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INFECTIOUS

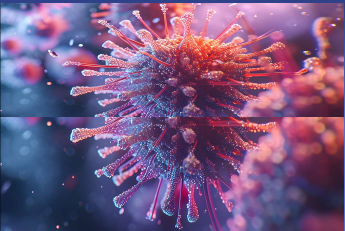
DISEASE

BOARD REVIEW

DISEASE

BOARD REVIEW

AUGUST 16-20, 2025




Daily Question Preview: Day 1

Moderator: Henry Masur, MD

7/18/2025

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PREVIEW QUESTION

1.1 Which of the following will not grow on sheep blood, chocolate and/or MacConkey agar?

A. *Granulicatella adiacens*

B. *Bordetella pertussis*


C. *Brucella melitensis*

D. *Vibrio cholerae*

E. *Abiotrophia defectiva*

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PREVIEW QUESTION

1.2 You are asked to see a 43-year-old woman to advise on management of a positive blood culture.

Gram stain of her blood culture bottle shows Gram-negative bacilli.

A rapid PCR panel performed on the positive blood culture bottle contents detects *Klebsiella pneumoniae* and *bla<sub>KPC</sub>*.

The *bla<sub>KPC</sub>* gene product would be expected to confer resistance to which of the following?

A. Cefepime

B. Plazomicin

C. Colistin

D. Ceftazidime/avibactam

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PREVIEW QUESTION

1.3

A 44-year-old man who underwent bilateral lung transplantation for pulmonary hypertension develops a sternal wound infection with sternal dehiscence 15 days post-transplant.

Blood cultures are negative. He undergoes sternal debridement with the finding of purulence and negative Gram and KOH stains.

After three days of incubation, pinpoint, clear colonies are visualized on cultures on sheep blood agar, however Gram stain of these colonies is negative.

Which of the following is the most appropriate empiric antibiotic to treat this patient?

A. Cefepime

B. Ceftriaxone

C. Trimethoprim-sulfamethoxazole

D. Azithromycin

E. Doxycycline

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PREVIEW QUESTION

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What is one documented benefit of extended-infusion piperacillin-tazobactam?

A. It is more convenient for nursing than traditional dosing

B. Clinical outcomes are improved

C. The emergence of resistant isolates is reduced


D. The need for renal dosage adjustment is eliminated

E. CNS penetration of piperacillin is improved

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PREVIEW QUESTION



1.5 A patient with HIV infection (CD4 count of 15 cells/ $\mu$ L, VL 2 million) has a 3-year history of a recurrent perianal herpes simplex that had previously responded to acyclovir or valacyclovir. On this occasion, the painful ulcers has not responded to a 10-day course of acyclovir 400 mg TID followed by a 10-day course of valacyclovir 1g bid. The patient has been adherent to his regimens.


What is the best therapeutic option?

1. Intravenous ganciclovir
2. Intravenous acyclovir
3. Intravenous foscarnet
4. Valganciclovir
5. Famciclovir

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PREVIEW QUESTION



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PREVIEW QUESTION



1.6 A 65-year-old man in on the hematology oncology ward receiving conditioning prior to HSCT. He develops fever and an oxygen need. A PCR is positive for influenza A H1N1.

Which of the following regimens is appropriate AND least likely to lead to the emergence of resistance?

- A. Rimantidine
- B. Oseltamivir
- C. Baloxavir marboxil
- D. Rimantidine and Zanamivir
- E. Letermovir

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PREVIEW QUESTION

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PREVIEW QUESTION

1.7

A 46-year-old male 18 months s/p HLA mismatched allogeneic HCT

HCT course complicated by GVHD involving the skin, GI tract, and lungs. Treated with steroids 3 months ago

One month ago, he had Parainfluenza 3 with chest CT demonstrating tree-in-bud opacities in LLL. Received levofloxacin for 10 days

Now presents with increasing shortness of breath and cough


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PREVIEW QUESTION

1.7

Different cuts on same CT



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PREVIEW QUESTION

1.7

Blood cultures are negative. Sputum cultures grow oropharyngeal flora. Serum galactomannan is negative.

What is the most likely etiology of his current process?

A. *Cryptococcus neoformans*

B. *Escherichia coli*

C. *Staphylococcus aureus*

D. *Aspergillus fumigatus*


E. *Fusarium* spp.

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PREVIEW QUESTION



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PREVIEW QUESTION



**1.8** 35-year-old female, d+80 after allogeneic HCT presenting with 5 days of anorexia, nausea, epigastric pain, and diarrhea. CMV D-/R+, HSV+, VZV+.

Exam: faint maculopapular rash on upper body. Afebrile.

Antimicrobials: acyclovir, letermovir, TMP-SMX and fluconazole.

Labs: ANC 1200, ALC 250. Hepatic panel within normal limits. Stool PCR for norovirus and *C. difficile* negative. Plasma quantitative CMV PCR negative.


What is the most appropriate initial work-up and management?

A. Perform serum varicella zoster virus (VZV) PCR  
B. Empiric corticosteroid treatment  
C. Blood lipase and amylase  
D. Upper and lower endoscopy

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PREVIEW QUESTION



**1.9** A 32-year-old nurse is 34 weeks pregnant during influenza season. She develops influenza symptoms and is seen at an instacare where a rapid test is positive, and she is given azithromycin.

72 hours after the onset she presents to the ED with fever, tachypnea, hypoxemia and decreased urine output.

CXR shows bilateral hazy infiltrates. She is hospitalized.

Which of the following is correct?

A. She should get supportive care only since she has had symptoms for >48 hours  
B. Oseltamivir is relatively contraindicated in pregnancy  
C. Zanamivir is clearly preferred because of low systemic absorption  
D. Baloxavir is the recommended therapy  
E. Oseltamivir should be started as soon as possible

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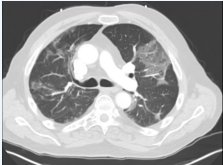
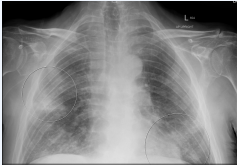
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**1.10** 63-year-old man with T-cell prolymphocytic leukemia on single-agent alemtuzumab therapy. Receiving acyclovir prophylaxis (for HSV/VZV) alongside preemptive therapy for CMV (serial CMV PCR testing negative to-date).

Presents with several week history of slowly progressing shortness of breath and new low-grade non-neutropenic fevers. CXR followed by cross-sectional chest imaging are shown.



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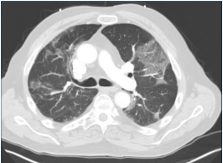
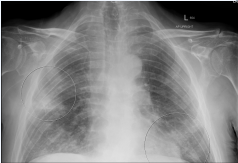
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PREVIEW QUESTION

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**1.10** This presentation is likely due to the lack of which of the following recommended prophylactic therapies?

- A. Letermovir
- B. Valganciclovir
- C. Entecavir
- D. Levofloxacin
- E. **Sulfamethoxazole-Trimethoprim**



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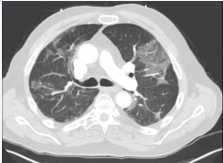
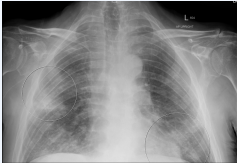
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- B. Valganciclovir
- C. Entecavir
- D. Levofloxacin
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PREVIEW QUESTION

1.11 70-year-old male with AML and recent initiation of azacitidine and venetoclax presenting with neutropenic fever (102F) and fatigue

VS – 120/80, HR 100, RR 14, SaO2 96% on ambient air

Exam – no significant OP lesions, lungs CTA, abd soft, nt/nd, no peri-rectal lesions/pain, no skin rash or lesions, no pain/redness/tenderness over central access site

Cultures – blood/urine pending

CXR – non-focal



Current prophylaxis – levofloxacin and acyclovir

Prior infection history – none

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PREVIEW QUESTION

1.11 Which of the following is the most appropriate change in therapy?

A. Levofloxacin → IV cefepime

B. Levofloxacin → IV cefepime + vancomycin

C. Levofloxacin → IV cefepime + metronidazole



D. Acyclovir → IV ganciclovir

E. Addition of antifungal therapy

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PREVIEW QUESTION

1.12 A 35-year-old woman presents to your ED because she tested positive for Covid-19 at home. She is coughing, fatigued and has a low-grade fever

She is 30 weeks pregnant. She has familial hypercholesterolemia and her BMI is 36

You find out she had Covid vaccine in the summer of 2020 (5 years ago) but has not had a booster nor a known infection since

She is febrile and uncomfortable. Her exam is otherwise unremarkable

O2 saturation 95% on room air

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PREVIEW QUESTION

1.12

What is the most appropriate therapy?

A. Molnupiravir for 5 days

B. No treatment indicated

C. Hospitalize her for 5 days of IV remdesivir and dexamethasone

D. Nirmatrelvir-ritonavir (Paxlovid) but instruct her to hold her statin for 7 days

E. Prednisone or dexamethasone

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PREVIEW QUESTION

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PREVIEW QUESTION

1.13

What is the primary rationale for using extended-interval aminoglycoside dosing instead of conventional dosing?

A. Therapeutic drug monitoring is no longer necessary

B. The duration of treatment is shortened

C. The need for audiometry is eliminated

D. Clinical cure rates are always improved

E. Nephrotoxicity is generally reduced

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PREVIEW QUESTION



- 1.14 What is the correct vancomycin AUC to target for treating MRSA pneumonia?
- A. 100-200  $\mu\text{g}\cdot\text{hr}/\text{mL}$
  - B. 200-400  $\mu\text{g}\cdot\text{hr}/\text{mL}$
  - C. 200-600  $\mu\text{g}\cdot\text{hr}/\text{mL}$
  - D. 400-600  $\mu\text{g}\cdot\text{hr}/\text{mL}$
  - E. 400-800  $\mu\text{g}\cdot\text{hr}/\text{mL}$

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PREVIEW QUESTION



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  - C. 200-600  $\mu\text{g}\cdot\text{hr}/\text{mL}$
  - D. 400-600  $\mu\text{g}\cdot\text{hr}/\text{mL}$  \*\*
  - E. 400-800  $\mu\text{g}\cdot\text{hr}/\text{mL}$

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PREVIEW QUESTION



- 1.15 59-year-old woman with AML with neutropenia for 25 days and febrile for 6 days. She is receiving meropenem, vancomycin and acyclovir. Now with new skin lesions that are small, tender papules without central ulceration.



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PREVIEW QUESTION



- 1.15 This is most consistent with infection with which of the following organisms?
- A. Rhizopus spp.
  - B. Varicella zoster virus
  - C. Cryptococcus neoformans
  - D. Vancomycin resistant Enterococci
  - E. Candida tropicalis



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## PREVIEW QUESTION



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