EMERGENCY MEDICINE

BOOT CAMP

INFECTIOUS DISEASE

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OLD DEFINITIONS FOR SIRS

Clinical Spectrum of SIRS

- Infection
  - Identifiable source of microbial insult
- SIRS = 2 or more:
  - Temp ≥38°C or ≤36°C
  - HR ≥ 90 bpm
  - RR ≥ 20 breaths/min or PaCO2 ≤ 32 mmHg or mechanical ventilation
  - WBC ≥ 12,000/µL or ≤ 4000/µL or ≥ 10% band forms
- Sepsis
  - Infection + SIRS
- Severe Sepsis
  - Sepsis + Organ Dysfunction
- Septic Shock
  - Sepsis + Cardiovascular Collapse (requires vasopressors)

QSOFA

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NEW SEPSIS GUIDELINES

Clinical Review & Education

Special Communication | CARING FOR THE CRITICALLY ILL PATIENT

The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3)

Mervyn Singer, MD, FRCP; Clifford S. Deutschman, MD, MS; Christopher Warren Seymour, MD, MSc; Manu Shankar-Hari, MSc, MD, FFICM; Djillali Annane, MD, PhD; Michael Bauer, MD; Rinaldo Bellomo, MD; Gordon R. Bernard, MD; Jean-Daniel Chiche, MD, PhD; Craig M. Coopersmith, MD; Richard S. Hotchkiss, MD; Mitchell M. Levy, MD; John C. Marshall, MD; Greg S. Martin, MD, MSc; Steven M. Opal, MD; Gordon D. Rubenfeld, MD, MS; Tom van der Poll, MD, PhD; Jean-Louis Vincent, MD, PhD; Derek C. Angus, MD, MPH

NEW SEPSIS DEFINITIONS

Box 3. New Terms and Definitions

- Sepsis is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection.
- Organ dysfunction can be identified as an acute change in total SOFA score ≥2 points consequent to the infection.
  - The baseline SOFA score can be assumed to be zero in patients not known to have preexisting organ dysfunction.
  - A SOFA score ≥2 reflects an overall mortality risk of approximately 10% in a general hospital population with suspected infection. Even patients presenting with modest dysfunction can deteriorate further, emphasizing the seriousness of this condition and the need for prompt and appropriate intervention, if not already being instituted.
- In lay terms, sepsis is a life-threatening condition that arises when the body's response to an infection injures its own tissues and organs.
- Patients with suspected infection who are likely to have a prolonged ICU stay or to die in the hospital can be promptly identified at the bedside with qSOFA, ie, alteration in mental status, systolic blood pressure ≤100 mm Hg, or respiratory rate ≥22/min.
- Septic shock is a subset of sepsis in which underlying circulatory and cellular/metabolic abnormalities are profound enough to substantially increase mortality.
- Patients with septic shock can be identified with a clinical construct of sepsis with persisting hypotension requiring vasopressors to maintain MAP ≥65 mm Hg and having a serum lactate level >2 mmol/L (18 mg/dL) despite adequate volume resuscitation. With these criteria, hospital mortality is in excess of 40%.

Abbreviations: MAP, mean arterial pressure; qSOFA, quick SOFA; SOFA: Sequential [Sepsis-related] Organ Failure Assessment.

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SOFA SCORES

Table 1. Sequential [Sepsis-Related] Organ Failure Assessment Score[a]

System	Score 0	1	2	3	4
Respiration					
Pao_2/Fio_2, mm Hg (kPa)	≥400 (53.3)	<400 (53.3)	<300 (40)	<200 (26.7) with respiratory support	<100 (13.3) with respiratory support
Coagulation					
Platelets, $\times 10^3/\mu L$	≥150	<150	<100	<50	<20
Liver					
Bilirubin, mg/dL (μmol/L)	<1.2 (20)	1.2-1.9 (20-32)	2.0-5.9 (33-101)	6.0-11.9 (102-204)	>12.0 (204)
Cardiovascular	MAP ≥70 mm Hg	MAP <70 mm Hg	Dopamine <5 or dobutamine (any dose)[b]	Dopamine 5.1-15 or epinephrine ≤0.1 or norepinephrine ≤0.1[b]	Dopamine >15 or epinephrine >0.1 or norepinephrine >0.1[b]
Central nervous system					
Glasgow Coma Scale score[c]	15	13-14	10-12	6-9	<6
Renal					
Creatinine, mg/dL (μmol/L)	<1.2 (110)	1.2-1.9 (110-170)	2.0-3.4 (171-299)	3.5-4.9 (300-440)	>5.0 (440)
Urine output, mL/d				<500	<200

Abbreviations: Fio_2, fraction of inspired oxygen; MAP, mean arterial pressure; Pao_2, partial pressure of oxygen.

[a] Adapted from Vincent et al.[27]

[b] Catecholamine doses are given as μg/kg/min for at least 1 hour.

[c] Glasgow Coma Scale scores range from 3-15; higher score indicates better neurological function.

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SOME CRITERIA FROM THE OLD DEFINITIONS

TABLE 2. Severe Sepsis

Severe sepsis definition = sepsis-induced tissue hypoperfusion or organ dysfunction (any of the following thought to be due to the infection)
Sepsis-induced hypotension
Lactate above upper limits laboratory normal
Urine output < 0.5 mL/kg/hr for more than 2 hrs despite adequate fluid resuscitation
Acute lung injury with Pao_2/Fio_2 < 250 in the absence of pneumonia as infection source
Acute lung injury with Pao_2/Fio_2 < 200 in the presence of pneumonia as infection source
Creatinine > 2.0 mg/dL (176.8 μmol/L)
Bilirubin > 2 mg/dL (34.2 μmol/L)
Platelet count < 100,000 μL
Coagulopathy (international normalized ratio > 1.5)

Adapted from Levy MM, Fink MP, Marshall JC, et al: 2001 SCCM/ESICM/ACCP/ATS/SIS International Sepsis Definitions Conference. *Crit Care Med* 2003; 31: 1250–1256.

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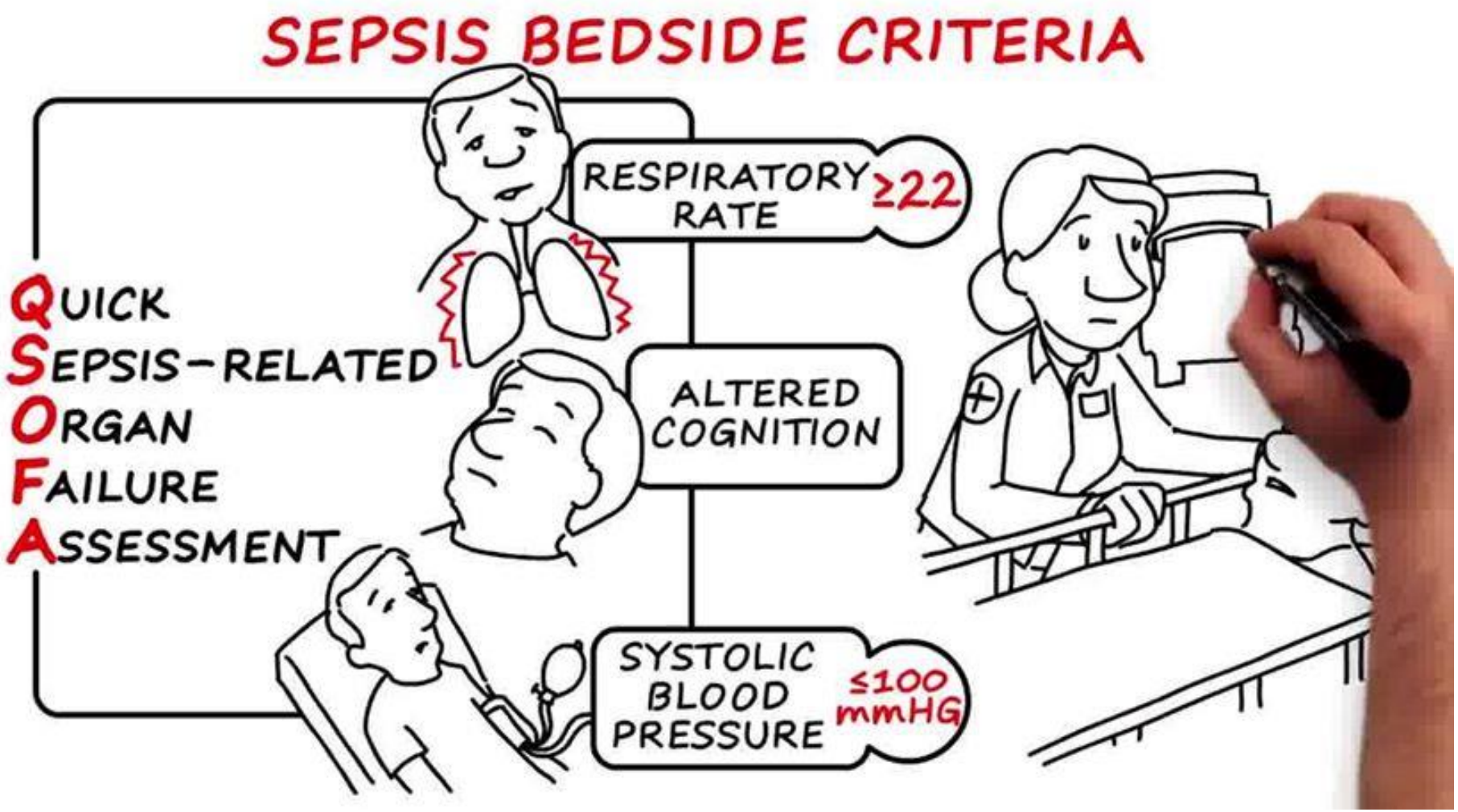
	OLD	NEW
SEPSIS	suspected infection + SIRS	suspected infection + 2 ≥ qSOFA or rise in SOFA score by ≥ 2
SEVERE SEPSIS	sepsis + hypotension, hypoxia, elevated lactate or other lab markers of end organ dysfunction	(category removed)
SEPTIC SHOCK	sepsis + hypotension after adequate fluid resuscitation	sepsis + vasopressors + lactate > 2



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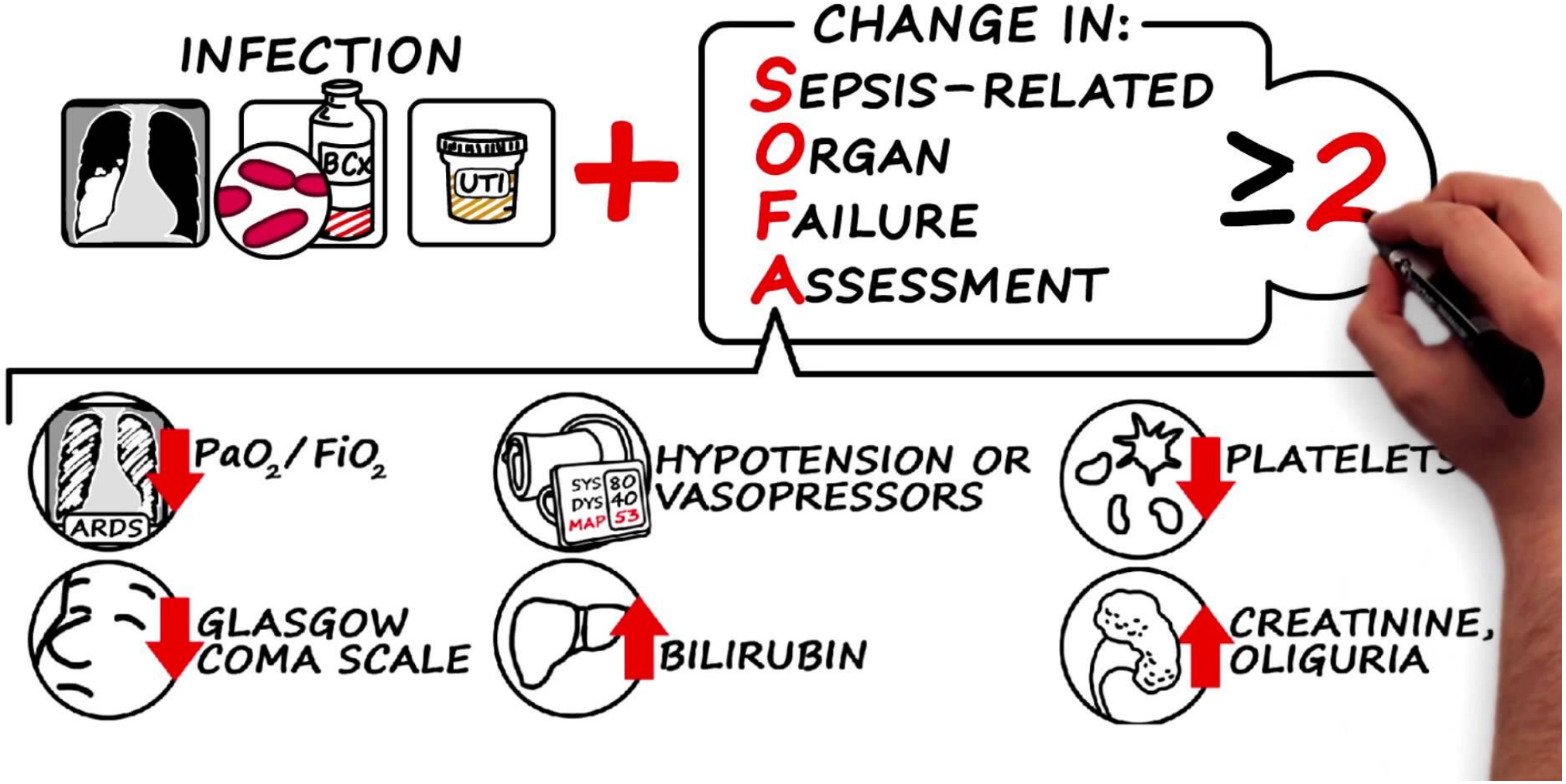
SEPSIS CLINICAL CRITERIA



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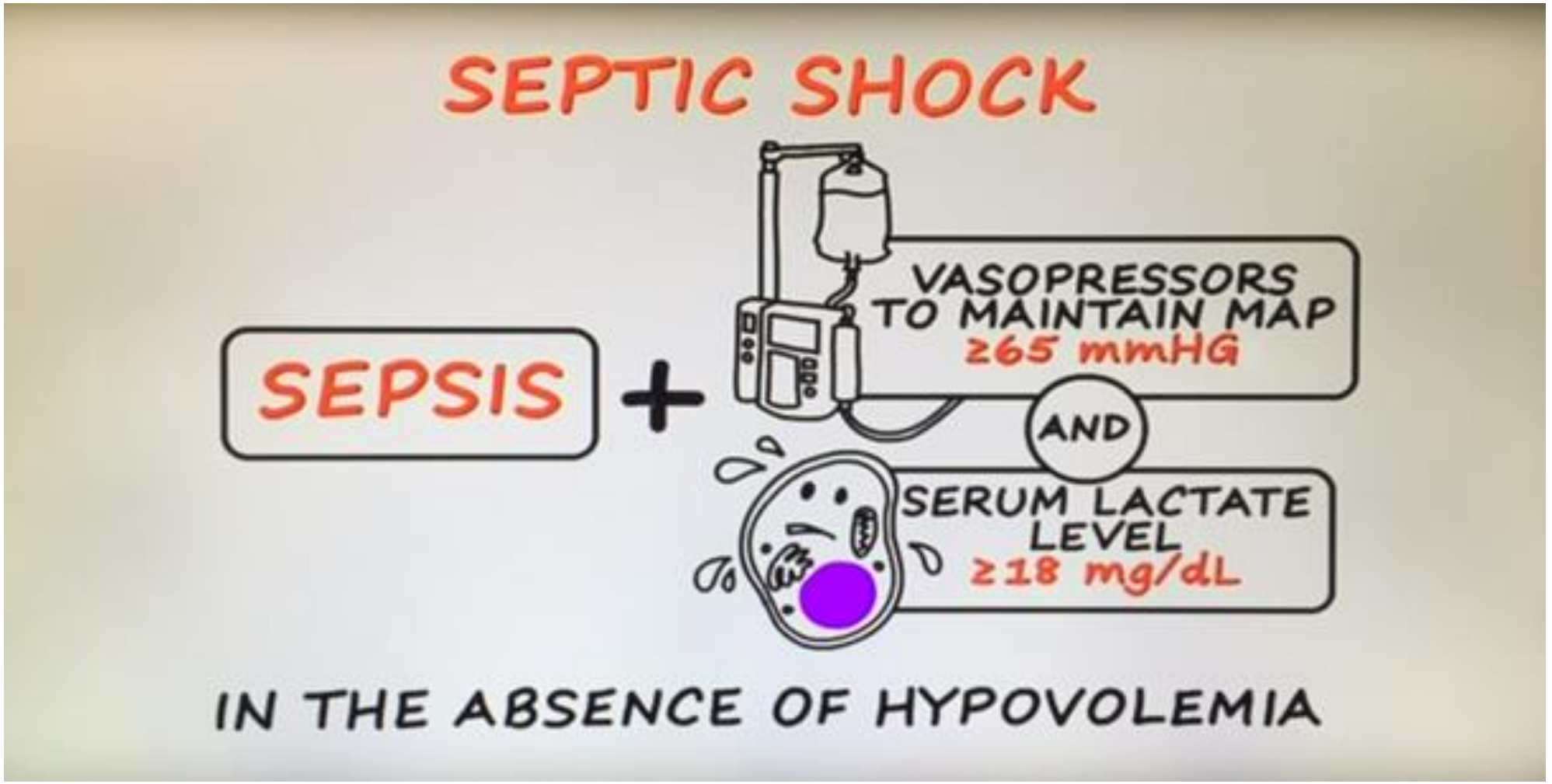

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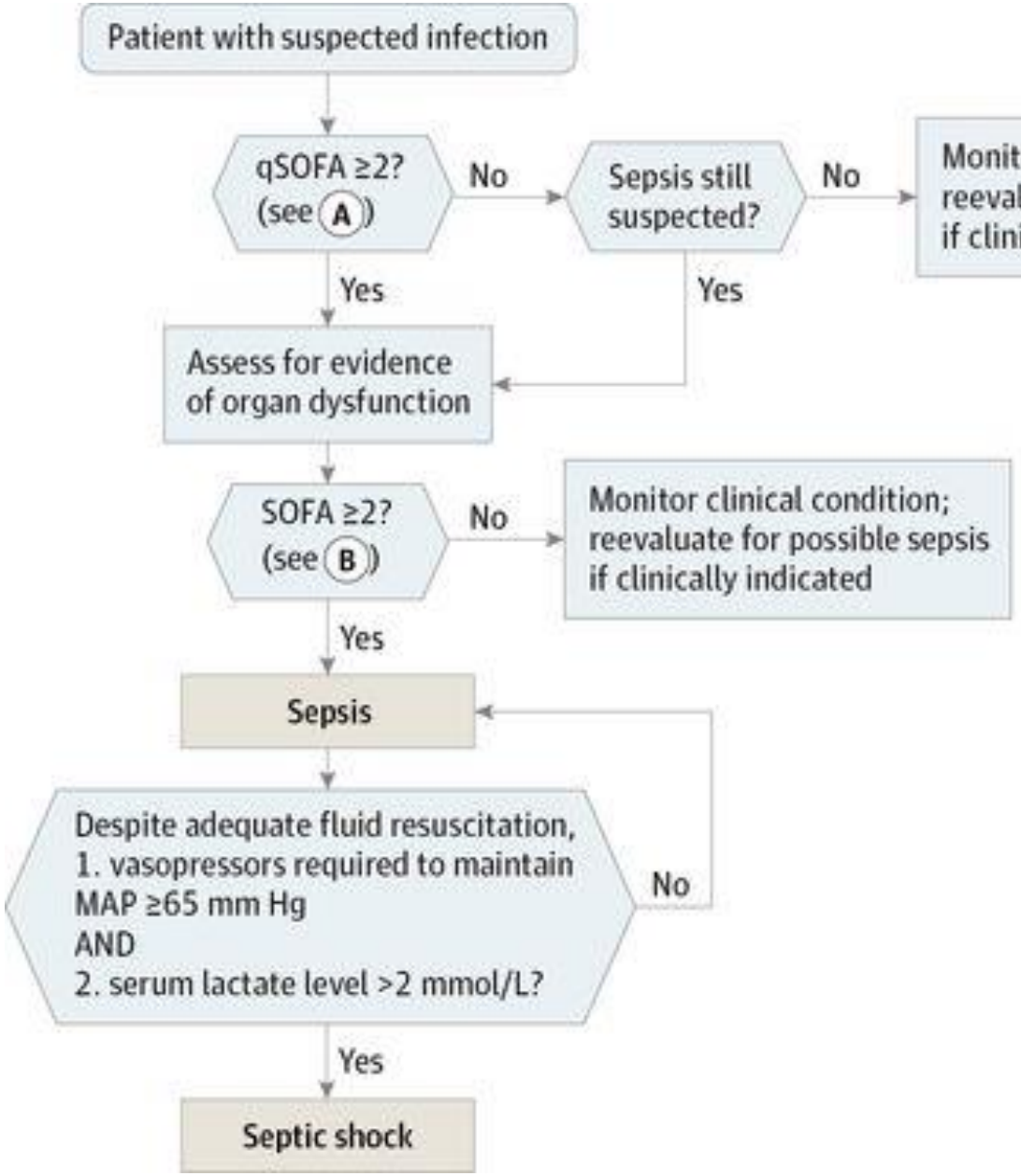

A qSOFA Variables

- Respiratory rate
- Mental status
- Systolic blood pressure

B SOFA Variables

- PaO_2/FiO_2 ratio
- Glasgow Coma Scale score
- Mean arterial pressure
- Administration of vasopressors with type and dose rate of infusion
- Serum creatinine or urine output
- Bilirubin
- Platelet count

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OLD WAY!

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NEW WAY!

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CALL SEPSIS ALERT!
YOU HAVE 60 MINUTES!

- IVF's:
  - NS 30 mL/kg
- Antibiotics
  - At least 2
- Lactic acid
  - Now and in 3 hours
- Lab work
  - CBC, CMP, PTT/aPTT, UA
- Cultures
  - Blood, urine, sputum, CSF, Wound, etc (if needed)
- O2

NEW 'RED FLAG' SEPSIS CRITERIA

Check for **IMMEDIATE RED FLAGS**

Any **1** = Severe 'RED FLAG' Sepsis

Administer Sepsis Six in 60 minutes

Think **FABULOS**:

Fluid

Antibiotics

Blood Cultures

Urine Output

Lactate

Oxygen

in **S**ixty minutes

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ANTIBIOTIC SELECTION FOR OSCEOLA REGIONAL MEDICAL CENTER		
Source	**First-line**	**Penicillin allergy**
Unknown Origin	Cefepime + Levofloxacin + Vancomycin	Aztreonam + Levofloxacin + Vancomycin
CAP – no pseudomonal risk*	Ceftriaxone + Azithromycin *	Levofloxacin*
CAP – pseudomonal risk* (eg. Structural lung disease)	Cefepime + Levofloxacin or Azithromycin*	Levofloxacin + Aztreonam*
HAP/VAP/HCAP	Cefepime + Vancomycin Optional: add Tobramycin	Levofloxacin + Tobramycin + Vancomycin *(If renal impairment substitute Aztreonam for Tobramycin)*
Skin & Soft Tissue Infection	Vancomycin + Piperacillin/Tazobactam *(For necrotizing infection: add Clindamycin)*	Vancomycin + Ciprofloxacin + Metronidazole
UTI – nursing home, healthcare-associated, or significant comorbidities**	Cefepime**	Tobramycin + levofloxacin**
UTI – community-acquired & no significant comorbidities **	Ceftriaxone**	Aztreonam + levofloxacin**
Febrile Neutropenia	Cefepime + Tobramycin ± Vancomycin *Add Metronidazole if abdomen is suspected source*	Aztreonam + Tobramycin ± Vancomycin
Intra-abdominal Infection	Cefepime + Metronidazole Or Piperacillin/Tazobactam	Levofloxacin + metronidazole
Meningitis – No predisposing risk factors	Dexamethasone (give 1st) + Ceftriaxone + Vancomycin	Dexamethasone (give 1st) + Aztreonam + Vancomycin
Meningitis – > 50 yrs or immunocompromised	Dexamethasone (give 1st) + Ceftriaxone + Vancomycin + Ampicillin	Dexamethasone (give 1st) + Trimethoprim/sulfamethoxazole + Aztreonam + Vancomycin

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Which of the following, with laboratory evidence of HIV infection, constitutes AIDS?

a. Esophageal candidiasis
b. Invasive cervical cancer
c. CNS Cryptococcus
d. CMV retinitis
e. All of the above

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What is the most common opportunistic infection in patients with AIDS?

a. Pneumocystis jiroveci (carinii) pneumonia
b. Mycobacterium tuberculosis
c. CMV retinitis
d. CNS lymphoma
e. Gonorrhea

HIV / AIDS

- Most common opportunistic infection
  - PCP pneumonitis (Pneumocystis jirovecii)
- CNS diseases
  - Toxoplasmosis
  - Lymphoma
  - Cryptococcus meningitis
- Lung disease
  - PCP, CAP, TB, *Mycobacterium avium*
- GI disease
  - Cryptosporidium
- Esophageal
  - Candidiasis
- Eye
  - CMV
- Skin
  - KS

Which of the following is the most common organism to cause cutaneous abscess?

a. B. fragilis
b. P. mirabilis
c. MR - S. aurus
d. E. coli
e. Group B streptococci

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SKIN ABCESS

- Pilonidial, cutaneus, hydranitis suppurativa
- Most common cause
  - Staph, MRSA
- I+D
- Rx:
  - Sulfa/Trimep.
  - Clindamycin
  - Doxycicline
  - TCN
  - Vanco
  - Daptomycin

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PHARYNGITIS

- First choice
  - PCN
  - Benzathine PCN
  - Bicillin
- Second choice
  - ESS, macrolides
  - 1st or 2nd generation cephalosporin
  - Clindamycin

OTITIS MEDIA

- First choice
  - Amoxicillin
- Second choice
  - Augmentin
  - Oral 2nd or 3rd generation cephalosporin
  - Trimethoprim / sulfamethoxazole
  - Macrolide

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ACUTE EXACERBATION OF CHRONIC BRONCHITIS (AECB)

- First choice
  - Macrolide
  - Quinolones
  - Augmentin
- Second choice
  - TCN
  - Oral 2nd or 3rd generation cephalosporin
  - Trimethoprim / sulfamethoxazole

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CAP

AMBULATORY PATIENTS

- First choice
  - Macrolide
  - TCN
  - Quinolones
- Second choice
  - Augmentin
  - 2nd generation cephalosporin

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CAP

AMBULATORY PATIENTS > 60 Y/O

- First choice
  - Quinolones
- Second choice
  - Augmentin

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CAP
HOSPITALIZED PATIENTS

- First choice
  - Ceftriaxone
  - Beta-lactam / beta-lactamase inhibitor +/- macrolide
  - Quinolones
- Second choice
  - 2nd generation cephalosporin +/- macrolide
  - Azithromycin

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- Which of the following is the most common STD's in the USA?
  a. Gonorrhea
  b. Chlamydia
  c. Syphilis
  d. Trichomonas

URETHRITIS / CERVICITIS

- First choice
  - Azithromycin + ceftriaxone
  - Doxycycline + ceftriaxone
  - Azithromycin + cefixime or ciprofloxacin
  - Amoxicillin + ceftriaxone or cefixime
- Second choice
  - Ofloxacin
  - ESS + cefixime or ceftriaxone
  - Ciprofloxacin + azithromycin or TCN or ESS

PID

OUTPATIENT

- First choice
  - Ofloxacin or levofloxacin + metronidazole
  - Ceftriaxone + doxycycline +/- metronidazole
- Second choice
  - Azithromycin

PID

HOSPITALIZED PATIENT

- First choice
  - Cefotetan or cefoxitin + doxycycline
  - Clindamycin + gentamicin + doxycycline
- Second choice
  - Ofloxacin + metronidazole
  - Augmentin + doxycycline
  - Ciprofloxacin + doxycycline + metronidazole
  - Azithromycin + metronidazole

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INTRA-ABDOMINAL INFECTION AND PERITONITIS

- First choice
  - Beta-lactam / beta-lactamase inhibitor +/- aminoglycoside
  - Cefotetan or cefoxitin +/- aminoglycoside
  - 3rd generation cephalosporin + metronidazole or clindamycin +/- aminoglycoside
- Second choice
  - Quinolone + metronidazole or clindamycin
  - Carbapenem +/- aminoglycoside

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ENDOCARDITIS

	First choice	Second choice
Native valves IVDU	▪ Nafcillin or oxacillin + gentamicin ▪ PCN or ampicillin + oxacillin or nafcillin + gentamicin	▪ Vanco
Non-IVDU		▪ Vanco + gentamicin
Prosthetic valves	▪ Vanco + gentamicin + rifampin	

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The most common cause of erythema multiforme is:

a. Streptococcal infections

b. Exposure to drugs and HSV infection

c. Viral infections

d. Salicylates

e. Tuberculosis

CELLULITIS

OUTPATIENTS

- First choice
  - Dicloxacillin
  - Augmentin
- Second choice
  - Macrolide
  - 1st generation cephalosporin

CELLULITIS

HOSPITALIZED PATIENTS

- First choice
  - Nafcillin or oxacillin
  - Carbapenem
  - Beta-lactam / beta-lactamase inhibitor
- Second choice
  - Macrolide
  - 1st generation cephalosporin
  - Quinolone + clindamycin or metronidazole

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CELLULITIS

BITE WOUNDS

	First choice	Second choice
Mild	▪ Augmentin	▪ Quinolone + clindamycin or Trimethoprim/ sulfamethoxazole
Severe	▪ Beta-lactam / beta-lactamase inhibitor	▪ Quinolone + clindamycin or Trimethoprim/ sulfamethoxazole

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CELLULITIS
DIABETIC FOOT

Mild infection	▪ First choice ▪ 1st generation cephalosporin ▪ Clindamycin	▪ Second choice ▪ Augmentin
Severe	▪ Beta-lactam / beta-lactamase inhibitor ▪ Cefoxitin or cefotetan ▪ Quinolone + clindamycin or metronidazole	▪ Carbapenem ▪ Nafcillin or oxacillin + gentamicin + metronidazole

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MENINGITIS
NEWBORNS

- First choice
  - Ampicillin + cefotaxime
- Second choice
  - Ampicillin + gentamicin

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MENINGITIS

PATIENTS 2 M/O – 60 YRS

- First choice
  - Ceftriaxone or cefotaxime +/- vanco +/- rifampin
- Second choice
  - Meropenem +/- vanco

MENINGITIS

PATIENTS OLDER THAN 60 Y/O OR IMMUNE COMPROMISED

- First choice
  - Ceftriaxone or cefotaxime +/- vanco + ampicillin +/- gentamicin
- Second choice
  - Meropenem +/- vanco

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MENINGITIS

PENICILLIN ALLERGIC

- First choice
  - Chloramphenicol + vanco +/- rifampin + Trimethoprim/ sulfamethoxazole
- Second choice
  - Aztreonam + vanco + Trimethoprim/ sulfamethoxazole

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UTI

- Uncomplicated infection (cystitis)
  - Trimethoprim/ sulfamethoxazole
  - Quinolone
  - 1st generation cephalosporin
  - Nitrofurantoin

UTI

- Pyelonephritis outpatient
  - Quinolone
  - Cephalosporin
  - Augmentin
  - Trimethoprim/ sulfamethoxazole

UTI

- Hospitalized patients
  - Ceftriaxone
  - Quinolone
  - Beta-lactam / beta-lactamase inhibitor +/- gentamicin
  - Carbapenem

UTI IN CHILDREN < 6 Y/O

- < 2 weeks
  - Ampicillin + gentamicin
- 2 weeks – 2 months
  - Ampicillin + cefotaxime
- > 2 monhs
  - Hospitalized
    - Cefotaxime or ceftriaxone
  - Oral regimens
    - Trimethoprim/ sulfamethoxazole
    - Cephalexin
    - Cefixime
    - Nitrofurantoin

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SEPSIS SYNDROME
NEONATES

- First choice
  - Ampicillin + cefotaxime
- Second choice
  - Ampicillin + gentamicin

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SEPSIS SYNDROME

- Children
  - 3rd generation cephalosporin

SEPSIS SYNDROME
ADULT

- First choice
  - 3rd or 4th generation cephalosporin
  - Beta-lactam / beta-lactamase inhibitor
- Second choice
  - Carbapenem
  - Vanco
  - aztreonam

SEPSIS SYNDROME
NEUTROPENIC

- First choice
  - Beta-lactam / beta-lactamase inhibitor + aminoglycoside +/- vanco
- Second choice
  - Carbapenem
  - 3rd or 4th generation cephalosporin + vanco
  - PCN allergic: vanco + aminoglycoside +/- metronidazole

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Which of the following is not appropriate ED treatment of a patient with tetanus?

a. TIG administered at a site separate from the toxoid

b. Autonomic instability requires monitoring and aggressive treatment

c. Tobramycin 80 mg IV

d. Tetanus toxoid

e. Treat muscle spasms with benzodiazepines

Which of the following is not true regarding herpes zoster?
a. May occur in anyone who has had varicella
b. More common in the elderly and immunocompromised
c. Target population for antiviral therapy includes older populations
d. Topical antiviral therapies should be used routinely

5 DAY OLD NEONATE WITH DISCHARGE FROM EYES

Dx and Tx?

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5 DAY OLD NEONATE WITH DISCHARGE FROM EYES

Dx: Gonococcal conjunctivitis
Tx: Ceftriaxone x1

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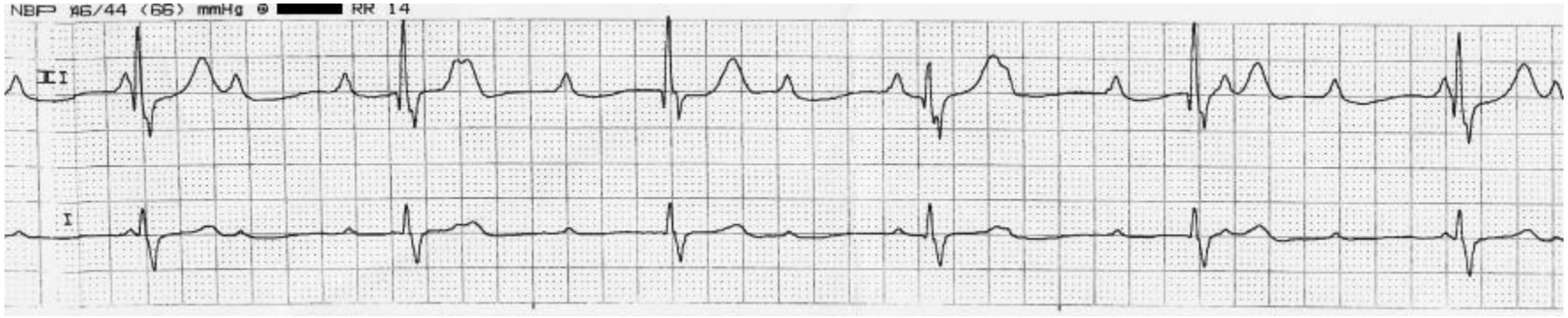
OPHTHALMIA NEONATORUM

	Chemical	Gonococcal	Chlamydial
Time frame	First 24h	First 2-5 days	5 days – 2 weeks
SSx	Conjunctival injection, mild chemosis	Copious purulent discharge	Watery +/- bloody discharge
Diagnosis	Clinical	Discharge culture and Gram stain	Discharge culture and nucleic acid amplification
Treatment	Supportive, irrigate eyes, usu. lasts 24-36 hours	Ceftriaxone 25-50mg/kg IM x1 (alt: cefotaxime, ceftazidime)	Erythromycin PO x 14 days



16 YO M WITH NEAR SYNCOPE, RECENTLY AT SUMMER CAMP

Dx and Tx?

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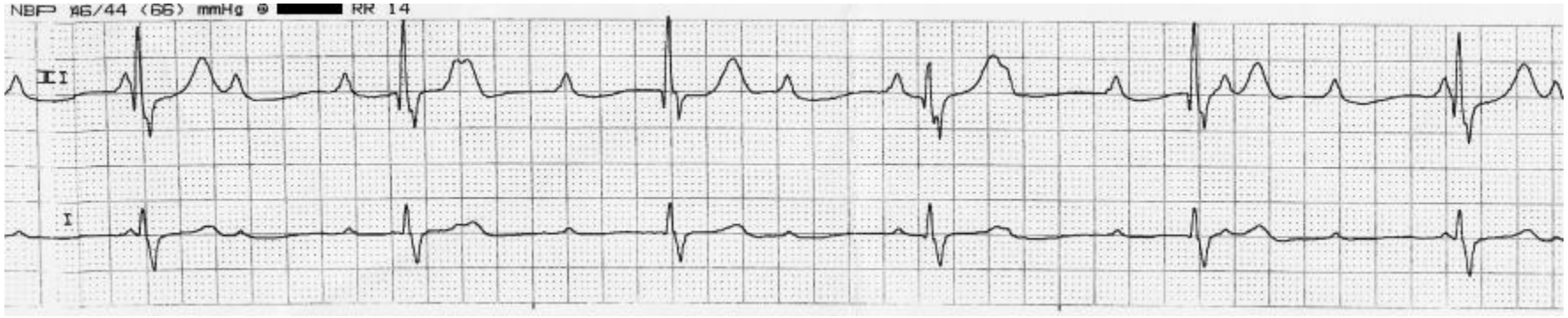

16 YOM WITH NEAR SYNCOPE, RECENTLY AT SUMMER CAMP

Dx: Lyme carditis

Tx: Ceftriaxone

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LYME DISEASE

Borrelia burgdorferi, transmitted by *Ixodes* tick		
Early localized	**Early disseminated**	**Late disseminated**
Erythema migrans (classic "bull's eye" rash) 	Carditis (e.g. heart block), neurologic symptoms (e.g. meningo-encephalitis, bilateral Bell's palsy), liver/kidney disease, conjunctivitis	Intermittent mono- or oligoarticular arthritis (usu. knees)
Time course: Days to weeks	Time course: Weeks to months	Time course: Months to years
Tx: doxycycline, alt. amoxicillin	Tx: ceftriaxone IV	Tx: ceftriaxone IV

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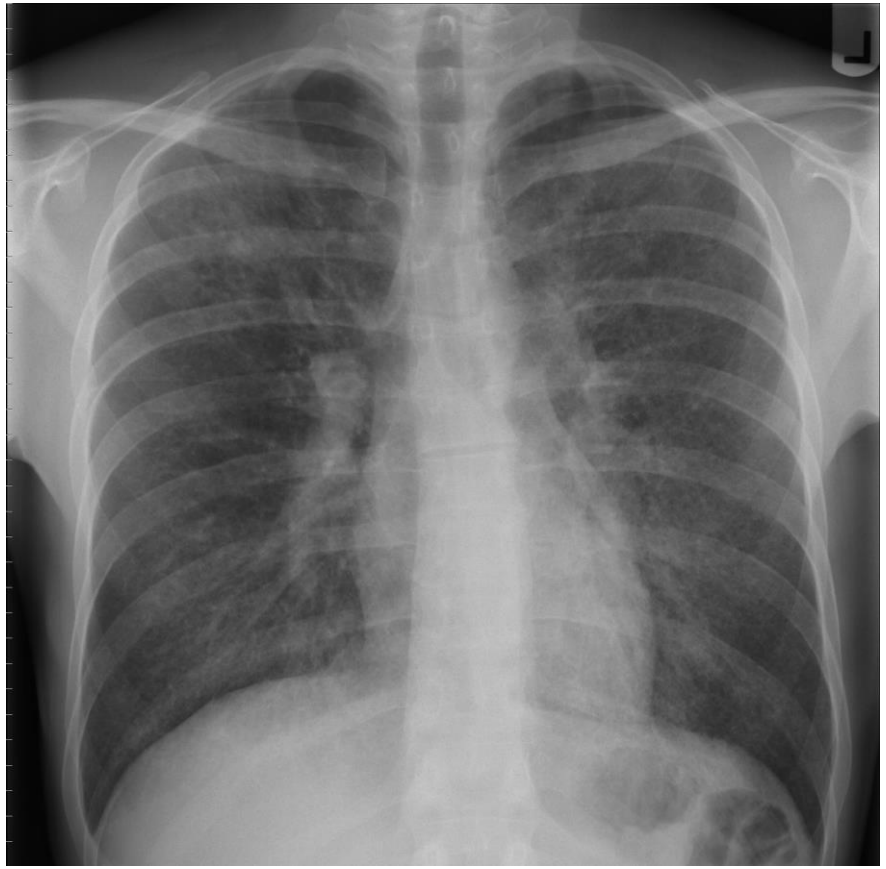

47 YO M WITH HIV P/W DYSPNEA AND SA02 74%

Dx and Tx?

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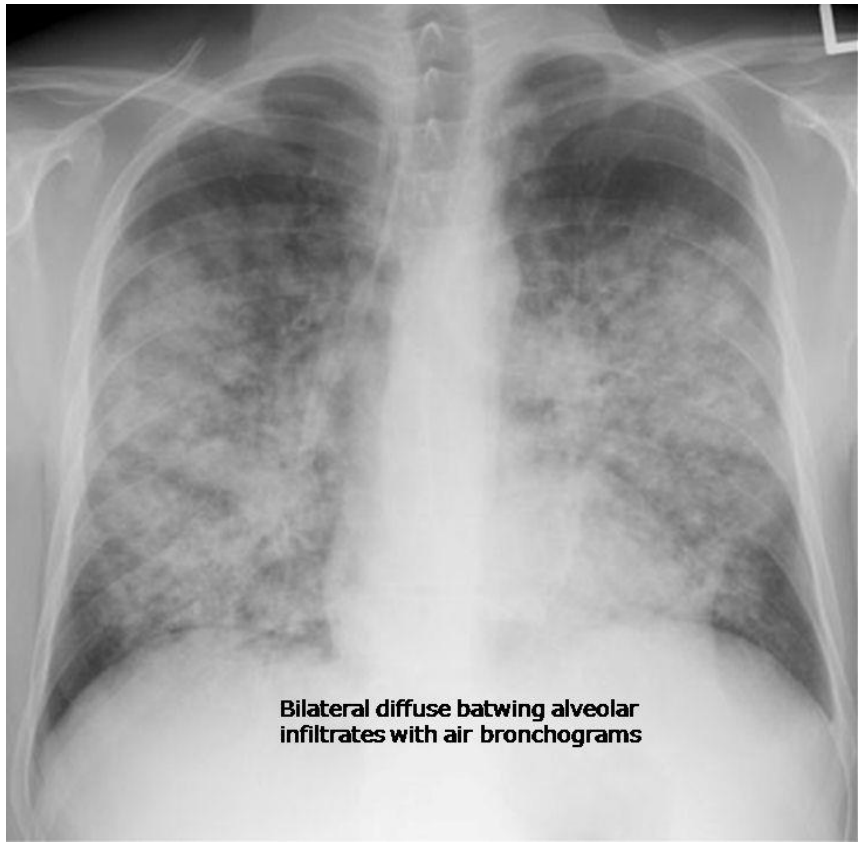

47 YOM WITH HIV P/W DYSPNEA AND SA02 74%

Dx: PJP

Tx: TMP-SMX

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OPPORTUNISTIC INFECTIONS IN AIDS

CD4 count	Opportunistic Diseases
<500	Tuberculosis, HSV, Zoster, Kaposi sarcoma
<200	PJP, HIV encephalopathy, candidiasis, PML
<100	Fungi and protozoans: toxo, histo, crypto
<50	CNS lymphoma, CMV retinitis/gastritis/pneumonitis
Note: AIDS patients get all the usual stuff too, so don't forget about run-of-the-mill Strep or influenza.	

47 YO GOVERNMENT EMPLOYEE WITH SOB AND FLU-LIKE SYMPTOMS 1 WEEK AFTER OFFICE EXPLOSION

Possible causes?

Next steps?

47 YO GOVERNMENT EMPLOYEE WITH SOB AND FLU-LIKE SYMPTOMS 1 WEEK AFTER OFFICE EXPLOSION

Possible causes?

Anthrax, pneumonic plague, smallpox

Next steps?

Isolation, early abx

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BIOLOGICAL WARFARE

Cause	Symptoms	Treatment
Anthrax (*Bacillus anthracis*)	ILI followed by rapid sepsis, hemorrhagic mediastinitis, shock	Ciprofloxacin; pulmonary anthrax has 50-90% mortality
Plague (*Yersinia pestis*)	ILI followed by fulminant pna, DIC, and septic shock	Streptomycin, gentamicin, or cipro; near 100% mortality if not treated early
Smallpox	ILI followed by head-to-body pox rash; 10% can have hemorrhagic form causing petechiae	No treatment, isolate patient ASAP; hemorrhagic form has 90% mortality

16 MO MALE WITH TEMP 40°C AND SEIZURE FOLLOWED BY RASH

Name the viral exanthem.

Management?

16 MO MALE WITH TEMP 40°C AND SEIZURE FOLLOWED BY RASH

Viral Exanthem:

Roseola

Management?

Supportive

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CHILDHOOD EXANTHEMS

Disease	Features
Measles (rubeola)	Blanching "brick red" rash spreading from head -> trunk -> limbs; cough + conjunctivitis + coryza
Varicella (chickenpox)	Crusting vesicles in different stages of healing
Rubella	Measles-like rash in a well-appearing kid; +posterior/occipital lymph nodes, palatal petechiae
Erythema infectiosum (fifth disease)	"Slapped cheeks" -> reticular rash spreading from arms to body
Roseola	High fever x3-5 days +/- seizures, then rash from trunk -> limbs (spares the face)

DIARRHEA: HERE WE GO AGAIN

Buzz	Bug
Watery diarrhea, ate at a picnic	???
Watery diarrhea, ate reheated rice	???
Watery diarrhea, traveled to Mexico	???

DIARRHEA: HERE WE GO AGAIN

Buzz	Bug
Watery diarrhea, ate at a picnic	S. aureus (toxin)
Watery diarrhea, ate reheated rice	B. cereus (toxin)
Watery diarrhea, traveled to Mexico	ETEC (toxin)

DIARRHEA: HERE WE GO AGAIN

Buzz	Bug
Watery diarrhea, ate tuna steak, +rash	???
Watery diarrhea, ate undercooked beef	???
Watery diarrhea, neuro ssx, ate barracuda	???

DIARRHEA: HERE WE GO AGAIN

Buzz	Bug
Watery diarrhea, ate tuna steak, +rash	Scombroid (2/2 histadine)
Watery diarrhea, ate undercooked beef	C. perfringans (toxin)
Watery diarrhea, neuro ssx, ate barracuda	Ciguatera (toxin)

DIARRHEA: HERE WE GO AGAIN

Buzz	Bug
Bloody diarrhea, ate undercooked eggs, relative bradycardia	???
Bloody diarrhea, high fever, seizure	???
Bloody diarrhea followed by weakness	???

DIARRHEA: HERE WE GO AGAIN

Buzz	Bug
Bloody diarrhea, ate undercooked eggs, relative bradycardia	Salmonella (invasive)
Bloody diarrhea, high fever, seizure	Shigella (invasive)
Bloody diarrhea followed by weakness	Campylobacter (invasive) +GBS

DIARRHEA: HERE WE GO AGAIN

Buzz	Bug
Bloody diarrhea, RLQ pain, contact w/ farm animals	???
Bloody diarrhea, ate raw seafood	???
Bloody diarrhea, ate rare ground beef	???

DIARRHEA: HERE WE GO AGAIN

Buzz	Bug
Bloody diarrhea, RLQ pain, contact w/ farm animals	Yersinia
Bloody diarrhea, ate raw seafood	Vibrio parahaemolyticus
Bloody diarrhea, ate rare ground beef	E. coli O157:H7

DIARRHEA: HERE WE GO AGAIN

Buzz	Bug
Profuse diarrhea +abd pain, recent abx	???
Diarrhea, AKI, low platelets	???
Rice-water diarrhea, communal water	???

DIARRHEA: HERE WE GO AGAIN

Buzz	Bug
Profuse diarrhea +abd pain, recent abx	C. difficile
Diarrhea, AKI, low platelets	HUS/TTP (assoc. w/ E. coli O157:H7)
Rice-water diarrhea, communal water	Vibrio cholerae (toxin)