

HIGH-YIELD MICROBIOLOGY NOTES

FOR USMLE STEP 1 AND STEP 2

By
Dr. Yesheswani Illuri



Dear IMG

High-Yield Notes for USMLE Step 1 & Step 2 CK
Case → Diagnosis → Treatment

Bacteria • Viruses • Fungi • Parasites • HIV/AIDS • Antimicrobials

BACTERIOLOGY - GRAM POSITIVE

GRAM-POSITIVE COCCI

- Catalase TEST: Staph = Positive (bubbles),
Strep = Negative (no bubbles)

Staphylococcus aureus

- Coagulase+, Catalase+, β -hemolytic, Protein A (binds Fc of IgG)
- IVDU + Tricuspid endocarditis + Septic pulmonary emboli \rightarrow S. aureus \rightarrow Vancomycin
- Post-influenza pneumonia + Cavitory lesion + Empyema \rightarrow S. aureus

Dear IMG

- Osteomyelitis most common ALL ages →
S. aureus → Nafcillin (MSSA), Vancomycin (MRSA)
- Rapid food poisoning (1-6 hrs, preformed toxin, no fever) → S. aureus → Supportive
- Tampon use/Surgical packing + Diffuse macular rash + Fever + Hypotension + Multiorgan → TSS (TSST-1 superantigen) → Vancomycin + IVF
- Newborn + Diffuse skin peeling at superficial layer + Nikolsky sign → Scalded skin syndrome (Exfoliative toxin A/B) → Nafcillin
- MRSA: mecA gene → Altered PBP2a → Resistant to all beta-lactams

- MSSA: Nafcillin, Oxacillin, Cefazolin |
- MRSA: Vancomycin, Daptomycin,
Linezolid, Ceftaroline

-

Coagulase-Negative Staph

- Central line/Catheter + Fever + Bacteremia
→ *S. epidermidis* (biofilm) → Vancomycin
- Prosthetic valve endocarditis <2 months
post-surgery (#1 cause) → *S. epidermidis* →
Vancomycin + Rifampin + Gentamicin
- Young sexually active woman + UTI → *S.*
saprophyticus (Novobiocin-resistant) →
Nitrofurantoin, TMP-SMX

Streptococcus pyogenes (Group A Strep)

- β -hemolytic, Bacitracin-sensitive, Catalase-, M protein (antiphagocytic)
- Sore throat + Exudate + No cough + Fever + Tender cervical nodes \rightarrow Strep pharyngitis \rightarrow Penicillin/Amoxicillin
- Pharyngitis + Sandpaper rash + Strawberry tongue + Pastia lines (folds) \rightarrow Scarlet fever \rightarrow Penicillin
- Honey-crusted skin \rightarrow Impetigo \rightarrow Amoxicillin-clavulanate
- Sharply demarcated raised warm red skin \rightarrow Erysipelas \rightarrow Penicillin
- Rapid spreading infection + Crepitus + Severe pain + Toxic shock \rightarrow Necrotizing

fasciitis → Penicillin + Clindamycin +
Surgical debridement

- Post-strep: Rheumatic fever (M protein cross-reacts with cardiac valves) →
Prophylaxis: Monthly Benzathine Penicillin
- Poststreptococcal GN: Hematuria + HTN +
Edema 2-3 weeks after throat/skin infection
→ Supportive

Streptococcus agalactiae (Group B Strep)

- β -hemolytic, Bacitracin-resistant, CAMP test+
- Neonate + Meningitis/Sepsis/Pneumonia
(early <7 days vs late 7-90 days) → GBS →
Ampicillin + Gentamicin

- Screen all pregnant women 35-37 weeks → Intrapartum IV Penicillin G if positive

-

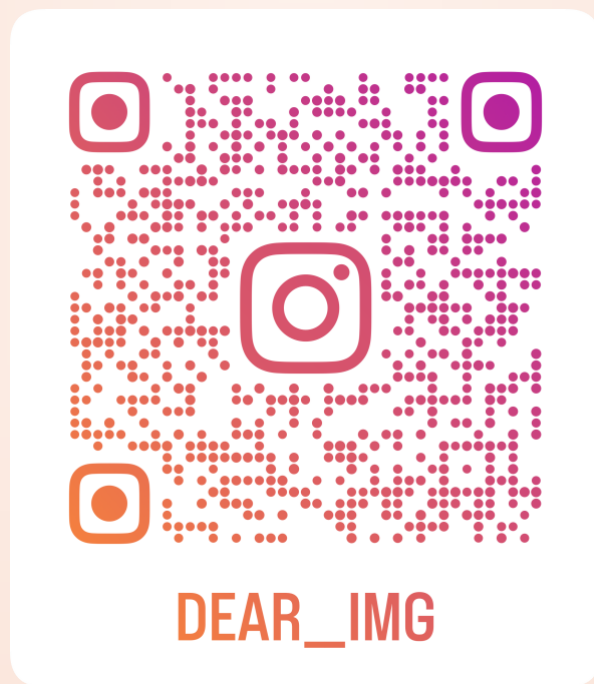
Streptococcus pneumoniae

- α -hemolytic, Optochin-sensitive, Bile-soluble, Lancet-shaped diplococci, Polysaccharide capsule
- Quellung reaction: Capsule swells with type-specific antibodies
- Rusty sputum + Lobar pneumonia → CAP → Ceftriaxone
- Adults + Meningitis + #1 cause → Ceftriaxone + Vancomycin + Dexamethasone



 **Unlock Full PDF — ₹299**

Comment "**PDF**" on our Instagram
High Yield PDF post
and receive purchase details + full PDF directly!



@dear__img
guidance@dearing.com