

HIV 2024 Update

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Disclosures

Dr. Spach has no financial disclosures.

NOTE: vaccines do NOT have generic names so trade names are used in the vaccine section to effectively communicate about different vaccines.

Outline

- Antiretroviral Therapy Recommendations
- 2-Drug Antiretroviral Medications
- Immunization Update
- Treatment of HCV in People with HIV
- Recognition of Skin and Oral Lesions

Antiretroviral Therapy Recommendations

Starting Antiretroviral Therapy

- A 31-year-old woman is newly diagnosed with HIV 2 days ago. She was taking TDF-FTC for HIV PrEP (off and on) for the past 18 months. The plan is to start antiretroviral therapy now.
- **What antiretroviral regimens would be recommended in this situation?**

Initial Antiretroviral Therapy

No Prior Cabotegravir



Order Standard Genotype



Start INSTI-Based Regimen

Prior Cabotegravir



Order Standard and Integrase Genotype



Start PI-Boosted Regimen (pending genotype)
Start INSTI-Based Regimen (after genotype)

What to Start: Recommended Initial Regimens for Most People with HIV

No Prior Injectable Cabotegravir for HIV PrEP

Anchor Drug

INSTI

+

Backbone

2 NRTIs

OR

1 NRTI

What to Start: Recommended Initial Regimens for Most People with HIV

No History of Taking Injectable Cabotegravir for HIV PrEP

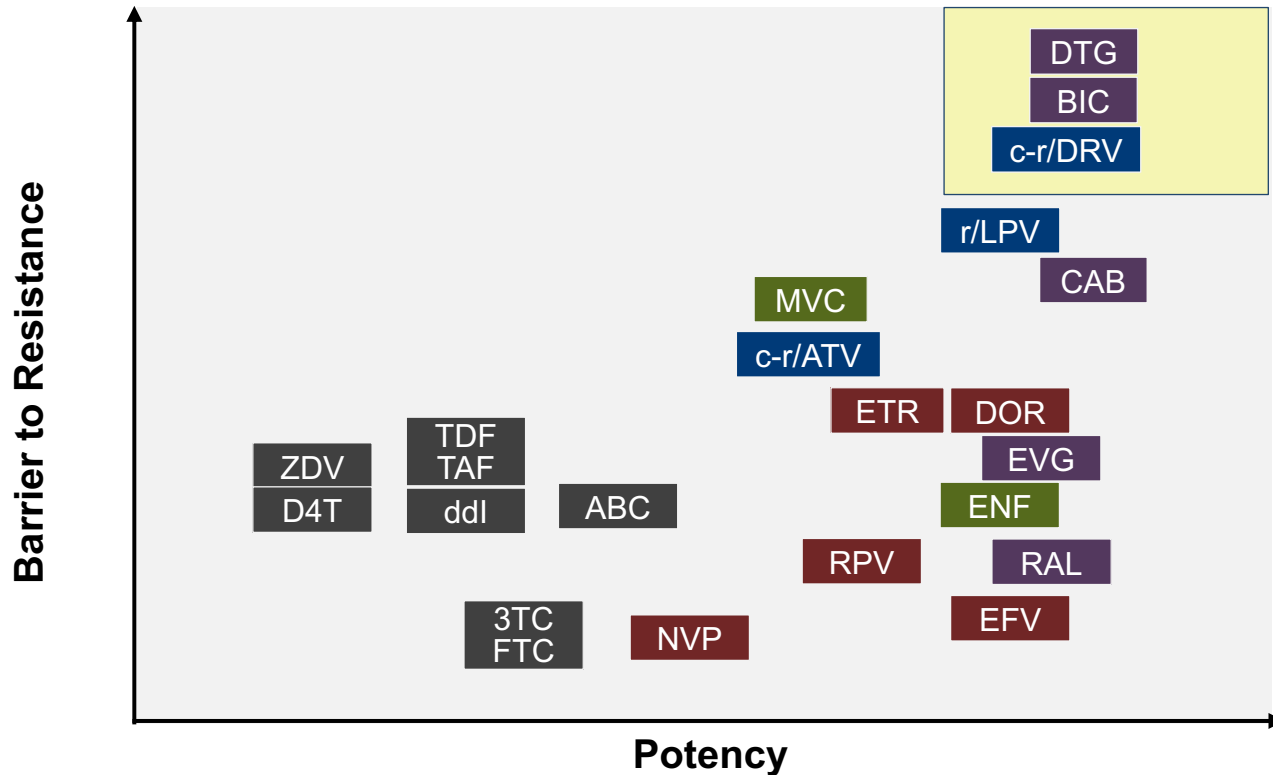
INSTI + 2NRTIs	Abbreviation
Bictegravir-tenofovir alafenamide-emtricitabine	BIC-TAF-FTC
Dolutegravir-abacavir-lamivudine (if HLA-B*5701 negative and no HBV)	DTG-ABC-3TC
Dolutegravir + Tenofovir alafenamide-emtricitabine	DTG + TAF-FTC
Dolutegravir + [Tenofovir DF-emtricitabine <i>or</i> Tenofovir DF-lamivudine]	DTG + [TDF-FTC <i>or</i> TDF-3TC]
INSTI + 1NRTI	Abbreviation
Dolutegravir-lamivudine (except: HIV >500,000 copies/mL, HBV, no genotype)	DTG-3TC

What to Start: Recommended Initial Regimens for Most People with HIV

No History of Taking Injectable Cabotegravir for HIV PrEP

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Dolutegravir + Tenofovir alafenamide-emtricitabine	DTG + TAF-FTC
Dolutegravir + [Tenofovir DF-emtricitabine <i>or</i> Tenofovir DF-lamivudine]	DTG + [TDF-FTC <i>or</i> TDF-3TC]
INSTI + 1NRTI	Abbreviation
Dolutegravir-lamivudine (except: HIV >500,000 copies/mL, HBV, no genotype)	DTG-3TC

Potency and Genetic Barrier to Resistance



Two-Drug Regimens

FDA-Approved Antiretroviral 2-Drug Regimens

- **Initial Therapy**

- Dolutegravir-lamivudine

- **Maintenance Therapy**

- Dolutegravir-lamivudine
- Dolutegravir-rilpivirine
- Cabotegravir-rilpivirine (long-acting injectable)

Dolutegravir-Lamivudine

2-Drug **Initial** Antiretroviral Therapy

Initial 2-Drug Therapy Dolutegravir-Lamivudine



Time

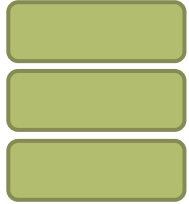


- HIV RNA <500,00 copies/mL
- HBsAg negative
- Results from genotype known

Dolutegravir-Lamivudine

2-Drug **Maintenance** Antiretroviral Therapy

Antiretroviral Therapy
(3-Drug Therapy)



Dolutegravir-Lamivudine Maintenance
(2-Drug Therapy)



Time

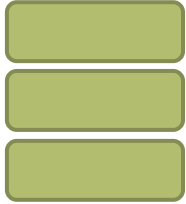


- HIV RNA <50 copies/mL on stable regimen
- No prior virologic failure
- No resistance to either maintenance drug
- HBsAg negative

Dolutegravir-Rilpivirine

2-Drug **Maintenance** Antiretroviral Therapy

Antiretroviral Therapy
(3-Drug Therapy)



Dolutegravir-Rilpivirine Maintenance
(2-Drug Therapy)



Time

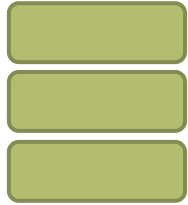


- HIV RNA <50 copies/mL for ≥ 6 months
- No prior virologic failure
- No resistance to either maintenance drug
- HBsAg negative

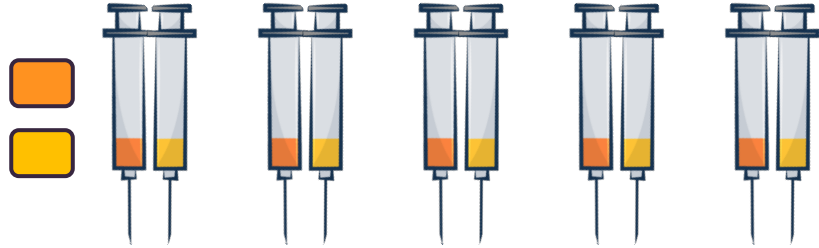
Cabotegravir plus Rilpivirine

2-Drug **Maintenance** Antiretroviral Therapy

Antiretroviral Therapy
(3-Drug Therapy)



Cabotegravir plus Rilpivirine Maintenance
(2-Drug Therapy given every 1-2 months)



Time

- HIV RNA <50 copies/mL on stable regimen
- No prior virologic failure
- No resistance to either drug
- HBsAg negative

Cabotegravir and Rilpivirine

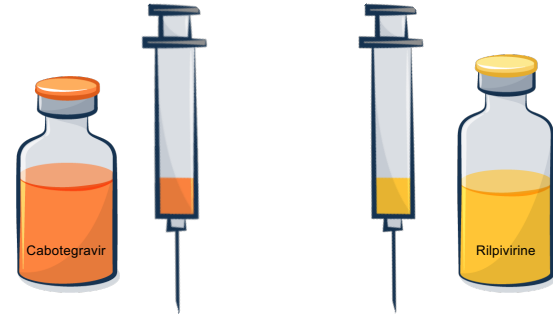
Oral and Injectable Preparations

Optional Lead-In Oral Components



Cabotegravir + Rilpivirine
30 mg 25 mg
└─┬─ INSTI └─┬─ NNRTI

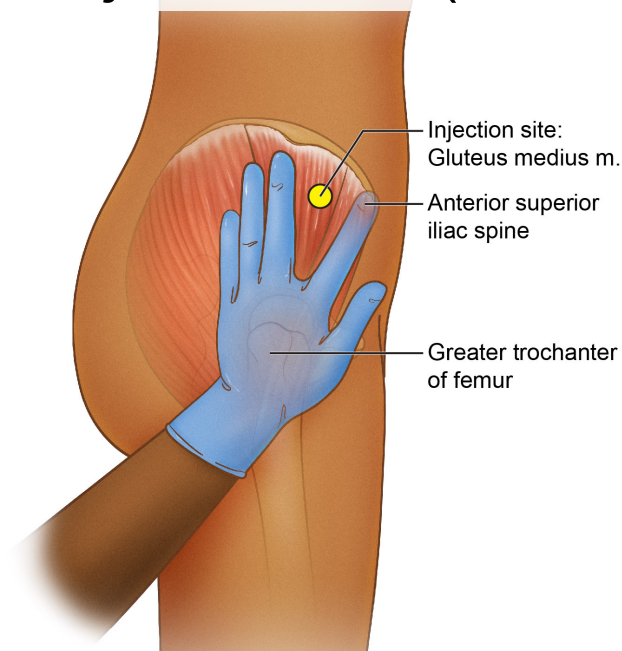
Intramuscular Injection Components



Cabotegravir + Rilpivirine
200 mg/mL 300 mg/mL
└─┬─ INSTI └─┬─ NNRTI

Cabotegravir plus Rilpivirine Long-Acting Injections

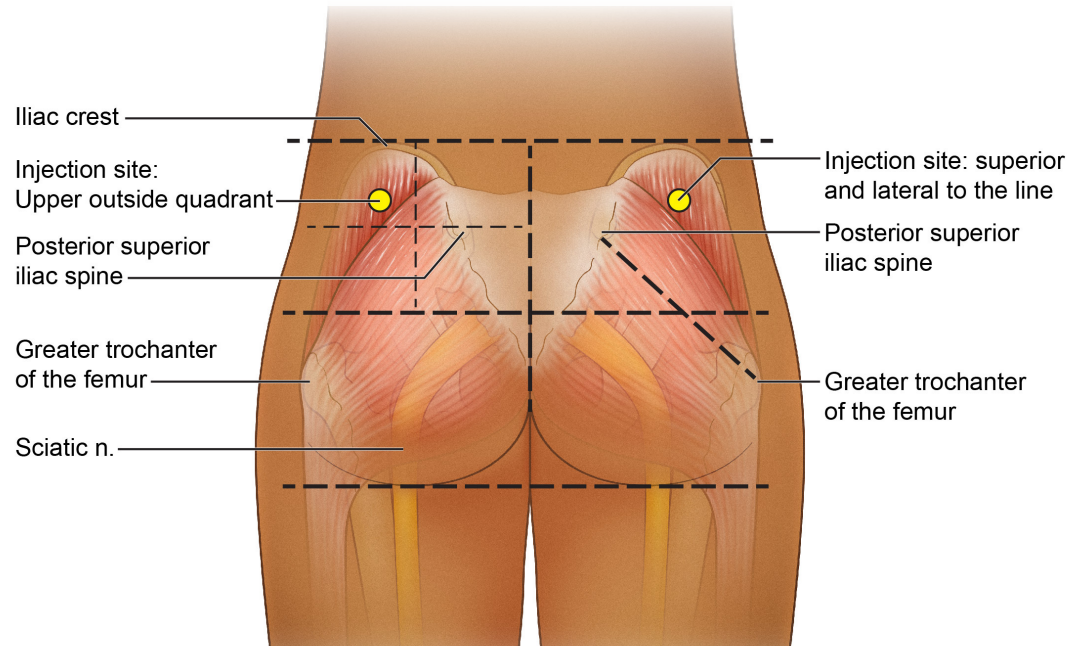
Preferred Injection Site (Ventrogluteal)



Longer needle (not included in the dosing kit) may be required for people with higher BMI (example: $>30 \text{ kg/m}^2$)

Cabotegravir plus Rilpivirine Long-Acting Injections

Alternative Injection Site (Dorsogluteal)



Longer needle (not included in the dosing kit) may be required for people with higher BMI (example: $>30 \text{ kg/m}^2$)

Vaccine Updates

CDC advisers vote to recommend routine use of the mpox vaccine to protect people at high risk of infection

By Brenda Goodman, CNN

🕒 2 minute read · Updated 4:10 PM EDT, Thu October 26, 2023



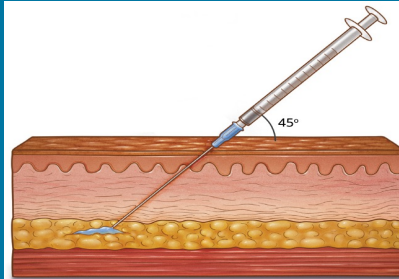
October 26, 2023



Monkeypox / Smallpox Vaccines in United States

JYNNEOS

Live, Attenuated,
Nonreplicating Vaccine



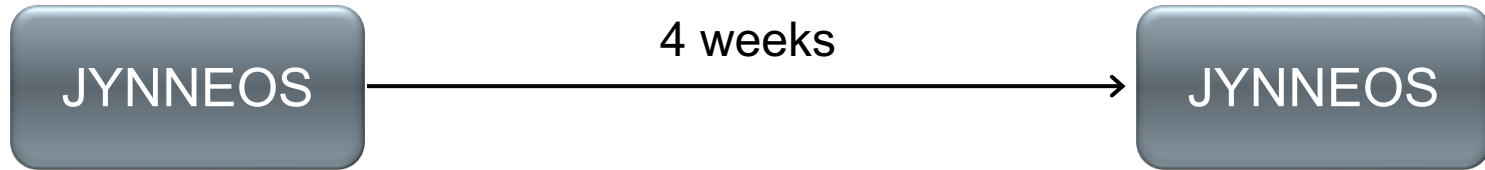
ACAM2000

Live, Attenuated,
Replicating Vaccine



Mpox Vaccine (*JYNNEOS*)

Mpox Vaccine (*JYNNEOS*)

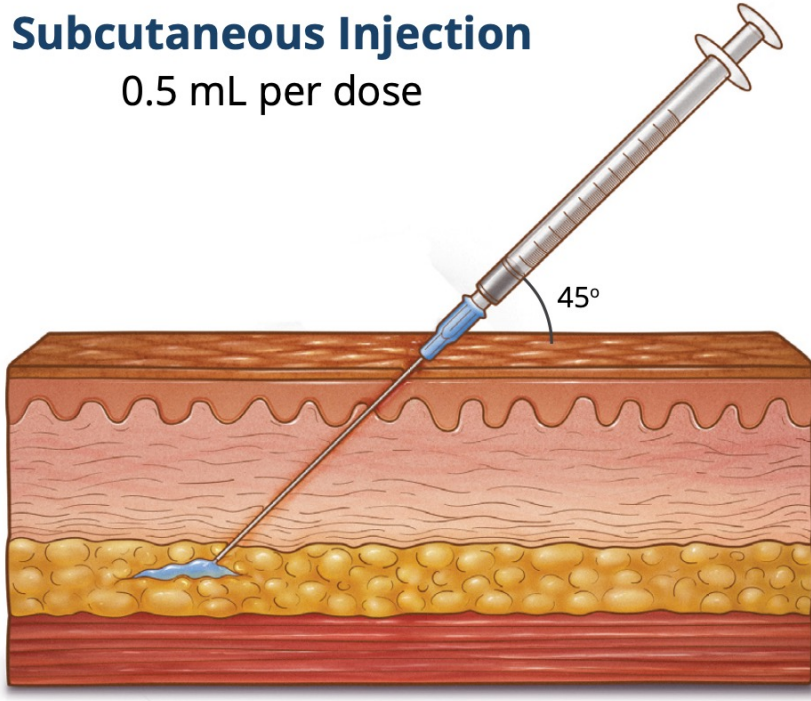


Vaccination with JYNNEOS is considered safe for people with HIV

Mpox Vaccine (JYNNEOS) Delivery

Subcutaneous Injection

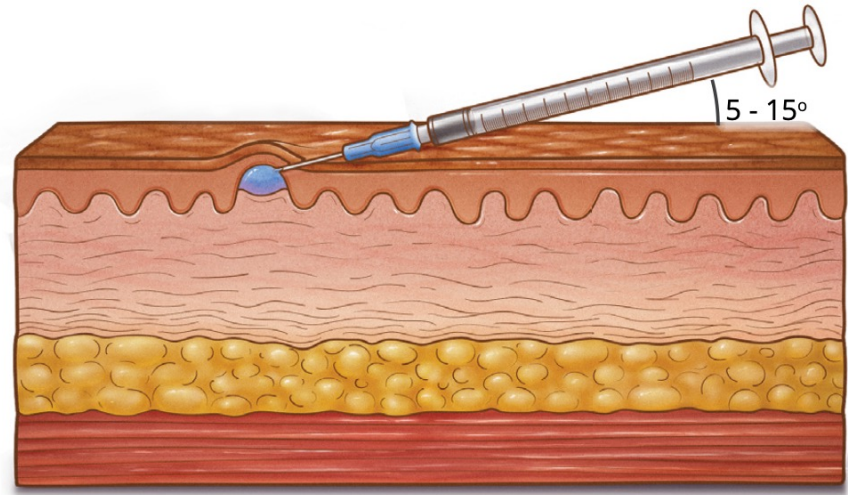
0.5 mL per dose



Standard regimen

Intradermal Injection

0.1 mL per dose



Alternative regimen for persons Age ≥ 18 Years

Pneumococcal Immunization



Pneumococcal Vaccines

Polysaccharide Vaccine



PPSV23 (*Pneumovax 23*)

Conjugate Vaccines



PCV13 (*Prevnar-13*)
PCV15 (*Vaxneuvance*)
PCV20 (*Prevnar-20*)

Adult Opportunistic Infections Guidelines

Pneumococcal Immunization in Adults with HIV

Pneumococcal Vaccine-Naïve Adults

All

PCV20
(Pevnar 20)

1 & Done

or

All

PCV15
(Vaxneuvance)

≥ 8 weeks

PPSV23*
(Pneumovax)

1 + 1

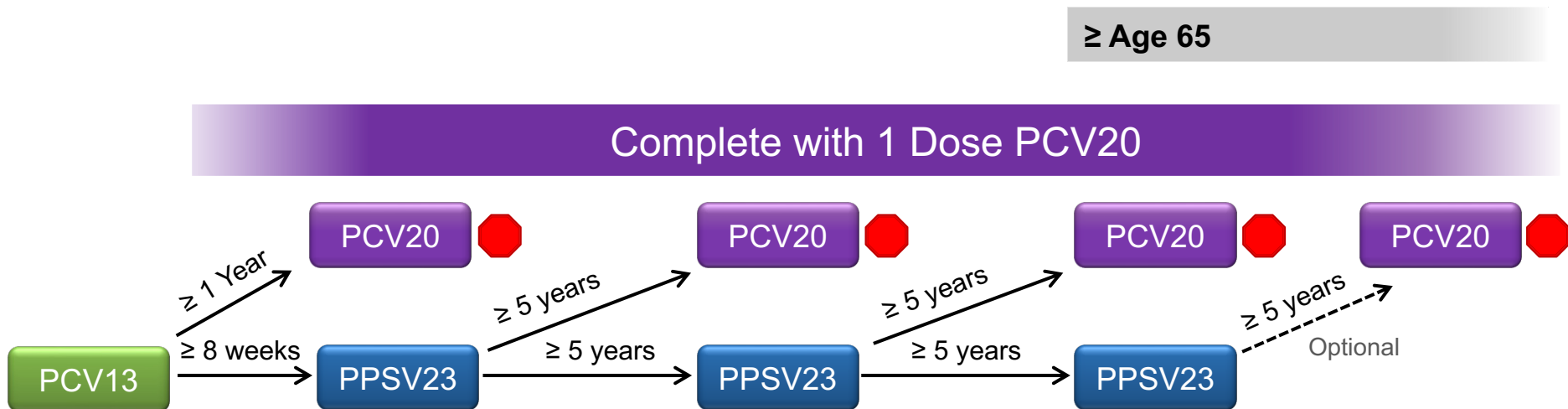
*PPSV23 can be given if CD4 count <200 cells/mm³ (**CIII**), but preferably defer until CD4 count >200 cells/mm³ while on ART (**BIII**)

What do you do if a person with HIV has already started the Pneumococcal Series?

Adult Opportunistic Infections Guidelines

Pneumococcal Immunization in Adults with HIV

Prior Receipt of PCV13 without Completing Vaccine Schedule

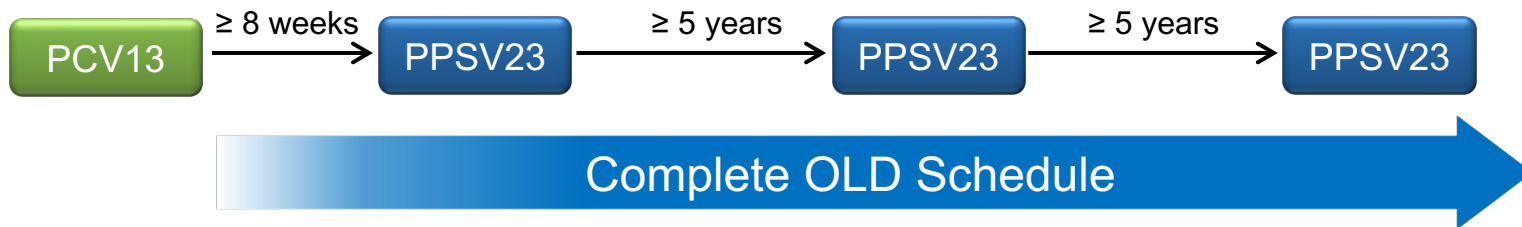


Adult Opportunistic Infections Guidelines

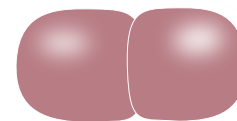
Pneumococcal Immunization in Adults with HIV

Prior Receipt of PCV13 without Completing Vaccine Schedule

≥ Age 65



Meningococcal Vaccines



Quadrivalent Meningococcal Vaccine Dosing Schedule

- **Which one of the following is the recommended dosing schedule for the quadrivalent conjugate meningococcal vaccine in people with HIV?**
1. Give 1 dose now and give one booster dose in 5 years
 2. Give 1 dose now and give booster doses every 5 years
 3. Given 2 doses now ≥ 8 weeks apart and give booster doses every 5 years

Quadrivalent Meningococcal Vaccine Dosing Schedule

Join at menti.com | use code 3481 4611



Which one of the following is the recommended dosing schedule for the quadrivalent conjugate meningococcal vaccine in people with HIV?



	50%	50%
Give 1 dose now and give one booster dose in 5 years	Give 1 dose now and give booster doses every 5 years	Given 2 doses now ≥8 weeks apart and give booster doses every 5 years



Account



Content



Design



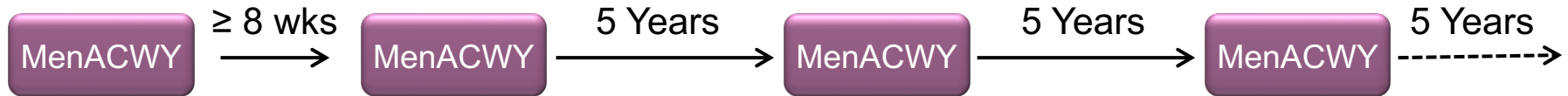
Settings

Res

Quadrivalent Meningococcal Conjugate (MenACWY) Vaccine in Adults

Primary Vaccination (2 Doses)

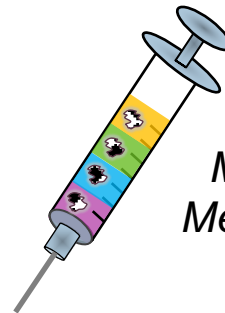
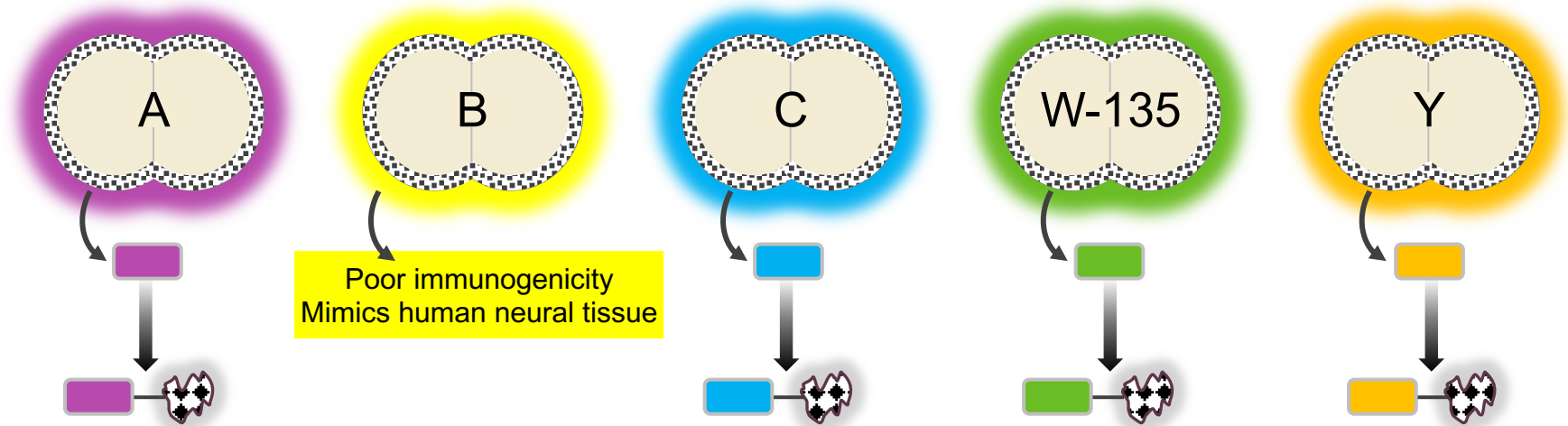
Boosters (repeat every 5 years)



Meningococcal Vaccines

- **Meningococcal Conjugate Quadrivalent Vaccines**
 - MenACWY-CRM (*Menveo*)
 - MenACWY-TT (*MenQuadfi*)
 - MenACWY-D (*Menattra*) [Discontinued]
- **Meningococcal B Vaccines**
 - MenB-4C (*Bexero*)
 - MenB-FHbp (*Trumemba*)
- **Meningococcal Pentavalent Vaccine**
 - MenABCWY (*Penbraya*)

Conjugate Quadrivalent Meningococcal Vaccines



Menveo
MenQuadfi

Pentavalent Meningococcal Vaccine (*Penbraya*)

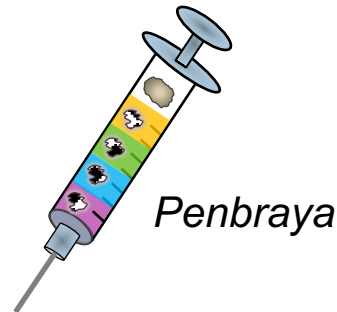
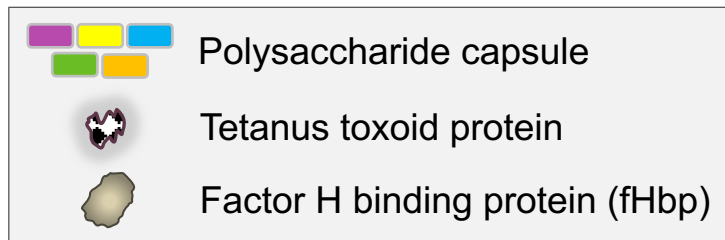
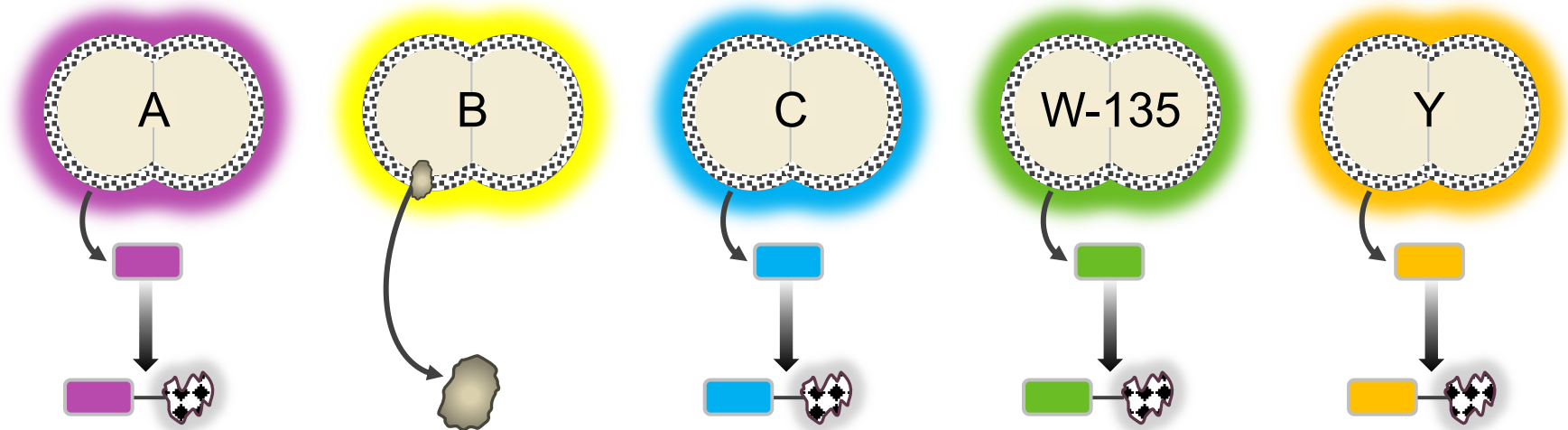
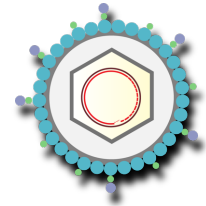
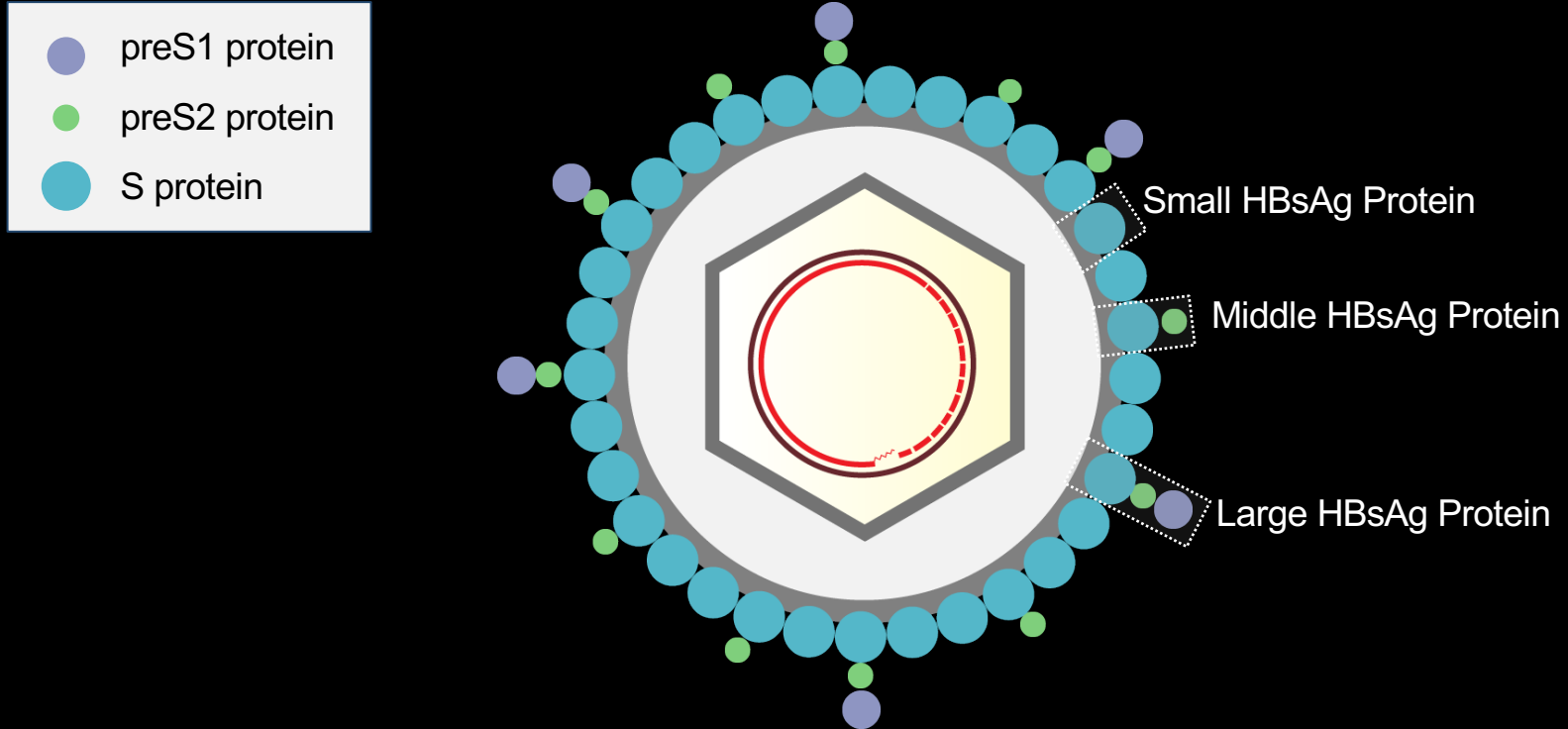


Illustration: David H. Spach, MD

Hepatitis B Vaccines



Hepatitis B Virus Surface Antigen Proteins



Recombinant Hepatitis B Vaccine

Old (Single Antigen)

Aluminum Adjuvant



Aluminum
Adjuvant

rHBsAg (*Recombivax*)
rHBsAg (*Engerix-B*)

Newer (Single Antigen)

CpG1018 Adjuvant



CpG1018
Adjuvant

HBsAg-CpG1018 (*Heplisav-B*)

New (Triple Antigen)

Aluminum Adjuvant



Aluminum
Adjuvant

3-AgHB (*PreHevbrio*)

Hepatitis B Vaccine: Question

- **For initial hepatitis B immunization in persons with HIV, which one of the following hepatitis B vaccines has the highest (most preferred) rating in the 2023 Opportunistic Infections Guidelines?**
1. Three doses of “standard-dose” *Engerix-B* vaccine
 2. Two doses of “standard-dose” *Heplisav B* vaccine
 3. Four doses of “double-dose” *Recombivax-B* vaccine

Hepatitis B Vaccine Question

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 Mentimeter

For initial hep B immunization in PWH which one of the following hep B vaccines has the highest rating in the 2023 Opp Infections Guidelines?



Three doses of "standard-dose" Engerix-B vaccine

Two doses of "standard-dose" Heplisav B vaccine

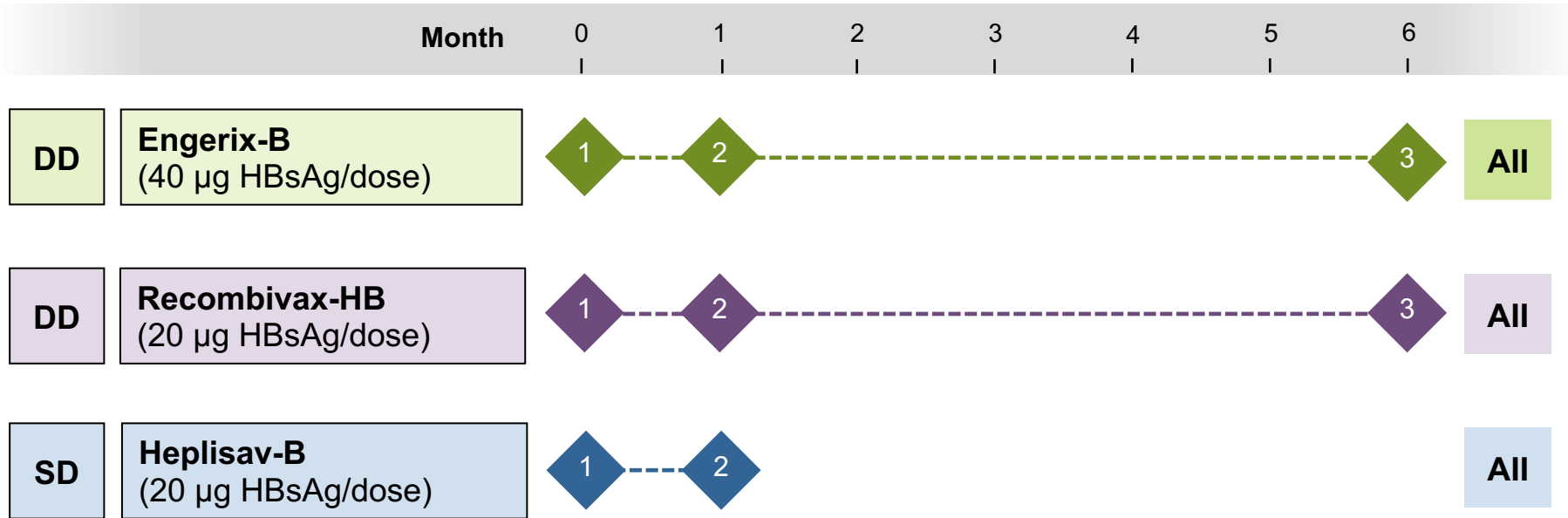
Four doses of "double-dose" Recombivax-B vaccine

Responding is off



Adult Opportunistic Infections Guidelines

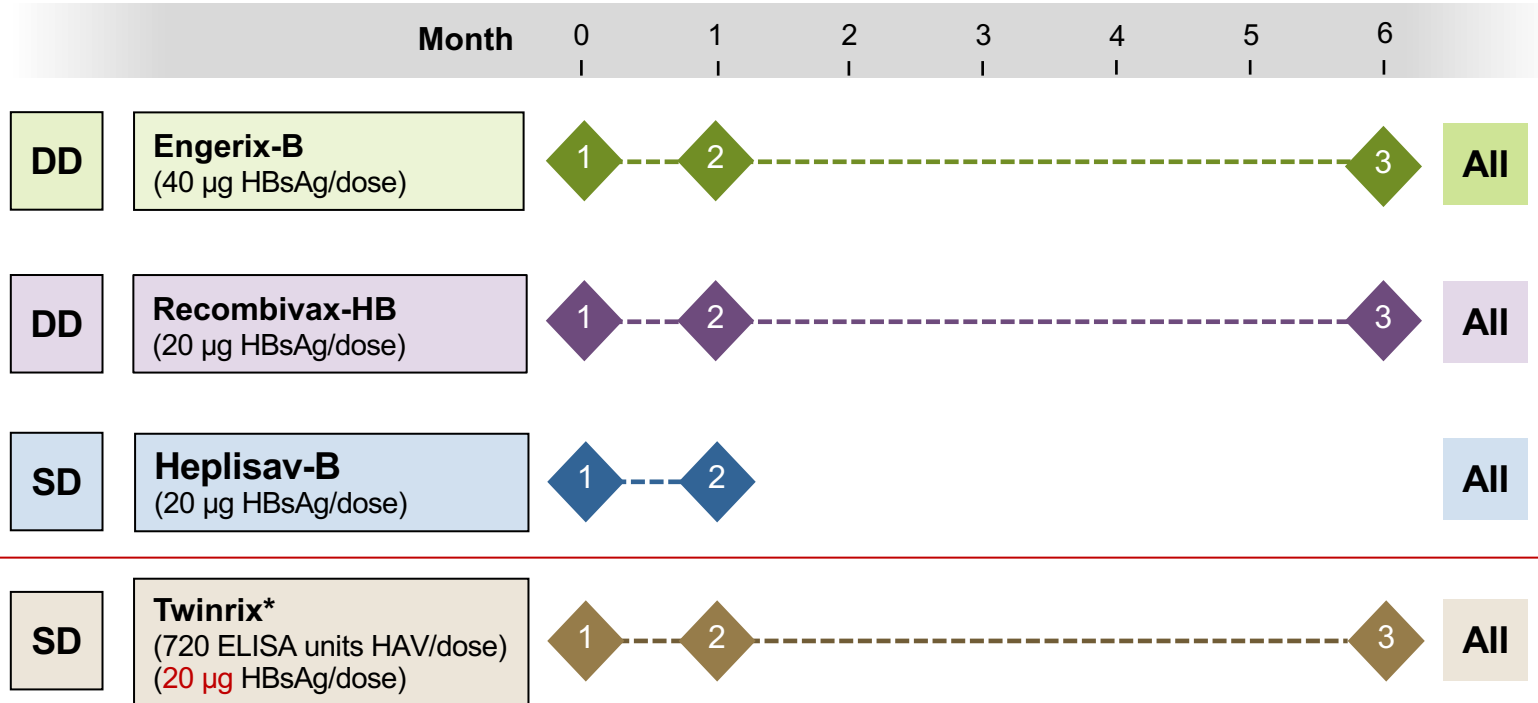
Hepatitis B Immunization In Persons with HIV



SD = standard dose; **DD** = double dose

Adult Opportunistic Infections Guidelines

Hepatitis B Immunization In Persons with HIV



*Combined hepatitis A and B vaccine, with same components used in *Havrix* (HAV vaccine) and Engerix-B (Hepatitis B vaccine)

SD = standard dose; **DD** = double dose

Why is HBsAg-CpG1018 (*Heplisav-B*) now a recommended vaccine for people with HIV?

Heplisav-B Vaccine in HBV Vaccine-naïve People With HIV ACTG 5379 (BEe-HIVe): Study Design

- **Entry Criteria Arm A and B**

- Person with HIV age 18-70 years
- On ART & HIV-1 RNA <1,000 copies/mL*
- CD4 >100 cells/mm³ (median 625)
- Negative HBsAg, anti-HBs, and anti-HBc
- Not pregnant

- **Arm A (Vaccine Non-Responders)**

- Serum Hep B sAb <10 mIU/mL
- HBV vaccination (>168 days prior)

- **Arm B (Vaccine Naïve)**

- Hep B sAb negative (<45 days)

*96% with HIV RNA <60 copies/mL

Arm A: HBV Vaccine Non-Responders

HepB (CpG)

2 doses: 0, 4 weeks

HepB (CpG)

3 doses: 0, 4, and 24 weeks

HepB (Eng-B)

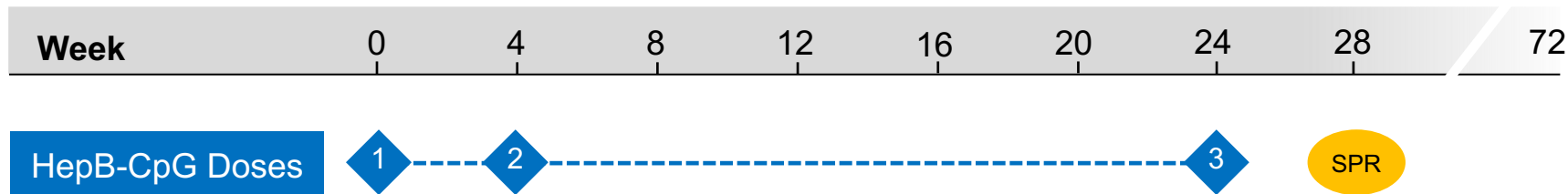
3 doses: 0, 4, and 24 weeks

Arm B: HBV Vaccine Naïve

HepB (CpG)

3 doses: 0, 4, and 24 weeks

Heplisav-B Vaccine in HBV Vaccine-naïve People With HIV ACTG 5379 (BEe-HIVe): Study Design



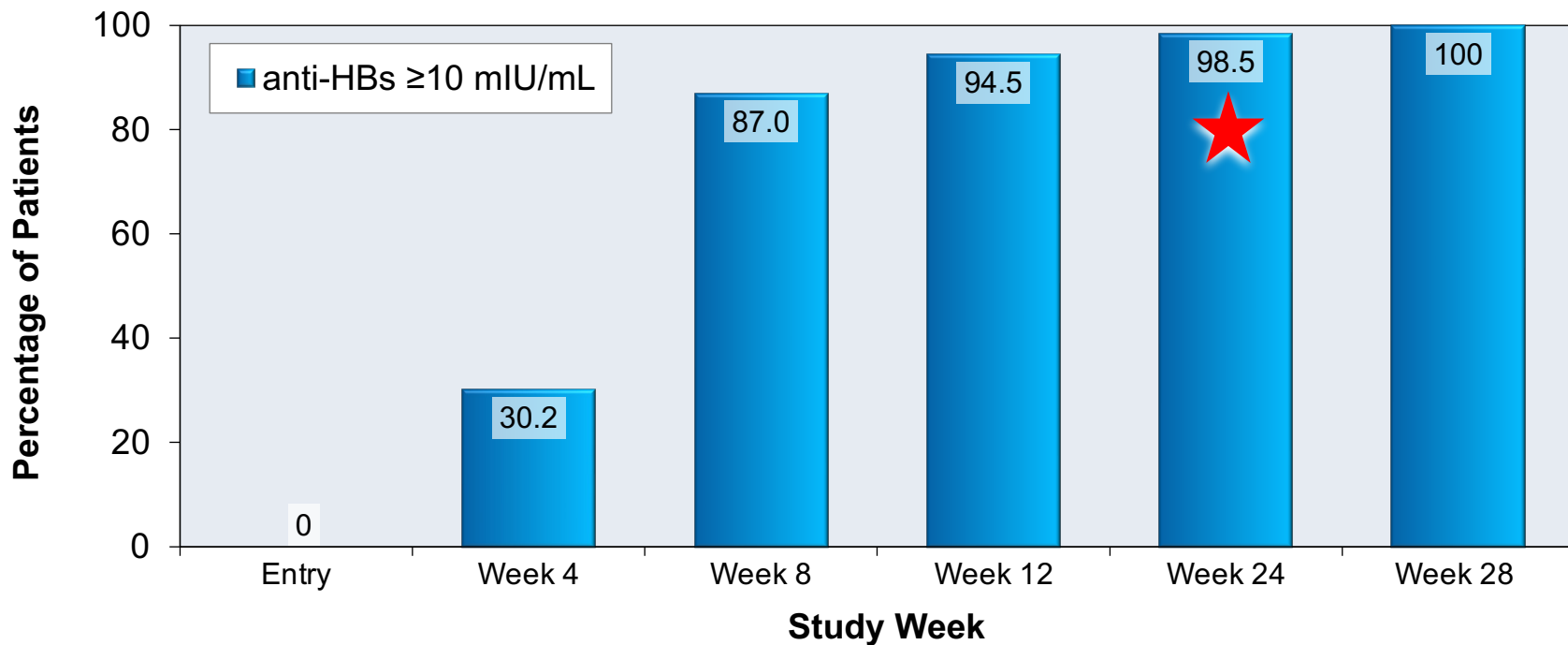
Delay in vaccination administration up to 4 weeks permitted

68 of 74 PWH* in Arm B completed 3 doses of HepB-CpG vaccine and had an HBsAb measurement

SPR = seroprotective response

HepB-CpG Vaccine in HBV Vaccine-naïve People With HIV

ACTG 5379 (BEe-HIVe): Seroprotection Response by Study Week



HepB-CpG Doses

1

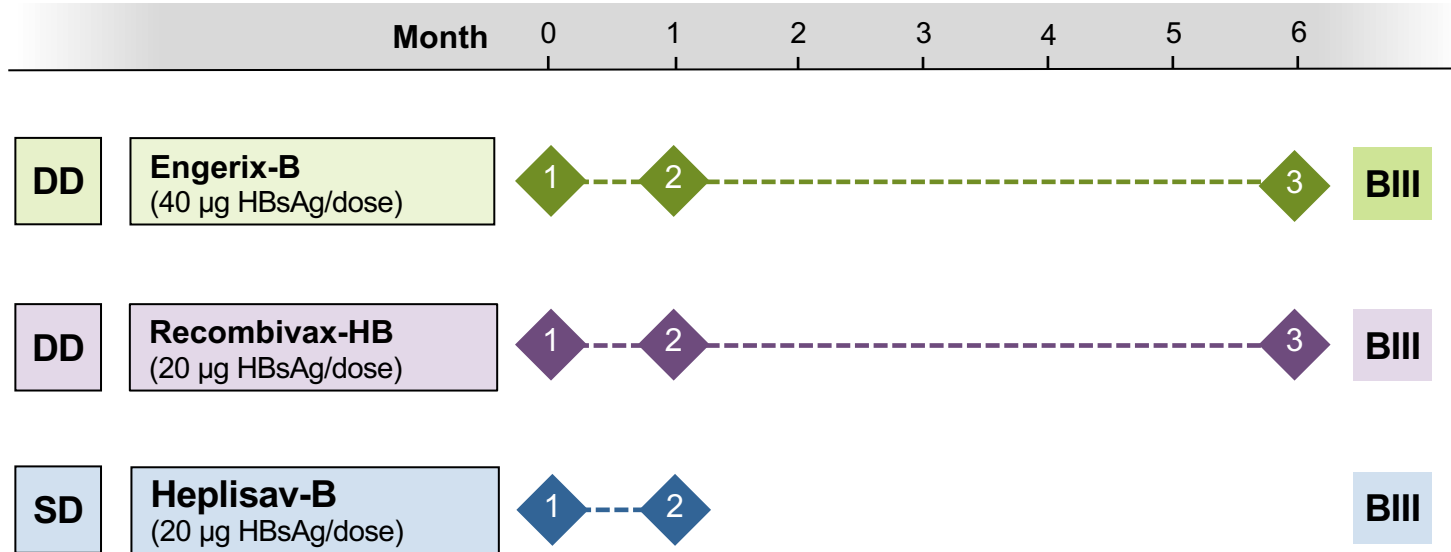
2

3

What do you do if a person with HIV does not respond to a HBV vaccine series with *Recombivax* or *Engerix B*?

Adult Opportunistic Infections Guidelines

Recommendations for Hepatitis B Vaccine Non-Responders In Persons with HIV*



SD = standard dose; **DD** = double dose

*If CD4 count <200 cells/mm³ at first vaccine series, some experts would delay revaccination until CD4 count ≥200 cells/mm³

Heplisav-B Vaccine in HBV Vaccine-naïve People With HIV

ACTG 5379 (BEe-HIVe): Study Design

Data not yet published

- **Entry Criteria Arm A and B**

- Person with HIV age 18-70 years
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- CD4 >100 cells/mm³ (median 625)
- Negative HBsAg, anti-HBs, and anti-HBc
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- **Arm B (Vaccine Naïve)**

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*96% with HIV RNA <60 copies/mL

Arm A: HBV Vaccine Non-Responders

HepB (CpG)

2 doses: 0, 4 weeks

HepB (CpG)

3 doses: 0, 4, and 24 weeks

HepB (Eng-B)

3 doses: 0, 4, and 24 weeks

Arm B: HBV Vaccine Naïve

HepB (CpG)

3 doses: 0, 4, and 24 weeks

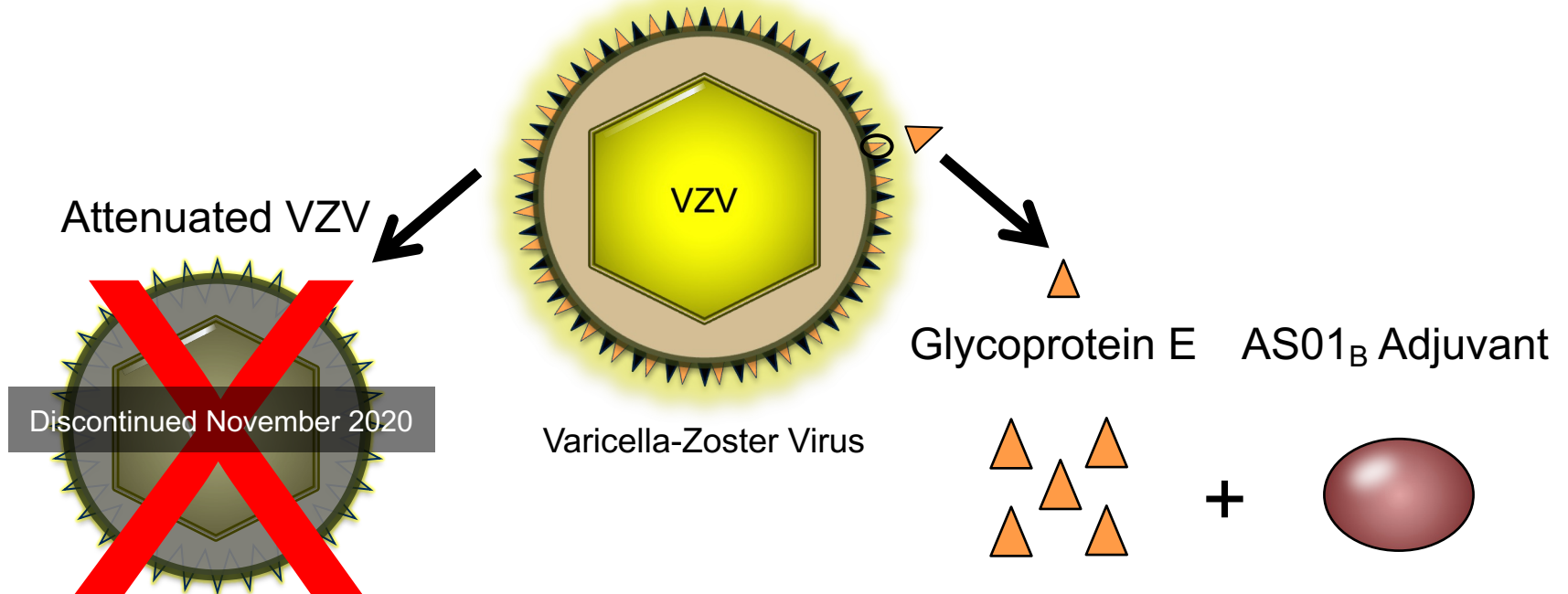
Zoster Vaccine



Zoster Vaccines

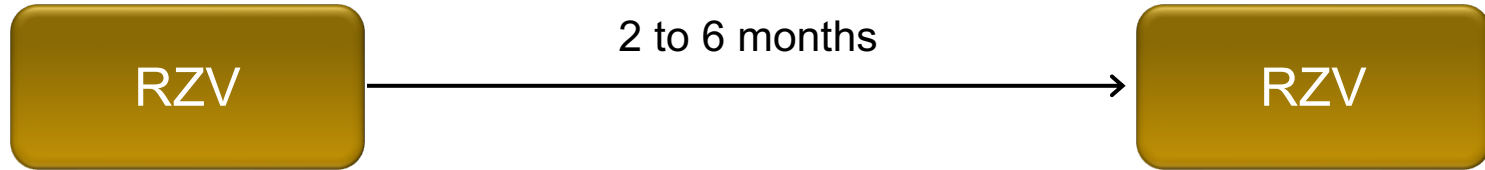
Zoster Vaccine Live (ZVL): *Zostavax*

Recombinant Zoster Vaccine (RZV): *Shingrix*



Recombinant Zoster Vaccine (RZV) in Persons with HIV

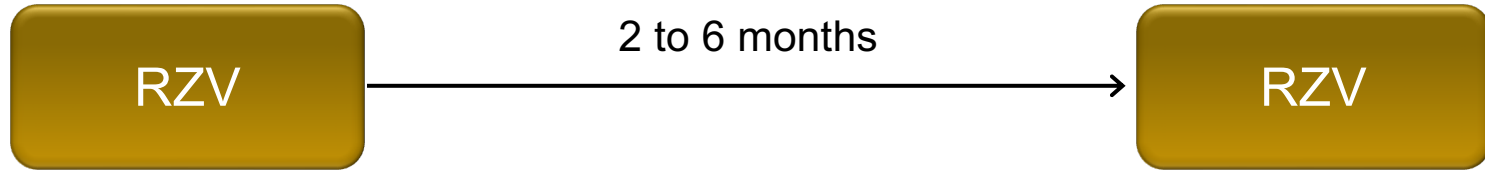
Zoster Vaccine in Persons with HIV



Give 2 Doses to Persons with HIV **Age ≥ 18 Years**

Recombinant Zoster Vaccine (RZV) in Persons with HIV

Zoster Vaccine in Persons with HIV



Give 2 Doses to Persons with HIV **Age ≥18 Years**

Give Regardless of:

- Past episode of zoster
- Prior receipt of ZVL (Zostavax)
- CD4 cell count

Avoid if:

- Acute episode of zoster

Treatment of Hepatitis C with HIV Coinfection

A 41-Year-Old with HIV and HCV Coinfection

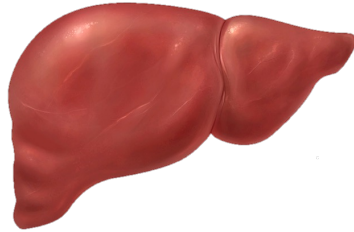
- A 41-year-old cisgender man who has sex with men has HIV and has been taking dolutegravir plus TAF-FTC for 2 years and he consistently has suppressed HIV RNA levels and most recent a CD4 count of 562 cells/mm³.
- Testing for HCV at a regular clinic visit shows a new positive HCV antibody test and a positive quantitative HCV RNA 920,000 IU/mL. He had a negative HCV antibody test 2 years prior.
- Additional Labs
 - HBsAg (negative); HBsAb (positive)
 - CBC normal; INR normal; PLT normal; AST and ALT slightly elevated

A 41-Year-Old with HIV and HCV Coinfection

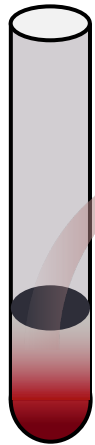
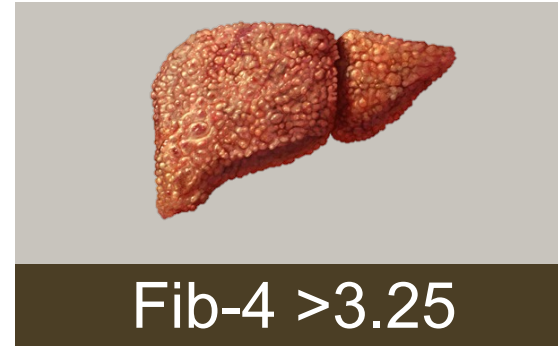
- You are planning to treat the HCV as soon as possible.
- **What should you do next?**

FIB-4: Laboratory Assessment for Cirrhosis

Normal Liver



Cirrhosis



ALT
AST
Platelet

Fibrosis-4 (FIB-4) Calculator

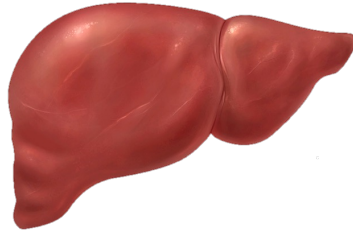
Share

The Fibrosis-4 score helps to estimate the amount of scarring in the liver. Enter the required values to calculate the FIB-4 value. It will appear in the oval on the far right (highlighted in yellow).

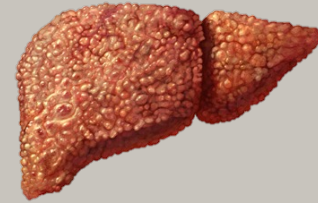
$$\text{FIB-4} = \frac{\text{Age (years)} \times \text{AST Level (U/L)}}{\text{Platelet Count (10}^9\text{/L)} \times \sqrt{\text{ALT (U/L)}}} = \text{Yellow Oval}$$

Fibroscan (Liver Stiffness) Assessment for Cirrhosis

Normal Liver

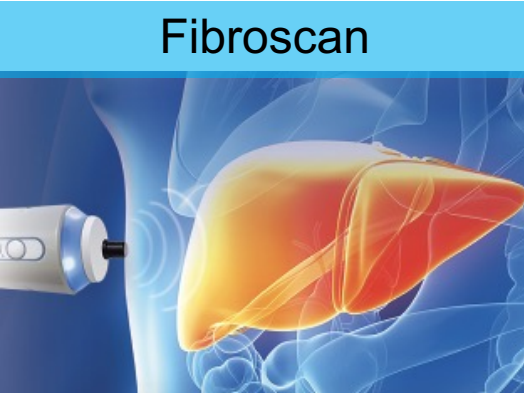


Cirrhosis



Fibroscan >12.5

Fibroscan



7.0

9.5

12.5

75kPa

Liver Stiffness

A 41-Year-Old with HIV and HCV Coinfection

- The Fib-4 and Fibroscan show no evidence of cirrhosis.
Can this man with HIV get the HCV “Simplified Treatment”?

1. Yes

2. No

A 41-Year-Old with HIV and HCV Coinfection

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 Mentimeter

The Fib-4 and Fibroscan show no evidence of cirrhosis. Can this man with HIV get the HCV “Simplified Treatment”?



Yes

No



HCV Simplified Treatment: EXCLUSIONS for People with HIV

- Prior HCV treatment (reinfection after prior cure OK)
- Decompensated cirrhosis
- On Tenofovir DF with eGFR ≤ 60 mL/min
- On an ART that includes efavirenz, etravirine, or boosted PI
- Untreated chronic HBV infection
- Pregnancy

AASLD/IDSA Simplified HCV Treatment (**without Cirrhosis**)

Glecaprevir-Pibrentasvir
(*Mavyret*)



8 weeks

3 pills once daily x 8 weeks (with food)

Sofosbuvir-Velpatasvir
(*Epclusa*)



12 weeks

1 pill once daily x 12 weeks (+/- food)

AASLD/IDSA Simplified HCV Treatment (**with Cirrhosis**)

Glecaprevir-Pibrentasvir
(*Mavyret*)



8 weeks



3 pills once daily x 8 weeks (with food)

Sofosbuvir-Velpatasvir
(*Epclusa*)

ORDER HCV Genotype

AASLD/IDSA Simplified HCV Treatment (**with Cirrhosis**)

Glecaprevir-Pibrentasvir (*Mavyret*)



8 weeks



3 pills once daily x 8 weeks (with food)

Sofosbuvir-Velpatasvir (*Epclusa*)

HCV GT 1, 2, 4, 5, 6



12 weeks



1 pill once daily x 12 weeks (+/- food)

HCV GT3

Guided by resistance testing

Recognition of Clinical Manifestations of HIV

Clinical Manifestations

- CD4 cell count = 36 cells/mm³
- Not on ART
- “Burn on face”

Diagnosis?



Clinical Manifestations

- CD4 cell count = 56
- Lesions present >3 months
- Just newly diagnosed with HIV
- Not on ART yet

Diagnosis?



Clinical Manifestations

- CD4 count <20
- In hospice care
- Lesions developed over 10-14 days
- Would want to place a gown on before examining this man

Diagnosis?
Treatment?



Clinical Manifestations

- CD4 cell count >700
- Suppressed HIV RNA
- Urgent visit for spider bite
- Temp 38.0°, WBC elevated

Diagnosis?



Clinical Manifestations



IS IT A SPIDER BITE?

IF YOU THINK YOU HAVE A
SPIDER BITE, IT MIGHT ACTUALLY
BE AN INFECTION THAT
NEEDS MEDICAL ATTENTION.

WHEN IN DOUBT, CHECK IT OUT.

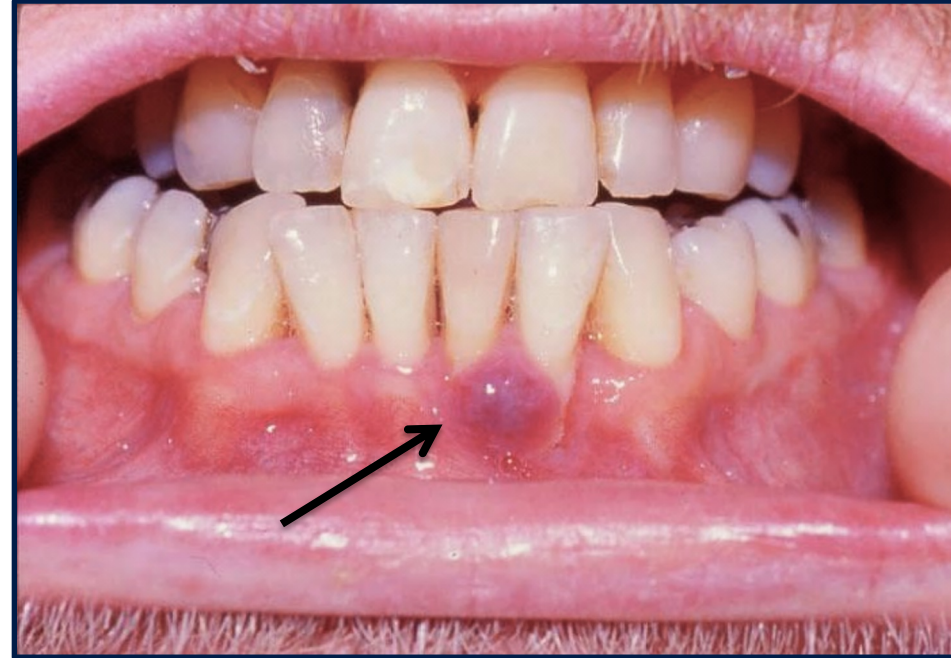
 www.cdc.gov/mrsa 



Clinical Manifestations

- New lesion on gums
- CD4 count 282 cells/mm³
- Pathogen for this disorder also causes multicentric Castleman's Disease

Diagnosis?



Clinical Manifestations

- CD4 cell count = 126 86 cells/mm³
- Mouth burns when eating spicy food or drinking orange juice

Diagnosis?



Clinical Manifestations

- CD4 cell count = 86 cells/mm³
- What is the preferred treatment based on OI guidelines

Preferred Treatment?



Questions

