10 Hot Topics in ID

ACP DC Chapter -- Scientific Meeting -- November 16, 2019

Shmuel Shoham, MD

Twitter: @shohamTxID
Disclosures

• Research support:
  • Ansun, Astellas, Cidara, F2G, Gilead, Merck, Scynexis, Shionogi, Shire

• Advisory Board participant/consultant
  • Acidophil, Amplyx, ExThera, Reviral, Janssen
Question

A 44 year old woman in your practice calls your office. A month ago she had unprotected intercourse with a man who is HIV+. He has been on antiretroviral therapy and his viral load is undetectable. She just found out about all this today and is very anxious.

What do you tell her about her risk for contracting HIV from this encounter?

1. It’s about 10%
2. It’s is about 0%
3. It’s about 35%
A 44 year old woman in your practice calls your office. A month ago she had unprotected intercourse with a man who is HIV+. He has been on antiretroviral therapy and his viral load is undetectable. She just found out about all this today and is very anxious.

What do you tell her about her risk for contracting HIV from this encounter?

1. It’s about 10%
2. **It’s is about 0%**
3. It’s about 35%
Undetectable=Untransmissible (U=U)

“For ART, the science is strong and clear; the data show that the effectiveness for ART with viral suppression is estimated to be 100% for preventing sexual transmission of HIV. In other words, for persons taking ART as prescribed and achieving and maintaining viral suppression, there is **effectively no risk** of transmitting HIV through sex.”

August 30, 2019; Eugene McCray, M.D., Director, Division of HIV/AIDS Prevention, CDC
U=U Data

• Over 1,600 couples that including heterosexual and men who have sex with men couples
• Over 125,000 sex acts without a condom or pre-exposure prophylaxis
• HIV viral suppression was defined as less than 200 copies of HIV RNA per milliliter of blood

Rodger AJ. Presented at the 22nd International AIDS Conference; 2018; Amsterdam, the Netherlands.
U=U Data

• PARTNER study:
  • For any sex among heterosexual and male-male couples: 0.00 (0.00 – 0.30) per 100 couple-years
  • For anal sex among male-male couples: 0.00 (0.00 – 0.89) per 100 couple-years

• Opposites Attract study
  • For anal sex among male-male couples: 0.00 (0.00 – 1.59) per 100 couple-years

• PARTNER2 study
  • For anal sex among male-male couples: 0.00 (0.00 – 0.24) per 100 couple-years

• Pooled data from all three studies:
  • transmission risk: 0.00 (0.00 – 0.14) per 100 couple-years with the upper bound indicating a 0.14% annual risk
A 64 year old man with sepsis. Blood and urine cultures are growing Klebsiella. He was initially treated with empiric piperacillin/tazobactam and is improving. Today is day 3 of his antibiotic therapy and the organism is susceptible to multiple antibiotics including ciprofloxacin and ceftriaxone.

1. You can safely transition him to oral ciprofloxacin to complete therapy
2. You should de-escalate to ceftriaxone to complete 7 days of IV and then switch to oral
3. You should de-escalate to ceftriaxone to complete his course by IV
A 64 year old man with is admitted to hospital with sepsis. Blood and urine cultures are growing Klebsiella. He was initially treated with empiric piperacillin/tazobactam and is improving. Today is day 3 of his antibiotic therapy and the organism is susceptible to multiple antibiotics including ciprofloxacin and ceftriaxone.

1. You can safely transition him to oral ciprofloxacin to complete therapy
2. You should de-escalate to ceftriaxone to complete 7 days of IV and then switch to oral
3. You should de-escalate to ceftriaxone to complete his course by IV
Transition to oral

• Retrospective study with 1478 matched patients with bacteremia due to *E. coli, Klebsiella, Proteus, Enterobacter, Serratia, Citrobacter*

• Sources of bacteremia:
  • urine 40 %, GI 20 %, central line 20%, pulmonary 4%, skin 3%

• To be included:
  • Appropriate source control measures
  • appropriate clinical response by day 5
  • Active antibiotic therapy from day 1 until discontinuation of therapy, availability of an active oral antibiotic option
  • Ability to consume other oral medications or feeding

Tamma et al. JAMA Intern Med. 2019
Transition to oral

• Intervention:
  • Oral step-down therapy within the first 5 days of treatment of Enterobacteriaceae vs. continued parenteral therapy

• Outcomes:
  • No differences in death or recurrence of bacteremia
  • Patients transitioned to oral step-down therapy were discharged from the hospital an average of 2 days sooner than patients who continued to receive IV therapy
Transition to oral

![Graph showing survival probability over time from start of treatment, with lines indicating intravenous and oral step-down.]
Three Dog Night
MAMA TOLD ME (Not to come)
Question

Your 60 year patient who is wealthy but uneducated father decides to attend college to show solidarity with his discouraged son. He has history of moderate obesity. He produces an ancient looking document with proof of a measles shot when he was 8 years old. He also has a newer looking document from this year showing +IgG to measles.

1. IgG to measles is positive so he does not need immunization
2. He was born after 1957 and hence does not need immunization
3. Since he has documentation of at least 1 dose of a measles vaccine he does not need immunization
Your 60 year patient who is wealthy but uneducated father decides to attend college to show solidarity with his discouraged son. He has history of moderate obesity. He produces an ancient looking document with proof of a measles shot when he was 8 years old. He also has a newer looking document from this year showing +IgG to measles.

1. IgG to measles is positive so he does not need immunization
2. He was born after 1957 and hence does not need immunization
3. Since he has documentation of at least 1 dose of a measles vaccine he does not need immunization
Measles- Adults who do not need vaccine

• written documentation of adequate vaccination:
  • At least 1 dose of a measles vaccine for adults not at high risk
  • 2 doses for adults at high risk (including college students, healthcare personnel, and international travelers)

• laboratory evidence of immunity

• laboratory confirmation of measles

• born before 1957
Measles vaccine considerations in adults

• Avoid
  • Severe allergic reaction (e.g., anaphylaxis) after a previous dose
  • Pregnancy
  • Significant immunocompromise (live virus vaccine)

• Precautions
  • If active tuberculosis is suspected, vaccine should be delayed.
  • Recent (≤11 months) receipt of antibody-containing blood product
  • History of thrombocytopenia or thrombocytopenic purpura
  • Moderate or severe acute illness with or without fever

• Measles vaccination might temporarily suppress tuberculin TST or IGRA
  • Vaccine and TST or IGRA can be given on same day. Otherwise wait four weeks to do testing
2019 US measles outbreaks

• 1,249 overall reported U.S. measles cases (highest annual number since 1992)
• 22 outbreaks occurred in 17 states (seven were multistate)
• Outbreaks accounted for 93% of all reported cases.
• 85% of cases occurred in under-immunized, close-knit communities
• The median outbreak size was 6 and duration was a month
• Median age of outbreak-related cases was 6 years
• Most outbreak-related cases occurred in persons who were unvaccinated, or in those for whom vaccination status was unknown
Measles clinical

1. Prodrome
   • Fever and malaise,
   • cough, coryza, and conjunctivitis -the three “C”s

2. Enanthem (Koplik spots)

3. Maculopapular rash (2 weeks after exposure)
   • The rash spreads from the head to the trunk to the lower extremities.
   • Contagious from 4 days before to 4 days after the rash
   • Immunocompromised patients may not develop the rash.
Measles complications: Who is at risk

- Infants and children <5
- Adults >20
- Pregnant women
- Immunocompromised
Measles complications: What are they

- Otitis media, bronchopneumonia, laryngotracheobronchitis, and diarrhea,
- Encephalitis in 1/1,000 cases
- Requirement for hospitalization and even death from neurological or respiratory complications
- Late complication of subacute sclerosing panencephalitis with behavioral and intellectual deterioration and seizures can develop 7 to 10 years after measles infection.
A 24 year old otherwise healthy man presents to the office in November with dry cough, shortness of breath, chest pain, fevers and nausea. CXR shows diffuse hazy opacities. He vapes nicotine everyday. Testing for respiratory viruses is negative. VS: 100.4F, 24/m, 115/m, 130/74, 92% O₂

1. Negative THC history and testing essentially rules out vaping associated lung injury (VAPI):

2. Empiric treatment for community acquired pneumonia is indicated this situation

3. Treatment with corticosteroids is unhelpful in VAPI
A 24 year old otherwise healthy man presents to the office in November with dry cough, shortness of breath, chest pain, fevers and nausea. CXR shows diffuse hazy opacities. He vapes nicotine everyday. Testing for respiratory viruses is negative. VS: 100.4F, 24/m, 115/m, 130/74, 92% $\text{O}_2$.

1. Negative THC history and testing essentially rules out vaping associated lung injury (VAPI):

2. **Empiric treatment for community acquired pneumonia is indicated this situation**

3. Treatment with corticosteroids is unhelpful in VAPI
Vaping associated lung injury: Epidemiology

• Over 1000 cases reported to CDC from 21 states and over 25 deaths
• 70% male, median age 24
• Product used
  • 76% reported using THC
  • 58% reported nicotine
  • 32% reported only THC-containing products
  • 13% reported only nicotine-containing products.
Vaping associated lung injury: Clinical presentation

- Respiratory (cough, shortness of breath, chest pain): 95%
- Constitutional (fevers, chills, malaise, weight loss): 85%
- GI (nausea, vomiting, diarrhea): 75%

Basic evaluation

• Chest radiograph
• CBC with differential (leukocytosis common)
• ESR and CRP (almost always elevated)
• Urine toxicology testing
• Respiratory viral panel
• Evaluation for usual causes of CAP (e.g. *Streptococcus pneumoniae*, *Legionella pneumophila*, *Mycoplasma pneumoniae*)
• Evaluation for endemic mycoses, and opportunistic infections.

CASE DEFINITION (CDC)

- Vaping in 90 days prior to symptom onset
  - AND
- Pulmonary infiltrate on x ray or chest CT
  - AND
- Absence of pulmonary infection on initial work-up. **Minimum criteria** are
  - A negative respiratory viral panel *and*
  - A negative influenza PCR or rapid test, if local epidemiology supports influenza testing; *and*
  - All other clinically-indicated respiratory ID testing are negative
  - AND
- No evidence of alternative plausible diagnoses
Treatment

• Early initiation of antibiotic coverage for community-acquired pneumonia

• Corticosteroids:
  • PRO: Among 140 cases reported to CDC: 82% of steroid recipients improved
  • CON: may make fungal infection worse, so if on ddx- hold steroids

• Test and treat for influenza

• Hospitalization:
  • Strongly consider admitting all patients with potential VAPI
  • Especially: respiratory distress, comorbidities, \( O_2 < 95\% \)

Question

67 year old man is admitted to hospital with fevers, chills, sepsis syndrome and blood cultures growing Klebsiella from a biliary source. He is diabetic, has known metastatic colon cancer. He required ICU admission on day 1 of hospitalization. He had a biliary tract obstruction that has been addressed with ERCP. He has received a week of IV piperacillin/tazobactam so far and is feeling well and ready to go home.

1. Set him up for home IV antibiotics to complete 14 days at home
2. Switch him over to oral antibiotics to complete 14 days at home
3. Stop antibiotics now and send him home
67 year old man is admitted to hospital with fevers, chills, sepsis syndrome and blood cultures growing Klebsiella from a biliary source. He is diabetic, has known metastatic colon cancer. He required ICU admission on day 1 of hospitalization. He had a biliary tract obstruction that has been addressed with ERCP. He has received a week of IV piperacillin/tazobactam so far and is feeling well and ready to go home.

1. Set him up for home IV antibiotics to complete 14 days at home
2. Switch him over to oral antibiotics to complete 14 days at home
3. **Stop antibiotics now and send him home**
short-course (6–10 days) vs prolonged-course (11–16 days) antibiotic therapy for Enterobacteriaceae bacteremia.

• Retrospective study with 385 well-balanced matched pairs.
• median duration of therapy
  • Short-course 8 days
  • Long course 15 days
• No differences in:
  • Mortality
  • Recurrent bloodstream infections
  • CDI

# Stewardship: Shorter = Better

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Short (d)</th>
<th>Long (d)</th>
<th>Result</th>
<th>#RCTs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP</td>
<td>3 or 5</td>
<td>7-14</td>
<td>Equal</td>
<td>9</td>
</tr>
<tr>
<td>VAP</td>
<td>8</td>
<td>15</td>
<td>Equal</td>
<td>2</td>
</tr>
<tr>
<td>Pyelo</td>
<td>7 or 5</td>
<td>14 or 10</td>
<td>Equal</td>
<td>6</td>
</tr>
<tr>
<td>Intra-abd</td>
<td>4</td>
<td>10</td>
<td>Equal</td>
<td>2</td>
</tr>
<tr>
<td>GNB Bacteremia</td>
<td>7</td>
<td>14</td>
<td>Equal</td>
<td>1*</td>
</tr>
<tr>
<td>AECB</td>
<td>≤5</td>
<td>&gt;7</td>
<td>Equal</td>
<td>&gt;20</td>
</tr>
<tr>
<td>Cellulitis</td>
<td>5-6</td>
<td>10</td>
<td>Equal</td>
<td>4*</td>
</tr>
<tr>
<td>Chronic Osteomyelitis</td>
<td>42</td>
<td>84</td>
<td>Equal</td>
<td>2</td>
</tr>
<tr>
<td>Septic Arthritis</td>
<td>14</td>
<td>28</td>
<td>Equal</td>
<td>1</td>
</tr>
<tr>
<td>Orthoc Implant w/removal</td>
<td>28</td>
<td>42</td>
<td>Equal</td>
<td>1</td>
</tr>
<tr>
<td>Neutropenic Fever</td>
<td>AFx72 h</td>
<td>+ANC&gt;500</td>
<td>Equal</td>
<td>1</td>
</tr>
<tr>
<td><em>P. vivax</em> Malaria</td>
<td>7</td>
<td>14</td>
<td>Equal</td>
<td>1</td>
</tr>
</tbody>
</table>

*GNB bacteremia in UTI/cIAI studies too; 3 cellulitis studies found no diff, 1 (low dose oral flucox) had ↑relapses; references at [www.bradspellberg.com](http://www.bradspellberg.com)
Sixpence None the Richer

Kiss Me
A 33 year old woman in your practice confides in you that she sometimes has sexual intercourse for money and that she does not always use condoms. She is not pregnant and testing for STI and HIV are negative. Hep B surface antigen is positive.

1. Discuss/prescribe Truvada once daily as Pre-Exposure Prophylaxis (PrEP)
2. Explain that she might benefit from PrEP, but that you are not licensed to provide this.
3. Hepatitis B infection is a contraindication to PrEP use.
A 33 year old woman in your practice confides in you that she sometimes has sexual intercourse for money and that she does not always use condoms. She is not pregnant and testing for STI and HIV are negative. Hep B surface antigen is positive.

1. **Discuss/prescribe Truvada once daily as Pre-Exposure Prophylaxis (PrEP)**

2. Explain that she might benefit from PrEP, but that you are not licensed to provide this.

3. Hepatitis B infection is a contraindication to PrEP use.
In the past 6 months:

- Have you had sex with men, women, or both?
- *(if men or both sexes)* How many men have you had sex with?
- How many times did you have receptive anal sex (you were the bottom) with a man who was not wearing a condom?
- How many of your male sex partners were HIV-positive?
- *(if any positive)* With these HIV-positive male partners, how many times did you have insertive anal sex (you were the top) without you wearing a condom?
- Have you used methamphetamines (such as crystal or speed)?
Assessment for men and women

**In the past 6 months:**

- Have you had sex with men, women, or both?
- *(if opposite sex or both sexes)* How many men/women have you had sex with?
- How many times did you have vaginal or anal sex when neither you nor your partner wore a condom?
- How many of your sex partners were HIV-positive?
- *(if any positive)* With these HIV-positive partners, how many times did you have vaginal or anal sex without a condom?
Assessment for injection drug use

- Have you ever injected drugs that were not prescribed to you by a clinician?
- *(if yes)*, When did you last inject unprescribed drugs?
- In the past 6 months, have you injected by using needles, syringes, or other drug preparation equipment that had already been used by another person?
- In the past 6 months, have you been in a methadone or other medication-based drug treatment program?
### WHO Should get PrEP

<table>
<thead>
<tr>
<th>Men Who Have Sex with Men</th>
<th>Heterosexual Women and Men</th>
<th>Persons Who Inject Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Detecting substantial risk of acquiring HIV infection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV-positive sexual partner</td>
<td>HIV-positive sexual partner</td>
<td>HIV-positive injecting partner</td>
</tr>
<tr>
<td>Recent bacterial STI†</td>
<td>Recent bacterial STI†</td>
<td>Sharing injection equipment</td>
</tr>
<tr>
<td>High number of sex partners</td>
<td>High number of sex partners</td>
<td></td>
</tr>
<tr>
<td>History of inconsistent or no condom use</td>
<td>History of inconsistent or no condom use</td>
<td></td>
</tr>
<tr>
<td>Commercial sex work</td>
<td>Commercial sex work</td>
<td></td>
</tr>
<tr>
<td>In high HIV prevalence area or network</td>
<td>In high HIV prevalence area or network</td>
<td></td>
</tr>
<tr>
<td><strong>Clinically eligible</strong></td>
<td><strong>Documented negative HIV test result before prescribing PrEP</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No signs/symptoms of acute HIV infection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Normal renal function; no contraindicated medications</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Documented hepatitis B virus infection and vaccination status</td>
<td></td>
</tr>
</tbody>
</table>

---

USPHS Preexposure Prophylaxis for the Prevention of HIV Infection in the United States –2017 Update Clinical Practice Guideline
### How to do it

**Daily, continuing, oral doses of TDF/FTC (Truvada), ≤90-day supply**

- Follow-up visits at least every 3 months to provide the following:
  - HIV test, medication adherence counseling, behavioral risk reduction support,
  - side effect assessment, STI symptom assessment
- At 3 months and every 6 months thereafter, assess renal function
- Every 3-6 months, test for bacterial STIs

<table>
<thead>
<tr>
<th>Do oral/rectal STI testing</th>
<th>For women, assess pregnancy intent</th>
<th>Access to clean needles/syringes and drug treatment services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pregnancy test every 3 months</td>
<td></td>
</tr>
</tbody>
</table>
Does it work?

90%
Daily PrEP can reduce the risk of sexually acquired HIV by more than 90%.

70%
Daily PrEP can reduce the risk of HIV infection among people who inject drugs by more than 70%.

1 in 3
1 in 3 primary care doctors and nurses haven’t heard about PrEP.

PrEP

• Truvada alone is not sufficient for HIV treatment so check HIV test before and every 3 months while on PrEP
• Check renal function at baseline and at least every 6 months
• For PrEP to work, patients need to take it all the time.
New antimicrobials

• Cefiderocol:
  • Shionogi; FDA advisory committee recommended approval (2019) for complicated UTI

• Imipenem/cilastatin/relebactam (recarbio)
  • Merck; FDA approved (2019) for complicated intra-abdominal and UTI

• Lefamulin (xenleta)
  • Nabriva Therapeutics; FDA approved (2019) for CAP

• Omadacycline
  • Paratek; FDA approved (2018) for CAP and skin infections
Lefamulin (xenleta)

• Approved for community acquired pneumonia
• Spectrum of coverage
  • Gram positives, respiratory Gram negatives (e.g., *Haemophilus influenzae*, *Neisseria gonorrhoeae*, *Moraxella catarrhalis*)
  • Atypical (e.g., *Mycoplasma pneumoniae*, *Legionella pneumophila*, and *Chlamydophila pneumoniae*, *Mycoplasma genitalium*)
Imipenem/cilastatin/relebactam (recarbio)

- Carbapenem-resistant Gram-negative bacilli
- ESBL Gram negative bacilli
- Similar to ceftazidime/avibactam, meropenem/vaborbactam
- There are nuances of activity so not exactly a me too
Cefidericol: “Trojan Horse” mechanism

## Cefidericol

<table>
<thead>
<tr>
<th>Drug</th>
<th>Pseudomonas phenotype</th>
<th>MIC\textsubscript{90} (mg/L)</th>
<th>Percent susceptible (breakpoint used in mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceftazidime-avibactam</td>
<td>Any</td>
<td>4\textsuperscript{a}</td>
<td>97 (8)</td>
</tr>
<tr>
<td></td>
<td>Ceftaz-NS</td>
<td>16\textsuperscript{a}</td>
<td>81 (8)</td>
</tr>
<tr>
<td></td>
<td>Ceftaz/mero/pip-tazo-NS</td>
<td>32\textsuperscript{a}</td>
<td>72 (8)</td>
</tr>
<tr>
<td>Ceftolozane-tazobactam</td>
<td>Any</td>
<td>2\textsuperscript{a}</td>
<td>96 (4)</td>
</tr>
<tr>
<td></td>
<td>Ceftaz-NS</td>
<td>8\textsuperscript{a}</td>
<td>77 (4)</td>
</tr>
<tr>
<td></td>
<td>Ceftaz/mero/pip-tazo-NS</td>
<td>32\textsuperscript{a}</td>
<td>69 (4)</td>
</tr>
<tr>
<td>Cefiderocol</td>
<td>Any</td>
<td>0.5</td>
<td>\textasciitilde 100 (4)\textsuperscript{d}</td>
</tr>
<tr>
<td></td>
<td>Mero-NS</td>
<td>0.5\textsuperscript{a}</td>
<td>\textasciitilde 100 (4)\textsuperscript{d}</td>
</tr>
<tr>
<td></td>
<td>Amikacin/cipro/mero/ceftol-tazo-NS</td>
<td>2</td>
<td>\textasciitilde 100 (4)\textsuperscript{d}</td>
</tr>
<tr>
<td></td>
<td>Colistin-NS</td>
<td>2\textsuperscript{c}</td>
<td>\textasciitilde 100 (4)\textsuperscript{d}</td>
</tr>
<tr>
<td>Imipenem-relebactam</td>
<td>Any</td>
<td>2</td>
<td>94 (2)\textsuperscript{e}</td>
</tr>
<tr>
<td></td>
<td>Imipenem-NS</td>
<td>4</td>
<td>81 (2)\textsuperscript{e}</td>
</tr>
</tbody>
</table>
## Omadacycline

<table>
<thead>
<tr>
<th>Indication</th>
<th>Comparator</th>
<th>Omadacycline</th>
<th>Comment</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>skin and soft tissue infection</td>
<td>~94% (linezolid)</td>
<td>~96%</td>
<td>2 phase III trials</td>
<td>NS</td>
</tr>
<tr>
<td>Community acquired pneumonia</td>
<td>~90% (moxifloxacin)</td>
<td>~93%</td>
<td>Phase III trial</td>
<td>NS</td>
</tr>
</tbody>
</table>

Barber K et al. Pharmacotherapy 2018;38(12):1194–1204
EIGHT DAYS A WEEK

Recorded by THE BEATLES on Capitol Records.

by JOHN LENNON and PAUL MCCARTNEY
• An 82 year old frail woman had a fall at home. She does not have fevers or chills. Her heart rate is 76/m, BP 144/85, RR 16/m and temperature is 97.6F. WBC is 5.6. A UA shows + leukocyte esterase. The urine culture is showing 100K CFU of E coli sensitive to amoxicillin and cipro.

• Hold off on antibiotics, assess for other causes and carefully observe

• Treat for UTI with amoxicillin

• Treat for UTI with cipro
An 82 year old frail woman had a fall at home. She does not have fevers or chills. Her heart rate is 76/m, BP 144/85, RR 16/m and temperature is 97.6°F. WBC is 5.6. A UA shows + leukocyte esterase. The urine culture is showing 100K CFU of E coli sensitive to amoxicillin and cipro.

- Hold off on antibiotics, assess for other causes and carefully observe
- Treat for UTI with amoxicillin
- Treat for UTI with cipro
Asymptomatic bacteriuria (ASB) is the presence of 1 or more species of bacteria growing in the urine at specified quantitative counts (≥10,000 colony-forming units [CFU]/mL irrespective of the presence of pyuria, in the absence of signs or symptoms attributable to urinary tract infection (UTI).
What to do when there are no GU symptoms or systemic signs of infection?

• In older patients with functional and/or cognitive impairment with bacteriuria and delirium (acute mental status change, confusion)
  • Assessment for other causes and careful observation rather than antimicrobial treatment (strong recommendation, low-quality evidence).

• In older patients with functional and/or cognitive impairment with bacteriuria who experience a fall
  • Assessment for other causes and careful observation rather than antimicrobial treatment of bacteriuria (strong recommendation, very low-quality evidence).

Question

Regarding the high dose flu shot. Which of the following is accurate?

A. Unless contraindicated, all adults should get it
B. Associated with reduced risk of acquiring influenza and hospitalization
C. Not safe for those with immunocompromising conditions
D. Provides protection for 3-5 years
Question

Regarding the high dose flu shot. Which of the following is accurate?

A. Unless contraindicated, all adults should get it
B. Associated with reduced risk of acquiring influenza and hospitalization
C. Not safe for those with immunocompromising conditions
D. Provides protection for 3-5 years
Basics of influenza immunization

Vaccination leads to protective antibodies which bind to the HA “head” and neutralize it so it cannot attach to the human cells.

Random mutations in HA (antigenic drift) make it so that each year’s strains are a bit different. Hence a new vaccine needs to be constructed (and given) every year.

When two different viral strains combine a completely new HA that has never been seen by our immune system can be produced (antigenic shift). This last happened in 2009 pandemic H1N1 outbreak.

CDC and ASM
Who should get vaccinated when there is a shortage of vaccines

• 50 years and older
• End organ disease
• Immunosuppression
• Pregnant women
• Nursing home/long term care facility
• American Indians/Alaska Natives;
• BMI of 40 or greater
• Health care personnel;
• Household contacts/caregivers of children under 5 years, adults over 50 years, people with medical conditions that put them at increased risk for severe illness and complications from influenza.
High dose flu vaccine or the regular one?

• Fluzone High-Dose contains four times the amount of antigen contained in standard-dose inactivated influenza vaccines.

• Indicated for people 65 or older
  • Stronger immune response
  • More effective in preventing infection
  • More effective in preventing hospitalization

• CDC/Advisory Committee on Immunization Practices have not expressed a preference for any flu vaccine indicated for people 65 and older.
Universal vaccine strategies

• stalk-specific HA: In clinical trial at NIH
  • Generates antibodies toward a conserved region in influenza
  • Will the antibodies find the stalk during actual infection?
  • HIssF_392: HA stem from Influenza A/New Caledonia/20/1999 (H1N1) genetically fused to the ferritin protein from H. pylori.

• Chimeric stalk: Phase I study completed
  • Has features of stalk and head

• M2: in clinical trials
  • Conserved region
  • Will the antibodies find M2
Question

Which of the following is NOT true about ciprofloxacin?
1. Can cause tendinitis and tendon rupture
2. Can cause Mental health side effects
3. Can cause hypoglycemia with coma
4. Drug of choice for adults with UTI
Question

Which of the following is NOT true about ciprofloxacin?

1. Can cause tendinitis and tendon rupture
2. Can cause Mental health side effects
3. Can cause hypoglycemia with coma
4. **Drug of choice for adults with UTI**
WARNING: SERIOUS ADVERSE REACTIONS INCLUDING TENDINITIS, TENDON RUPTURE, PERIPHERAL NEUROPATHY, CENTRAL NERVOUS SYSTEM EFFECTS AND EXACERBATION OF MYASTHENIA GRAVIS

See full prescribing information for complete boxed warning.

- Fluoroquinolones, including CIPRO®, have been associated with disabling and potentially irreversible serious adverse reactions that have occurred together (5.1), including:
  - Tendinitis and tendon rupture (5.2)
  - Peripheral neuropathy (5.3)
  - Central nervous system effects (5.4)

Discontinue CIPRO immediately and avoid the use of fluoroquinolones, including CIPRO, in patients who experience any of these serious adverse reactions (5.1)

- Fluoroquinolones, including CIPRO, may exacerbate muscle weakness in patients with myasthenia gravis. Avoid CIPRO in patients with known history of myasthenia gravis. (5.5)

- Because fluoroquinolones, including CIPRO, have been associated with serious adverse reactions (5.1-5.15), reserve CIPRO for use in patients who have no alternative treatment options for the following indications:
  - Acute exacerbation of chronic bronchitis (1.10)
  - Acute uncomplicated cystitis (1.11)
  - Acute sinusitis (1.12)
sshoham1@jhmi.edu

Twitter: @ShohamTxID