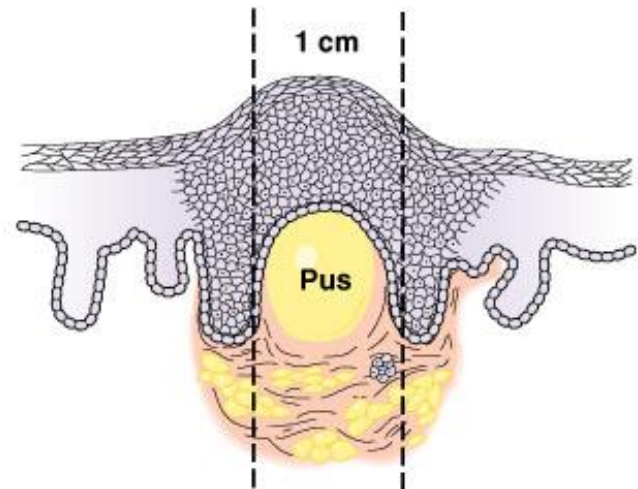
**(a) Vesicle**



**(b) Bulla**



**(c) Macule**



**(d) Pustule (papule)**

# Staphylococcal infections

- Clinically divided by coagulase positive or negative
- Characteristics of coagulase-positive *S. aureus*:
  - Can survive for months on solid surface
  - Produces toxins: hemolysins, enterotoxins, superantigens
  - Blocks chemotaxis of neutrophils
  - Produces toxins that kill neutrophils
  - Resistant to opsonization
  - Resistant to lysozyme
  - Human antibodies unable to prevent multiple infections
- Can causes folliculitis, sty, abscess, impetigo, bullous impetigo and scalded skin syndrome



# Staphylococcal infections- scalded skin syndrome



# Streptococcal infections

- Clinically divided by hemolytic ability
- Characteristics of  $\beta$ -hemolytic *S. pyogenes*:
  - 80 immunological subtypes that vary by M protein
  - M protein prevents activation of complement (and thus downstream effects)
  - Contains streptokinases, hyaluronidases, deoxyribonucleases, streptolysins
- Can cause strep throat, leading to erysipelas, and necrotizing fasciitis (“flesh-eating” bacteria) due to exotoxin A



# Streptococcal infections- erysipelas and impetigo

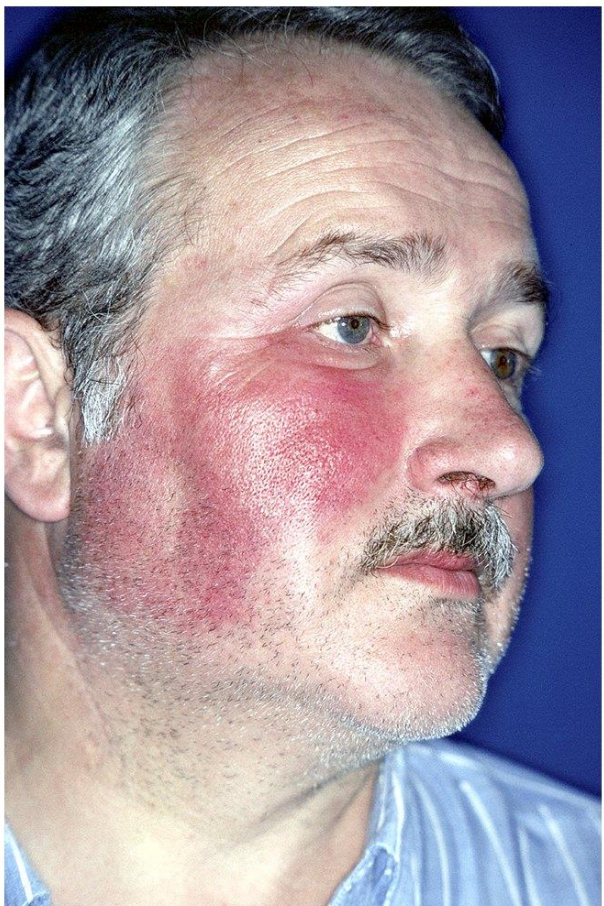


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# Invasive Group A Streptococcal (GAS) Infections





# *Pseudomonas aeruginosa* infection and infectious granuloma



# *Papillomavirus* spp- dermal warts



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# *Papillomavirus* spp- A little something different



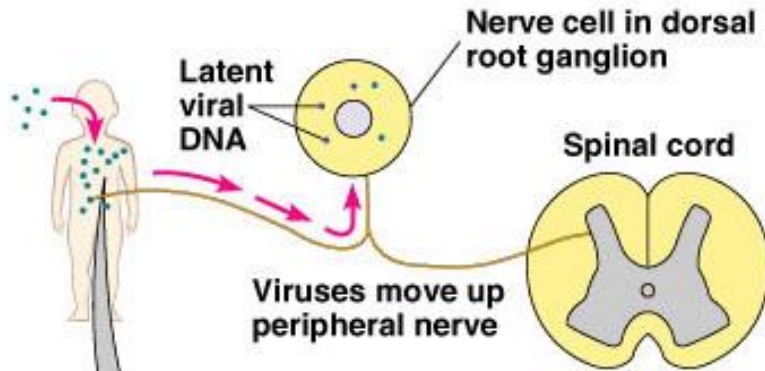
# Variola virus- smallpox



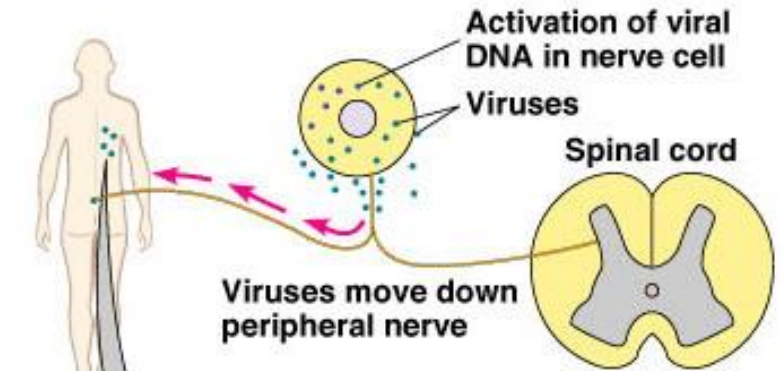


# Varicella zoster virus- chickenpox and shingles

**(a) Initial infection: chickenpox (varicella)**



**(b) Recurrence of infection: shingles (herpes zoster)**



# Measles (Rubeola)





# Tinea infections- cutaneous mycoses



**(a)** Ringworm



**(b)** Athlete's foot

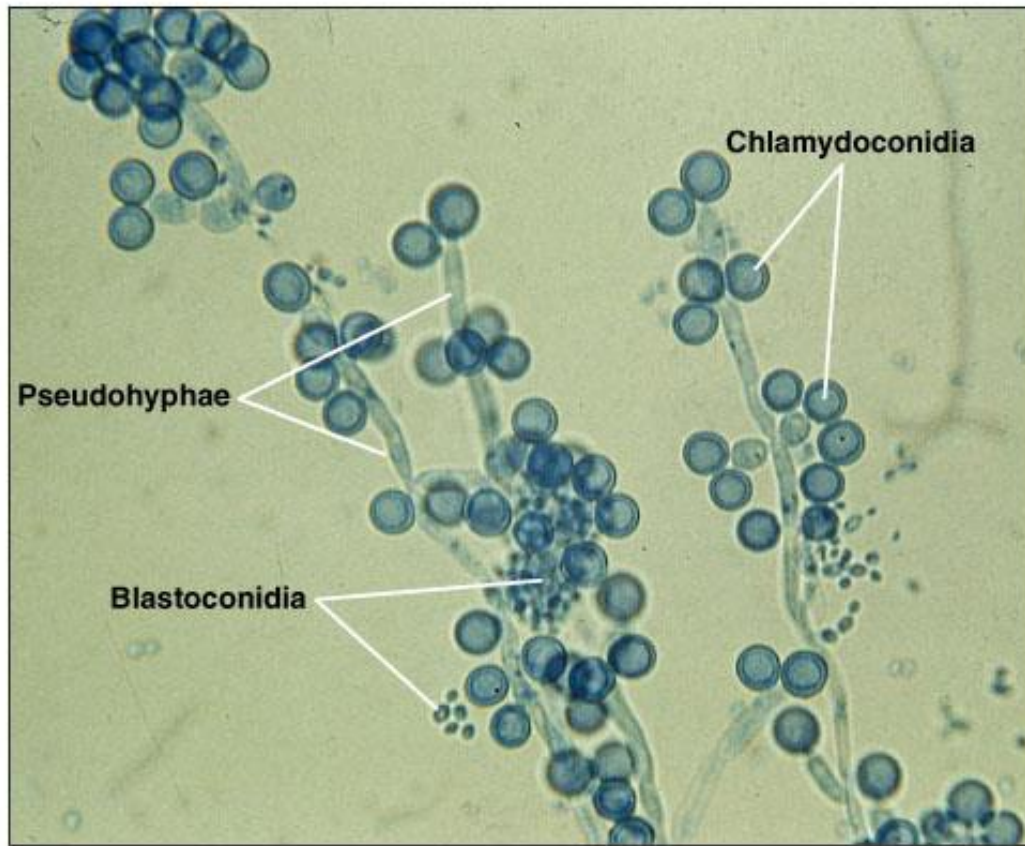
# *Blastomycoses dermatitidis*- subcutaneous mycoses



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# Candidiasis



**(a)** *Candida albicans*



**(b)** Oral candidiasis, or thrush

# Candidiasis



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# Soil organisms (*Madurella* and actinomycetes)- Madura foot or Eumycetoma



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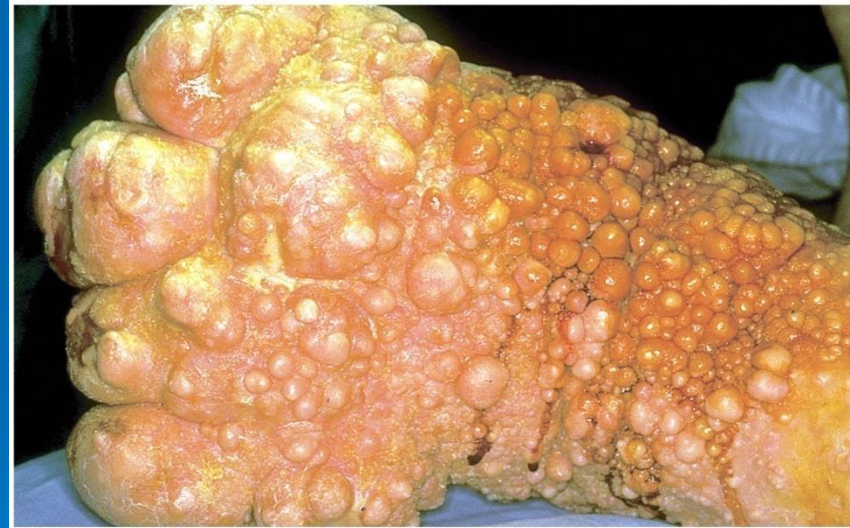
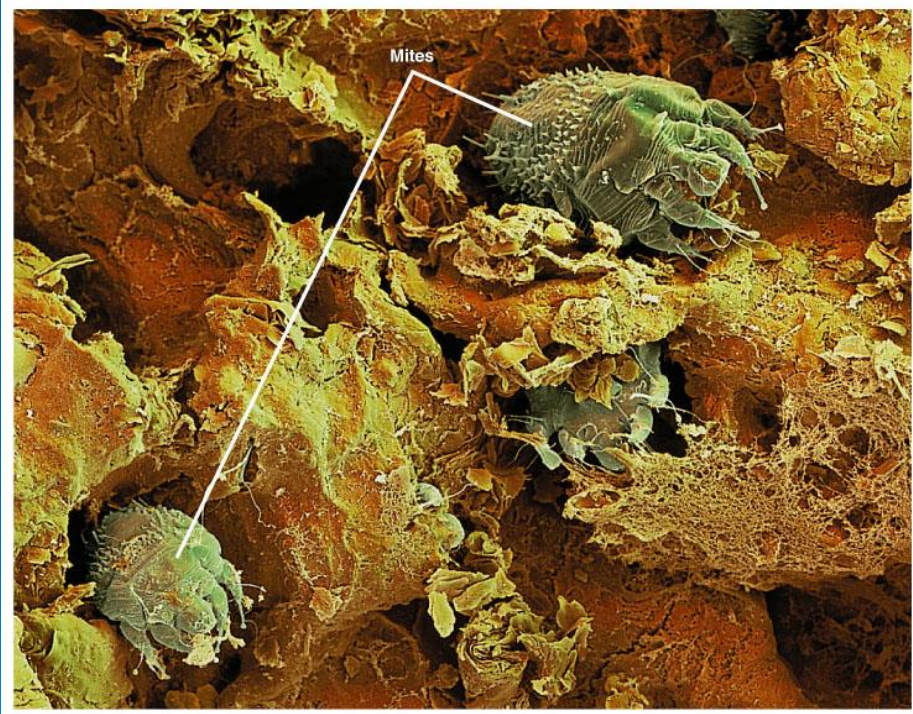


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# *Sarcoptes scabiei*- Scabies





# *Chlamydia trachoma*- trachoma

